



a world class African city

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

CONSTRUCTION OF BERTRAMS MULTIPURPOSE CENTRE

CONTRACT No.: 20/21.7.3.B.8077

<p>ISSUED BY:</p> <p>Johannesburg Development Agency</p> <p>The Bus Factory 3 Helen Joseph (formerly President) Street Newtown 2000</p> <p>Contact Name: Akhona Mnukwa Telephone No: 011 688 7868 Email Address: amnukwa@jda.org.za</p> 	<p>PREPARED BY:</p> <p>JVNC Capital (Pty) Ltd</p> <p>46 Baliza, 1 Nature Road Sharonlea Northriding 2194</p> <p>Contact Name: John Chikarakara Telephone: 087 821 6461 Email Address: john@jvnc.co.za</p> 
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NAME OF TENDERER:

CIDB REGISTRATION NUMBER:

CSD SUPPLIER NUMBER:.....

COMPANY REGISTRATION NUMBER

TAX VERIFICATION PIN

This tender closes at 12h00 on 15th of November 2021 at the offices of the Johannesburg Development Agency “The Bus Factory”, 3 Helen Joseph (formerly President) Street, Newtown, Johannesburg.

NO LATE SUBMISSIONS WILL BE CONSIDERED

The Johannesburg Development Agency reserves the right to cancel/ not award this tender.

PROCUREMENT DOCUMENT FOR BUILDING CONSTRUCTION

JBCC Edition 6.2 (MAY 2018)

CONSTRUCTION OF BERTRAMS MULTIPURPOSE CENTREF FARM

CONTRACT No.: JDA/SOCDEV

**PLEASE NOTE: TENDERS MUST BE SUBMITTED ON THE TENDER DOCUMENTATION ISSUED.
TENDER DOCUMENTATION MUST NOT BE REPRODUCED OR REARRANGED. ANY
ADDITIONAL INFORMATION MUST BE SUBMITTED AS A SEPARATE ATTACHMENT TO THE
TENDER DOCUMENT.**

**ALL PAGES OF THE SUBMISSION INCLUDING ATTACHMENTS MUST BE INITIALED AND
NUMBERED.**

RE: The Channels of Reporting Fraudulent and Corrupt Activities

The City of Johannesburg has a **zero-tolerance approach to Fraud, Theft, Corruption, Maladministration, and Collusion** by suppliers with employees. To reinforce this commitment, more channels have been added to report any Fraudulent and Corrupt activities.

Instances of corporate fraud and misconduct remain a constant threat to service delivery. The City of Johannesburg tool a resolution to adopt strategic interventions aimed at combatting fraud and corruption. The City took a decision to centralized the reporting of fraudulent and corrupt activities through the establishment of an independent fraud hotline which is managed by independent service providers

All people doing business with the Johannesburg Development Agency are encouraged to report any corrupt or illegal practice.

Employees are encouraged to report fraud, waste or other concerns suggestive of dishonest or illegal activities.

Anyone can report fraudulent and corrupt activities through one of the following channels.

- Toll free number.....0800 002 587
- Toll free Fax.....0800 007 788
- SMS (charged @ R1.50).....32840
- E-Mail address:.....anticorruption@tip-offs.com
- Website:.....www.tip-off.com
- Free post:.....Free Post, KNZ 138, Umhlanga, 4320



LET'S JOIN HANDS TO TAKE UP THE FIGHT AGAINST FRAUD AND CORRUPTION IN OUR SOCIETY.

JOHANNESBURG DEVELOPMENT AGENCY

CONTRACT NO. :
20/21.7.3.B.8077

BERTRAMS MULTIPURPOSE CENTRE BERTRAMS MULTIPURPOSE CENTRE

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Number Heading

THE TENDER

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T1.2 Tender Data (Pink)

Part T2: Returnable Documents

T2.1 List of Returnable Schedules and Documents (Yellow)
T2.2 Returnable Schedules and Documents (Yellow)

THE CONTRACT

Part C1: Agreement and Contract Data

C1.1 Form of Offer and Acceptance (Yellow)
C1.2 Contract Data (Yellow)
C1.3 Construction Guarantee (White)
C1.4 Occupational Health and Safety Agreement (White)
C1.5 Agreement in terms of Section 37 (2) of the Occupational
Health and Safety Act No 85 of 1993 (White)

Part C2: Pricing Data

C2.1 Pricing Instructions (Yellow)
C2.2 Bills of Quantities (Yellow)

Part C3: Scope of Work

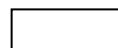
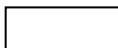
C3 Scope of Work (Blue)

Part C4: Site Information

C4 Site Information (Green)

Part C5: Tender Drawings

C5 Drawings (White)



TENDER DOCUMENT CHECKLIST

Tenderers must complete this document checklist to ensure that all information is completed in the Tender Document.

ITEMS	CHECKED	
	Contractor	Project Manager
1. Correct Tender offer carried forward to the Cover Page and also the Form of Offer and Acceptance in Part C1.1	<input type="checkbox"/>	<input type="checkbox"/>
2. Tenderer's signature on the offer	<input type="checkbox"/>	<input type="checkbox"/>
3. Bill of Quantities	<input type="checkbox"/>	<input type="checkbox"/>
i Bills of Quantities completed in full and in pen	<input type="checkbox"/>	<input type="checkbox"/>
ii Corrections crossed out and initialled	<input type="checkbox"/>	<input type="checkbox"/>
iii Each page initialled	<input type="checkbox"/>	<input type="checkbox"/>
4. Returnable Documents and Schedules	<input type="checkbox"/>	<input type="checkbox"/>
i Authority to Sign Tender	<input type="checkbox"/>	<input type="checkbox"/>
ii Declaration of Interest	<input type="checkbox"/>	<input type="checkbox"/>
iii Record of Addenda to Tender Documents	<input type="checkbox"/>	<input type="checkbox"/>
iv Banking Details	<input type="checkbox"/>	<input type="checkbox"/>
v Proposed Amendments and Qualifications (if any)	<input type="checkbox"/>	<input type="checkbox"/>
vi Certificate of Authority for Joint Venture and Joint Venture Agreement (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>
vii MBD 5: Declaration for Procurement above R10 million	<input type="checkbox"/>	<input type="checkbox"/>
viii MBD 8: Declaration of Bidder's Past Supply Chain Management Practices	<input type="checkbox"/>	<input type="checkbox"/>
ix MBD 9: Certificate of Independent Bid Determination	<input type="checkbox"/>	<input type="checkbox"/>
x Particulars of all Contracts awarded by an Organ of State during the last 5 years	<input type="checkbox"/>	<input type="checkbox"/>
xi Fulfilment of the Construction Regulations Questionnaire on Tenderer's Procedures with respect to OHSA and	<input type="checkbox"/>	<input type="checkbox"/>
xii Construction Regulations	<input type="checkbox"/>	<input type="checkbox"/>
xiii Business Declaration	<input type="checkbox"/>	<input type="checkbox"/>
xiv A copy of a valid Tax Clearance Certificate Tax Pin Number.	<input type="checkbox"/>	<input type="checkbox"/>
xv Copy of current Municipal Account in the name of the Tenderer or alternatively, in the names of the Directors/Partners of the tendering entity	<input type="checkbox"/>	<input type="checkbox"/>
xvi Letter of Intent from a Financial Institution to provide a Construction Guarantee in accordance with the JBCC form (Refer C1.3)	<input type="checkbox"/>	<input type="checkbox"/>
xvii Proof of CIDB Grading required. In the event of a JV a certificate indicating the combined CIDB grading is required.	<input type="checkbox"/>	<input type="checkbox"/>

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xxviii	A valid original or certified copy of the B-BBEE status level verification certificate substantiating the B-BBEE rating or an EME must submit a sworn affidavit	<input type="checkbox"/>	<input type="checkbox"/>
xix	Schedule of Recently Completed Contracts	<input type="checkbox"/>	<input type="checkbox"/>
xx	Project Verification Form	<input type="checkbox"/>	<input type="checkbox"/>
xxi	Schedule of Current Contracts	<input type="checkbox"/>	<input type="checkbox"/>
xxii	Schedule of Construction Plant, Equipment and labour	<input type="checkbox"/>	<input type="checkbox"/>
xxiii	Schedule of Proposed Subcontractors	<input type="checkbox"/>	<input type="checkbox"/>
xxiv	Schedule of Proposed Key Personnel and detailed Curricula Vitae of all Key Personnel	<input type="checkbox"/>	<input type="checkbox"/>
xxv	Estimated Monthly Expenditure	<input type="checkbox"/>	<input type="checkbox"/>
xxvi	Methodology Statement	<input type="checkbox"/>	<input type="checkbox"/>
xxvii	Preliminary Construction Programme	<input type="checkbox"/>	<input type="checkbox"/>
xxviii	Labour, Plant and Equipment Histograms	<input type="checkbox"/>	<input type="checkbox"/>
xxix	Audited Financial Statements for past 3 years	<input type="checkbox"/>	<input type="checkbox"/>
xxx	Bank Rating	<input type="checkbox"/>	<input type="checkbox"/>
xxxii	Local Content	<input type="checkbox"/>	<input type="checkbox"/>

PART T1: TENDERING PROCEDURES

T1.1 TENDER NOTICE AND INVITATION TO TENDER

CONTRACT No.: 20/21.7.3.B.8077

CONSTRUCTION WORKS AT BERTRAMS MULTIPURPOSE CENTRE

The Johannesburg Development Agency invites tenders for the construction of the Bertrams Multipurpose Centre at **Bertrams in the Johannesburg CBD**. The scope of work comprises the demolition of existing structures and the construction of a new multi storey multipurpose centre.

The tenderers should have a CIDB contractor grading designation of **9GB**. Joint ventures are eligible to submit tenders provided that they satisfy the criteria stated in the Tender Data.

Documents may be downloaded from the following websites:

www.jda.org.za

www.etenders.gov.za

Queries relating to the issue of these documents, or the project may be addressed to Ms Akhona Mnukwa on e-mail to: AMnukwa@jda.org.za and any procurement related issues may be addressed to Ms Kgadi Mphela on e-mail to: kmphela@jda.org.za.

A compulsory site clarification meeting will take place on site on the 26th of October 2021 at 10h00 at 9 Bertrams Street, Bertrams. Bidders are advised to download the documents and drawings online from 15th October 2021, and submit written queries to AMnukwa@jda.org.za or kmphela@jda.org.za. Questions and answers will also be uploaded on the JDA website. The last day for receipt of queries is 10th November 2021

The closing time for receipt of tenders is 12h00 on the 15th November 2021 Telegraphic, telephonic, telex, facsimile, e-mail and late tenders will not be accepted.

Tenders must only be submitted on the tender documentation that is issued. The retyping of the tender document is not permitted. Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

The JDA's selection of qualifying tenders will be at the JDA's sole discretion and will be final. The JDA does not bind itself to accept any particular tender. Correspondence will be entered into with the successful tenderer.

"WE ENCOURAGE ALL PEOPLE DOING BUSINESS WITH US TO REPORT ANY CORRUPT OR ILLEGAL PRACTICE, USING THE ANTI-FRAUD HOTLINE NUMBER: 0800 002 587"

PART T1: TENDERING PROCEDURES

T1.2 TENDER DATA

The Conditions of Tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement, (May 2010) as published in Government Gazette No 33239, Board Notice 86 of 2010 of 28 May 2010. (See www.cidb.org.za).

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it applies.

Clause Number	Clause Heading	Data / Wording
F.1.1	The Employer	Johannesburg Development Agency P. O. BOX 61877 MARSHALLTOWN, 2107
F.1.2	The Tender	PART T1: TENDERING PROCEDURES T1.1 Tender Notice and Invitation to Tender T1.2 Tender Data PART T2: RETURNABLE DOCUMENTS T2.1 List of Returnable Documents T2.2 Returnable Schedules
	The Contract	PART C1: AGREEMENTS AND CONTRACT DATA C1.1 Form of Offer and Acceptance C1.2 Contract Data C1.3 Construction Guarantee C1.4 Occupational Health and Safety Agreement PART C2: PRICING DATA C2.1 Pricing Instructions C2.2 Bill of Quantities PART C3: SCOPE OF WORK PART C4: SITE INFORMATION

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Clause Number	Clause Heading	Data / Wording
F.1.4	Project Manager	Name: Pace Project Management Address: 354 Rivonia Boulevard, Rivonia, 2128 Tel: 010 020 2217 Fax: E-mail: info@pace.co.za
F.2.1	Eligibility	<p>Only those tenderers who are registered with the CIDB or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, are eligible to have their tenders evaluated.</p> <p>In addition, only those tenderers who have in their employ management and supervisory staff satisfying the requirements of the scope of work for labour intensive competencies for supervisory and management staff are eligible to submit tenders.</p> <p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"> 1. every member of the joint venture is registered with the CIDB; 2. the lead partner has a contractor grading designation in the 9GB General Building class of construction work; and 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 the sum tendered for an 9GB class of construction work determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.
F.2.7	Clarification Meeting	<p>A compulsory site clarification meeting will be on sites on the 26th of October 2021 at 10h00 at 9 Bertrams Street, Bertrams, Johannesburg. Bidders are advised to download the documents and drawings online, and submit written queries to AMnukwa@jda.org.za or kmphela@jda.org.za. Questions and answers will also be uploaded on the JDA website. The last day for receipt of queries is 10th November 2021</p>
F.2.12	Alternative tender offers	No alternative tender offers will be considered.
F.2.13.2		All returnable documents to the employer as defined in F.1.2 of the Tender Data shall be returned in legible writing in non-erasable ink.
F.2.13.3	Number of copies of tender offers to be submitted to the Employer	Parts of each tender offer communicated on paper shall be submitted as an original, plus one (1) copy. Bidders are required to submit a copy of all Bills of Quantities in excel format (Including Mechanical, Electrical and Fire)

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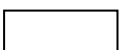
Clause Number	Clause Heading	Data / Wording
F.2.13.5 F.2.15.1	Sealing and Delivery of tender offers	<p>The Employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are:</p> <p>Location of tender box: Reception Desk of the Johannesburg Development Agency</p> <p>Physical address: The Bus Factory 3 Helen Joseph St (formerly President St) NEWTOWN JOHANNESBURG</p> <p>Identification details: <i>Tender reference</i> 20/21.7.3.B.8077</p> <p>CONSTRUCTION OF BERTRAMS MULTIPURPOSE CENTRE</p>
F.2.13.9	Telephonic	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
F.2.15	Closing time of tender offers	The closing time for submission of tender offers is 12h00 on 15th November 2021
F.2.16.1	Tender offer validity	The tender offer validity period is 120 days.
F.2.16.3		<p>Add the following:</p> <p>“Should a tenderer amend or withdraw his or her tender after the closing date and time, but prior to him or her being notified of the acceptance thereof, or should a tenderer after having been notified that his or her tender has been accepted –</p> <ol style="list-style-type: none"> 1. give notice of his or her inability to execute the Contract in accordance with his or her tender; or 2. fail to sign a contract within the period stipulated in the tender requirements or any extended period determined by the employer; or 3. fail to execute the Contract. <p>he or she shall pay all additional expenses which the employer has to incur in inviting new tenders and pay the difference between his or her tender and any less favourable tender accepted, as well as any consequential loss which may arise as a result of his/her non-fulfilment of his/her obligations: Provided that the employer may exempt a tenderer from the provisions of this sub-regulation if he is of the opinion that such non-performance is justifiable.</p> <p>When during the above-mentioned circumstances it is not deemed expedient to invite new tenders, the employer may entertain a recommendation for acceptance of a tender from those already received.”</p>
F.2.17	Clarification of tender after submission	<p>Add the following:</p> <p>“The tenderer is to provide clarification with regards to a request for clarification from the employer, within 48 hours of the employer making the request, failing which, the tender offer will be considered non-responsive.”</p>

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Clause Number	Clause Heading	Data / Wording
F.2.18		The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.
F.2.20	Letter of Intent	The tenderer is required to submit with his tender a letter of intent from an approved financial institution undertaking to provide the Construction Guarantee in the format included in Part C1.3 of this procurement document.
F.2.23	Certificates	<p>The tenderer is required to submit with his tender:</p> <ul style="list-style-type: none"> a) A copy of a valid Tax Pin Number. b) An original and valid certified B-BBEE status level verification certificate or a certified copy thereof, substantiating the bidding entity's B-BBEE rating. Only certificates issued by verification agencies accredited by the South African Accreditation System (SANAS), or by registered auditors approved by the Independent Regulatory Board of Auditors (IRBA) will be accepted. The copy must bear an original stamp. Failure to submit as required will result in the bidder scoring zero (0) points for B-BBEE. c) Copies of legal registration documents of company /close corporations/partnership, including certified copies of Identity Documents. d) Joint Venture Agreement and Power of Attorney for Joint Ventures with the Targeted Enterprise. e) Workmen's Compensation Registration Certificate (or proof of payment of contributions in terms of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993) f) Documents and Schedules listed in Part T2.
F.3.4	Opening of tender submissions	Tenders will be opened immediately after the closing time at 12h00 on 15th November 2021
F.3.11.3	Evaluation of Tender Offers	<p>The procedure for the evaluation of responsive tenders is Method 2 (Price and Preferences) having completed a technical evaluation. The Preference Point System assigns a score to each tenderer based on the tender price and on the tenderer's B-BBEE status. These scores are combined to determine an overall score for the tender. The tenderer with the highest score will be considered for acceptance.</p> <p>The Preference Point System will be applied as follows. For tenders <u>above R50 million</u></p> <ul style="list-style-type: none"> • 90 points are assigned to price • Up to 10 points are assigned to B-BBEE status <p>The total points for Price and Preference in each case above must add up to 100 points.</p>

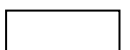
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Clause Number	Clause Heading	Data / Wording			
		(i) KEY RETURNABLE DOCUMENTS	Criteria	Description of Criteria	Points
		A			
		Key Returnable Document	Company registration documents	No Points will be allocated for key returnable documents submitted	N/A
			Latest municipal account		N/A
			3 Years of audited financial statements		N/A
			Certified copies of directors / partners identity documents		N/A
			The bidding entity's certificates of membership/s to industry bodies.		N/A
			Forms A to H completed in full and signed		N/A
		Variable	Criteria	Description of criteria	Points
		(A1) Method Statement	Detailed Method Statement concentrating on the following: 1. Project Specific 2. How will the works be programmed 3. What safety measures will be implemented during the construction period 4. Specific way of managing a live environment with high pedestrian activity	Points will be allocated as per the criteria	20
		20 Points			
		(A2) SMME Plan	Detailed SMME Plan (Project Specific) concentrating on the following: 1. Detailed approach and methodology on dealing with SMME's	Points will be allocated as per the criteria	



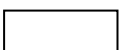
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Clause Number	Clause Heading	Data / Wording				
		20 Points	2. Quality control and reporting process and procedures. 3. Clear organisational structure for managing SMMEs. 4. Skills transfer 5. Detailed methodology of how contracts, payments and financial assistance to SMMEs will be managed		20	
		100 Points	Five (5) or more Projects competed	Major building works projects with values more than R150 million completed in the past five years with reference letters from previous clients of the projects listed. Reference letters to include project value, completion status, contactable numbers and performance comments.	100	
		(B1) Company Experience and Track record on major building works projects above R150 million with Relevant Contactable reference (in client letter head) (PC Certificate and appointment letters will not be accepted)	Three (3) – Four (4) Projects completed		75	
			One (1) – Two (2) Project completed		50	
		Variables	Criteria	Description of criteria	Points	
		120 Points	Contracts Manager: a minimum of a National Diploma and 10 years' experience as Contracts Manager in major building works projects and registered as a Professional Construction Manager (Pr CM/CPM) with the SACPCMP	Experience required on building projects of the proposed key person. CV's should indicate the list project name & values, experience as a contracts manager/site agent/site engineer/OHS officer/SMME supervisor/general foreman.	20	
		(C) Experience of proposed key personnel. (Certified Copies of qualifications, and valid professional registration are required for Contracts Manager, Site Agent, Site Engineer and OHS officer)	Site Agent: Site Agent with minimum 10 years of experience as a Site Agent on major building works projects with		20	



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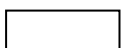
Clause Number	Clause Heading	Data / Wording			
		minimum qualification of a National Diploma			
		Site Engineer: Site Engineer with minimum 5 years of experience as a Site Engineer on major building works projects with minimum qualification of a National Diploma.		Full points will be allocated for indicated years of experience, certified copies of qualifications and certified copy of professional registration certificate.	20
		SMME Supervisor with minimum 5 years of experience in SMME supervisory roles in building projects			20
		General Foreman: General Foreman with minimum 10years of experience as a General Foreman in building projects.			20
		OHS officer: 5 years' experience as construction health and safety officer and has experience in major building works projects. Registered with SACPCMP as Construction Health and Safety Manager /Officer or equivalent, or proof of application of registration.			20
<p>Bidders will be required to achieve a minimum score of 182 (70%) in the technical evaluation out of a possible 260 points in the technical evaluation in order to be considered further in the evaluation process.</p> <p>FORMULA FOR SCORING TENDER PRICE</p> <p>The following formula will be used to calculate the points for price.</p> $P_s = X \left[1 - \frac{(P_t - P_{min})}{P_{min}} \right]$ <p>Where</p> <p>P_s = Points scored for comparative price of tender under consideration P_t = Comparative price of tender under consideration P_{min} = Comparative price of lowest acceptable tender</p> <p>X = Points assigned to price</p>					



Clause Number	Clause Heading	Data / Wording																				
		<p>POINTS AWARDED FOR B-BBEE STATUS LEVEL</p> <p>The points allocated to a tenderer will be in accordance with the Preferential Procurement Regulations, 2017 published in Government Gazette No. 40553 dated 20 January 2017.</p> <p>The following table is applicable.</p> <table border="1"> <thead> <tr> <th>B-BBEE Status Level Of Contributor</th> <th>Number of Points Tenders above R50 million</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10</td> </tr> <tr> <td>2</td> <td>9</td> </tr> <tr> <td>3</td> <td>6</td> </tr> <tr> <td>4</td> <td>5</td> </tr> <tr> <td>5</td> <td>4</td> </tr> <tr> <td>6</td> <td>3</td> </tr> <tr> <td>7</td> <td>2</td> </tr> <tr> <td>8</td> <td>1</td> </tr> <tr> <td>Non-Compliant contributor</td> <td>0</td> </tr> </tbody> </table> <p>Notes :</p> <ol style="list-style-type: none"> 1. "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 on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act (Act No.53 of 2003). 2. A certified copy of a valid BBEE status level verification certificate, substantiating the bidding entities BBEE rating. Only certificates issued by verification agencies accredited by the South African Accreditation System (SANAS) or by a registered auditors approved by the independent Regulatory Board for Auditors (IRBA) will be acceptable 3. An EME must submit a sworn affidavit in line with Construction Sector Code EME affidavit confirming the following: <ul style="list-style-type: none"> • Annual Turnover Revenue of R10 million or less; and • Level of Black ownership • Any misrepresentation in terms of the above constitutes a criminal offence as set out in the B-BBEE Act as amended. 4. Bidders with annual total revenue of R5 million or less qualify as Exempted and must submit a certificate issued by a registered auditor, accounting officer or an accredited verification agency. 5. The submission of such certificates must comply with the requirements of instructions and guidelines issued by the National Treasury and be in accordance with notices published by the Department of Trade and Industry in the Government Gazette. 6. ANY SUBMISSION OF A SWORN AFFIDAVIT BY QSE WILL RESULT IN THE SCORE OF ZERO POINTS. 7. 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. 	B-BBEE Status Level Of Contributor	Number of Points Tenders above R50 million	1	10	2	9	3	6	4	5	5	4	6	3	7	2	8	1	Non-Compliant contributor	0
B-BBEE Status Level Of Contributor	Number of Points Tenders above R50 million																					
1	10																					
2	9																					
3	6																					
4	5																					
5	4																					
6	3																					
7	2																					
8	1																					
Non-Compliant contributor	0																					

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

Clause Number	Clause Heading	Data / Wording
		<p>8. A person will not be awarded points for B-BBEE status level if it is indicated in the tender documents that such a tenderer intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a tenderer qualifies for.</p> <p>9. A person awarded a contract will not be permitted to sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned.</p> <p>TOTAL PREFERENCE POINTS</p> <p>The total preference points for a tender are calculated with the formula</p> <p>PP = P_s + P_{bee} where PP is the total number of preference points scored by the tenderer P_s is the points scored for the comparative price of the tenderer, and P_{bee} is the number of points awarded to the tenderer based on his certified B-BBEE status level</p> <p>RISK TOLERANCE FRAMEWORK</p> <p>The JDA has adopted a Risk Tolerance Framework (RTF) which enjoins the JDA to consider its risk exposure to contractors/Service Providers in terms of the number of contracts awarded to a single Contractor/service provider or the total value of contracts awarded to a single contractor/service provider in a particular year.</p> <p>In terms of the Risk Tolerance Framework, the JDA determine the risk exposure as excessive in instances where the value of the contracts are:</p> <ol style="list-style-type: none"> 1) The greater of R80 million or four contracts/ projects in the current financial year or 2) The greater of R 120 million or six contracts/projects over two financial years (current year and previous financial year). <p>A risk analysis shall be undertaken on the bidder with the highest number of points obtained, to determine whether the tenderer does not exceed the JDA's risk framework criteria as stated above, in other words whether it falls within the ambit of the Risk Tolerance Framework as acceptable.</p> <p>JDA reserves the right to award a contract to a bidder who has exceeded the threshold as stated above.</p> <p>Shortlisted bidders may be requested to attend interviews should there be any need for clarity.</p> <p>Unsuccessful bidders will have the opportunity to query the award or decision within 14 days from the day of notification.</p> <p>Bidders are to note that JDA does not bind itself to accept the lowest priced bid.</p>
20	Disqualification Criteria	<p>BIDDERS WILL BE DISQUALIFIED FOR:</p> <ul style="list-style-type: none"> • Failure to complete and sign the Offer page; • Failure to complete and submit a Priced Bill of Quantities in full; • Failure to duly complete Form A3 (where required) that includes for any addenda that may have been issued where such addenda has a material effect on the price;



JOHANNESBURG DEVELOPMENT AGENCY (JDA)

Clause Number	Clause Heading	Data / Wording
		<ul style="list-style-type: none"> • Termination during the last five (5) years on previous contracts with the JDA or any other organ of state after written notice was given to that bidder; • Completing the tender document in pencil; • Failure to attend the compulsory site briefing session. • Submitting a bid after the closing date and time. • Failure to correctly carry forward any and all totals/amounts from their priced Bill of Quantities to the Final Summary and Offer pages
F.3.13	Acceptance of Tender Offers	<p>Tender offers will only be accepted if:</p> <ol style="list-style-type: none"> a) The tenderer submits a letter of intent from an approved financial institution undertaking to provide the Construction Guarantee in the format included in Part C1.3 of this procurement document; b) The tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation; c) The tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; d) The tenderer has not: <ol style="list-style-type: none"> i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect; e) The tenderer has completed the Declaration of Interest and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process. f) The tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer; g) The employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. h) The tendering entity or the directors/partners of the tendering entity are in good standing with the local authority / municipality.
F.3.18	Number of Paper Copies	<p>The number of paper copies of the signed contract to be provided by the employer is 1 (one). Bidders are required to submit a copy of all Bills of Quantities in excel format (Including Mechanical, Electrical and Fire)</p>

T2.1 LIST OF RETURNABLE DOCUMENTS

T2.1.1 Returnable Documents and Schedules required for tender evaluation purposes

The tenderer must complete the following returnable schedules

- Form A1:** Authority to sign Tender
- Form A2:** Declaration of Interest
- Form A3:** Record of Addenda to Tender Documents
- Form A4:** Banking Details
- Form A5:** Proposed Amendments and Qualifications (if any)
- Form A6:** Certificate of Authority for Targeted Enterprise Partners/Subcontractors
- Form A7:** MBD9 Certificate of Independent Bid Determination
- Form A8:** Particulars of any contracts awarded by an organ of state during the last 5 years
- Form A9:** Fulfilment of the Construction Regulations
- Form A10:** Questionnaire on tenderer's procedures with respect to OHSA and Construction Regulations
- Form A11:** Business Declaration
- Form A12:** A copy of a valid Tax Pin Number
- Form A13:** Copy of current Municipal Account in the name of the Tenderer or alternatively in the names of the Directors/Partners of the tendering entity
- Form A14:** Letter of Intent from a Financial Institution to provide a Construction Guarantee in accordance with the JBCC pro-forma (refer C1.3)
- Form A15:** MBD5 Declaration for Procurement above R10 million (Vat Included)
- Form A16:** MBD8 Declaration of Bidders Past Supply Chain Management Practices
- Form A17:** Declaration of State of Municipal Accounts

- Form B1:** Proof of CIDB Grading
- Form B2:** A valid originally or certified copy of the B-BBEE status level verification certificate, substantiating the B-BBEE rating or an EME must submit a sworn affidavit
- Form B3:** Schedule of Recently Completed Contracts
- Form B4:** Schedule of Current Contracts
- Form B5:** Schedule of Construction Plant, Equipment and Labour
- Form B6:** Schedule of Proposed Subcontractors
- Form B7:** Schedule of Proposed Key Personnel and detailed CV's of all key personnel
- Form B8:** Estimated Monthly Expenditure
- Form B9:** Methodology Statement
- Form B10:** Preliminary Construction Programme
- Form B11:** Labour, Plant and Equipment Histograms
- Form B12:** Audited Financial Statements for past three (3) years
- Form B13:** Bank Rating
- Form B14:** SMME Plan
- Form B15:** Bills of Quantities (A copy in excel to be submitted on a USB)
- Form B16:** Local Content

T2.1.2 Other Documents that will be incorporated into the contract

- Form of Offer and Acceptance
- Contract Data
- Priced Bill of Quantities (A copy in excel to be submitted USB)
- Occupational Health and Safety Agreement (C1.4)
- Agreement in terms of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993 (C1.5)
- Approved Construction Programme

T2.2 RETURNABLE SCHEDULES AND DOCUMENTS

T2.2.1 Returnable Schedules and Documents

- Form A1:** Authority to sign Tender
- Form A2:** Declaration of Interest
- Form A3:** Record of Addenda to Tender Documents
- Form A4:** Banking Details
- Form A5:** Proposed Amendments and Qualifications (if any)
- Form A6:** Certificate of Authority for Targeted Enterprise Partners/Subcontractors
- Form A7:** MBD9 Certificate of Independent Bid Determination
- Form A8:** Particulars of any contracts awarded by an organ of state during the last 5 years
- Form A9:** Fulfilment of the Construction Regulations
- Form A10:** Questionnaire on tenderer's procedures with respect to OHSA and Construction Regulations
- Form A11:** Business Declaration
- Form A12:** A copy of a valid Tax Pin Number.
- Form A13:** Certified Copy of current Municipal Account in the name of the Tenderer or alternatively in the names of the Directors/Partners of the tendering entity
- Form A14:** Letter of Intent from a Financial Institution to provide a Construction Guarantee in accordance with the JBCC pro-forma (refer C1.3)
- Form A15:** MBD5 Declaration for Procurement above R10 million (Vat Included)
- Form A16:** MBD8 Declaration of Bidders Past Supply Chain Management Practices
- Form A17:** Declaration of State of Municipal Accounts

- Form B1:** Proof of CIDB Grading
- Form B2:** A valid originally certified copy of the B-BBEE status level verification certificate, substantiating the B-BBEE rating or an EME must submit a sworn affidavit
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- Form B4:** Schedule of Current Contracts
- Form B5:** Schedule of Construction Plant, Equipment and Labour
- Form B6:** Schedule of Proposed Subcontractors
- Form B7:** Schedule of Proposed Key Personnel and detailed CV's of all key personnel
- Form B8:** Estimated Monthly Expenditure
- Form B9:** Methodology Statement
- Form B10:** Preliminary Construction Programme
- Form B11:** Labour, Plant and Equipment Histograms
- Form B12:** Audited Financial Statements for past three (3) years
- Form B13:** Bank Rating
- Form B14:** SMME Plan
- Form B15:** Bills of Quantities (A copy in excel to be submitted on a USB)
- Form B16:** Local Content

FORM A1: Authority to Sign Tender

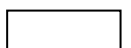
Notes to tenderer:

1. The signatory for the tenderer shall confirm his/her authority thereto by attaching on the tendering company's letterhead a duly signed and dated copy of the relevant resolution of the board of directors/partners.
2. In the event that the tenderer is a joint venture, a certificate is required from each member of the joint venture clearly setting out:
 - authority for signatory,
 - undertaking to formally enter into a joint venture contract should an award be made to the joint venture,
 - name of designated lead member of the intended joint venture, as required by tender condition F.2.13.4.

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE



FORM A2: Declaration of Interest

1. No bid will be accepted from persons in the service of the state¹.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.
3. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.
 - 3.1 Full Name of bidder or his or her representative:
 - 3.2 Identity Number:
 - 3.3 Position occupied in the Company (director, trustee, shareholder):
.....
 - 3.4 Company Registration Number:
 - 3.5 Tax Reference Number:.....
 - 3.6 VAT Registration Number:
 - 3.7 The names of all directors / trustees / shareholders / members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.
 - 3.8 Are you presently in the service of the state? **YES / NO**
If yes, furnish particulars.....
.....
 - 3.9 Have you been in the service of the state for the past twelve months? **YES / NO**
If yes, furnish particulars.....
.....
 - 3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**
If yes, furnish particulars.....
.....
 - 3.11 Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**
If yes, furnish particulars.....
.....

3.12 Are any of the company’s directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

If yes, furnish particulars.....

3.13 Are any spouse, child or parent of the company’s directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

If yes, furnish particulars.....

3.14 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract. **YES / NO**

If yes, furnish particulars.....

4. Full details of directors / trustees / members / shareholders.

FULL NAME	IDENTITY NUMBER	STATE EMPLOYEE NUMBER

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT. I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
 Signature

.....
 Position

.....
 Name of Bidder

.....
 Date

* MSCM Regulations: "in the service of the state" means to be –
 (a) a member of –
 (i) any municipal council;
 (ii) any provincial legislature; or
 (iii) the national Assembly or the national Council of provinces;
 (b) a member of the board of directors of any municipal entity;
 (c) an official of any municipality or municipal entity;
 (d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
 (e) a member of the accounting authority of any national or provincial public entity; or
 (f) an employee of Parliament or a provincial legislature.

** "Stakeholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

FORM A3: Record of Addenda to Tender Documents

We confirm that the following communications received from the Employer's Representative before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:

	DATE	TITLE OR DETAILS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

.....
Signature
(of person authorised to sign on behalf of the Tenderer)

.....
Date

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

FORM A4: Banking Details

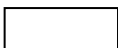
I/We hereby authorise the Employer to approach the following bank for the purposes of obtaining a financial reference:

DESCRIPTION OF BANK DETAIL	BANK DETAILS APPLICABLE TO TENDERER'S HEAD OFFICE
Name of Bank	
Branch Name	
Branch Code	
Street Address	
Postal Address	
Name of Manager	
Telephone Number	
Fax Number	
Account Number	

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE



Proposed amendments and qualifications

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in a covering letter to his tender and reference such letter in this schedule.

The Tenderer's attention is drawn to clause F.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the employer's handling of material deviations and qualifications.

PAGE	CLAUSE OR ITEM	PROPOSAL

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

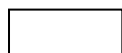
FORM A6: Certificate of Authority for Targeted Enterprise Partners/Subcontractors

We, the undersigned, are submitting this tender offer jointly with the following Targeted Enterprise Partners/Subcontractors and hereby authorise Mr/Ms , authorised signatory of the company , acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	PERCENTAGE PARTICIPATION	ADDRESS	DULY AUTHORISED SIGNATORY
Lead Partner			Signature:
			Name:
	CIDB registration no:		Designation:
Partner			Signature:
			Name:
	CIDB registration no:		Designation:
Partner			Signature:
			Name:
	CIDB registration no:		Designation:

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE



JOHANNESBURG DEVELOPMENT AGENCY (JDA)

FORM A7: Certificate of Independent Bid Determination

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

JOHANNESBURG DEVELOPMENT AGENCY

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:
(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or

- (f) bidding with the intention not to win the bid.
- 8. In addition, there have been 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 which this bid invitation relates.
- 9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 10. I am aware that, 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.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

FORM A8: Particulars of all Contracts awarded by an Organ of State during the last 5 years

(In the event of insufficient space, kindly attach documentation)

EMPLOYER	CONSULTING ENGINEER	NATURE OF WORK	VALUE OF WORK	YEAR OF COMPLETION

FORM A8 (Continued)

EMPLOYER	CONSULTING ENGINEER	NATURE OF WORK	VALUE OF WORK	YEAR OF COMPLETION

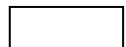
.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE

Organ of State means-

- a) a national or provincial department;
- b) a municipality;
- c) a constitutional institution defined in the Public Finance Management Act, 1999 (Act No. 1 of 1999);
- d) Parliament;
- e) a provincial legislature;
- f) any other institution or category of institutions included in the definition of "organ of state" in section 239 of the Constitution and recognised by the [Minister](#) by notice in the *Government Gazette* as an institution or category of institutions to which [this Act](#) applies;



FORM A9: Fulfilment of the Construction Regulations, 2014

In terms of regulation 4(3) of the Construction Regulations, 2014 (hereinafter referred to as the Regulations), promulgated on 7 February 2014 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) the Employer shall not appoint a contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

1. I confirm that I am fully conversant with the Regulations and that my company has (or will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all of the requirements of the Regulations.

(Tick)

YES	<input type="checkbox"/>
NO	<input type="checkbox"/>

2. Proposed approach to achieve compliance with the Regulations

(Tick)

Own resources, competent in terms of the Regulations (refer to 3 below)	<input type="checkbox"/>
Own resources, still to be hired and/or trained (until competency is achieved)	<input type="checkbox"/>
Specialist subcontract resources (competent) - specify:	<input type="checkbox"/>

3. Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (CVs to be attached):

.....

4. Provide details of proposed training (if any) that will be undergone:

.....

5. Potential key risks identified and measures for addressing risks:

.....

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

6. I have fully included in my tendered rates and prices (in the appropriate payment items provided in the Schedule of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects repair period.

(Tick)

YES	<input type="checkbox"/>
NO	<input type="checkbox"/>

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM A10: Questionnaire on Tenderer's Procedures with respect to the Occupational Health and Safety Act (OHACT) and Construction Regulations.

1. Name of the employee to be appointed as Construction Manager [Construction Regulation 8 (1)]
.....
2. Name of the employee to be appointed as Construction Supervisor [Construction Regulation 8 (7)]
.....
3. Names of the competent employees to assist the Construction Supervisor [Construction Regulation 8 (8)]
.....
.....
4. Name of the person to be appointed to conduct base line and ongoing risk assessments [Construction Regulation 9 (1)]
.....
5. Name of competent person to be appointed as occupational health and safety officer [Construction Regulation 8 (6)]
.....
6. Will the employees to be appointed on the project be in possession of proof of health and safety induction training that will address the project specific risks and exposures [Construction Regulation 9 (1) (a)]? Yes / No.
If no, what are the tenderer's proposals for such training?
7. Are the tenderer's tools, plant and equipment tested and inspected regularly i.e. daily for vehicles and equipment and at least weekly for other tools and hand tools in terms of safety compliance? Yes/No
If no, what are the tenderer's proposals for such testing?
8. Will a dedicated supervisor be designated to manage the process to test and inspect all tools, plant and equipment? Yes/No
If no, what are the tenderer's proposals for such designation?
.....
.....

9. What other measures will the tenderer take to comply with the OHSACT and the Construction Regulations?.....Yes/No

If no, what are the tenderer's proposals to comply with this requirement?

.....
.....

9. Is the tenderer registered and in good standing with the Compensation Commissioner or duly approved compensation insurer?.....Yes/No

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM A11: Business Declaration

Tender/RFP Number :

Tender/RFP Description :

Name of Company :

Postal Address :

Physical Address :

Telephone :

Fax :

Contact Person :

Cell Phone Number :

E-Mail Address :

Company/enterprise Income

Tax Reference Number ** :

(Insert personal income tax number if a one-person business and personal income tax numbers of all partners if a partnership)

VAT Registration Number :

Company Registration Number:

1. Type of Firm

- Partnership
- One-person business/sole trader
- Close corporation
- Public company
- Private company

(Tick One Box)

2. Principal Business Activities

.....

.....

3. Total number of years the firm has been in business:

4. Detail all trade associations/professional bodies in which you have membership.

.....

.....

5. Did the firm exist under a previous name?

- Yes
- No

(Tick one box)

If yes, what was its previous name.....

6. How many permanent staff members are employed by the firm?

Full Time:

Part Time:

7. What is the enterprise's latest annual turnover (excl. VAT): R.....

8. List the personnel or firms who provide the following services:

SERVICE	NAME	CONTACT PERSON	TELEPHONE
ACCOUNTING			
LEGAL			
AUDITING			
BANKING			
INSURANCE			

BANK DETAILS

I/We hereby request and authorize you to pay any amounts which may accrue to me/us to the credit of my/our account with the mentioned bank.

I/We understand that the credit transfers hereby authorized will be processed by computer through a system known as the "ACB Electronic Fund Transfer Service" and

I/We also understand that no additional advice of payment will be provided by my/our bank, but details of each payment will be printed on my/our bank statement or any accompanying voucher.

This authority may be cancelled by me/us giving 30 days' notice in writing.

BANK:

BRANCH:

BRANCH CODE:

ACCOUNT NUMBER:

ACCOUNT HOLDER:

TYPE OF ACCOUNT:

PLEASE INCLUDE ORIGINAL SIGNED AND STAMPED LETTER FROM THE BANK CONFIRMING THE COMPANY'S BANKING DETAILS, PHOTOSTAT COPIES AND LETTERS BEARING ELECTRONIC SIGNATURES WILL NOT BE ACCEPTABLE.

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the company, affirms that the information furnished in response to this request for proposal is true and correct:

SIGNATURE :

NAME IN FULL :

CAPACITY :

DULY AUTHORIZED TO SIGN ON BEHALF OF:

DATE :

FORM A12: A copy of a valid Tax Pin Number.

The tenderer shall include as an attachment to their submission a copy of a valid Tax Pin Number which shall be obtained by the tenderer from the South African Revenue Service (SARS).

In the event of a joint venture each member shall comply with the above requirement.

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM A13: Municipal Accounts

The tenderer shall include as an attachment to their submission a copy of the current Municipal Account in the name of the Tenderer or alternatively in the names of the Directors/Partners of the tendering entity.

In the event of a joint venture each member shall comply with the above requirement.

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM A14: Letter of Intent

The tenderer shall include as an attachment to their submission a Letter of Intent from a Financial Institution to provide a Construction Guarantee in accordance with the JBCC pro-forma (refer C1.3).

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM A15: Declaration for Procurement above R10 million (MBD 5)

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (VAT INCLUDED)

For all procurement expected to exceed R10 million (VAT included), bidders must complete the following questionnaire:

1 Are you by law required to prepare annual financial statements for auditing?

1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....

YES / NO

.....

2 Do you have any outstanding undisputed commitments for municipal services towards a municipality or any other service provider in respect of which payment is overdue for more than 30 days?

YES / NO

2.1 If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days.

2.2 If yes, provide particulars.

.....

.....

.....

.....

3. Has any contract been awarded to you by an organ of the state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?

YES / NO

3.1 If yes, furnish particulars

.....
.....

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?

YES / NO

4.1 If yes, furnish particulars

.....
.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

FORM A16: Declaration of Bidder’s Past Supply Chain Management Practices (MBD 8)

DECLARATION OF BIDDER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Municipal Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a. abused the municipality’s / municipal entity’s supply chain management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
- 4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury’s database as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the <i>audi alteram partem</i> rule was applied).	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the 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).	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.2.1	If so, furnish particulars:		

Item	Question	Yes	No
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.3.1	If so, furnish particulars:		
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.7.1	If so, furnish particulars:		

CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME)
CERTIFY THAT THE INFORMATION FURNISHED ON THIS
DECLARATION FORM TRUE AND CORRECT.**

**I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN
AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.**

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

FORM A17: DECLARATION ON STATE OF MUNICIPAL ACCOUNTS

A Any bid will be rejected if:
Any municipal rates and taxes or municipal service charges owed by the bidder or any of the directors to the municipality or a municipal entity, or to any other municipality or municipal entity, are in arrears for more than three months.

B Bid Information

i. Name of bidder:
.....

ii. Registration Number:
.....

iii. Municipality where business is situated
.....

iv. Municipal account number for rates:
.....

v. Municipal account number for water and electricity:
.....

vi. Names of all directors, their ID numbers and municipal account number.

1.
.....

2.
.....

3.
.....

4.
.....

5.
.....

6.

.....

7.

.....

C Documents to be attached.

- i. A copy of municipal account mentioned in B (iv) & (v) (Not older than 3 months)
- ii. A copy of municipal accounts of all directors mentioned in B(vi) (Not older than 3 months)
- iii. Proof of directors

I/We declare that the abovementioned information is true and correct and that the following documents are attached to this form:

Signature

Date

FORM B1: CIDB Grading

The tenderer shall include as an attachment to their submission the proof of CIDB grading.

In the event of a joint venture each member shall comply with the above requirement.

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM B2: B-BBEE Certificate

The tenderer shall include as an attachment to their submission a valid originally certified copy of the B-BBEE status level verification certificate, substantiating the B-BBEE rating. An EME must submit a sworn affidavit confirming the following:

- Annual Turnover Revenue of R10 million or less; and
- Level of Black ownership
- Any misrepresentation in terms of the above constitutes a criminal offence as set out in the B-BBEE Act as amended.

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 will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate tender.

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

FORM B3: Schedule of Recently Completed Contracts

The Tenderer shall list below five building construction contracts of a **similar nature** completed by the Tenderer in the past five years. Similar nature refers to building projects, with a minimum value of R150m. This form is to be completed and submitted together with reference letters from the employer on their letterhead for each of the projects listed.

This information is material to the award of the Contract.

(In the event of insufficient space, attach supplementary documentation)

EMPLOYER (Name, Tel No and Fax No)	PRINCIPAL AGENT (Name, Tel No and Fax No)	NATURE OF WORK	VALUE OF WORK	YEAR OF COMPLETION

.....
Signature
(of person authorised to sign on behalf of the Tenderer)

.....
Date

JDA JBCC

FORM B4: Schedule of Current Contracts

The Tenderer shall list below the contracts not yet completed. This information is material to the award of the Contract.

(In the event of insufficient space, attach supplementary documentation)

EMPLOYER (Name, Tel No and Fax No)	LOCATION	NATURE OF WORK	VALUE OF WORK	EXPECTED DATE OF COMPLETION

.....
Signature
(of person authorised to sign on behalf of the Tenderer)

.....
Date

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

FORM B5: Schedule of Construction Plant & Equipment

The following are lists of Construction Plant and Equipment that I/We presently own or lease and will have available for this contract if my / our tender is accepted.

- (a) **Details of Equipment that is owned by me / us and immediately available for this contract.**

DESCRIPTION	QUANTITY	YEAR ACQUIRED

Attach additional information in a supplementary document

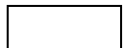
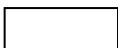
- (b) **Details of Plant & Equipment that will be hired, or acquired for this contract if my / our tender is accepted**

DESCRIPTION <i>(type, size, capacity etc.)</i>	QUANTITY	HOW ACQUIRED	
		HIRE/ BUY	SOURCE

Attach additional information in a supplementary document

.....
Signature
(of person authorised to sign on behalf of the Tenderer)

.....
Date



JOHANNESBURG DEVELOPMENT AGENCY (JDA)

FORM B6: Schedule of Proposed Sub-Contractors

I/We hereby notify you that it is my/our intention to employ the following Sub-Contractors for work in this contract. Tenderers are to provide details of their subcontractors for the following trades: **All Trades**.

NAMES AND ADDRESSES OF PROPOSED SUBCONTRACTORS	NATURE AND EXTENT OF WORK TO BE SUBCONTRACTED	PREVIOUS EXPERIENCE WITH SUBCONTRACTOR OR RECENT WORK EXECUTED BY THE SUB-CONTRACTOR

.....
Signature

(of person authorised to sign on behalf of the Tenderer)

.....
Date

JDA JBCC

JOHANNESBURG DEVELOPMENT AGENCY (JDA)

FORM B7: Proposed Key Personnel

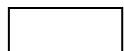
The Tenderer shall list below the key personnel whom he proposes to employ on the contract should his offer be accepted, both at his headquarters and on the site, together with their qualifications, experience and positions held.

LOCATION	DESIGNATION	NAME AND NATIONALITY OF PROPOSED CANDIDATE	SUMMARY OF QUALIFICATIONS & EXPERIENCE
HEAD OFFICE	Contracts manager		
SITE OFFICE	Site Agent		
	Site Engineer		
	General Foreman		
	Health and Safety Officer		
	SMME Supervisor		

NOTE: Detailed Curriculum Vitae of proposed candidates are to be separately provided. Said CV's MUST indicate qualifications (proof of which is to be attached), number of years' experience, and the nature and value of projects completed including the role performed on said projects.

.....
Signature
(of person authorised to sign on behalf of the Tenderer)

.....
Date



FORM B8: Estimated Monthly Expenditure

The Tenderer shall state below the estimated value of work to be completed every month based on his preliminary programme and his tendered unit rates.

*** The amounts for contingencies must not be included.**

MONTH	VALUE *
1	R.....
2	R.....
3	R.....
4	R.....
5	R.....
6	R.....
7	R.....
8	R.....
9	R.....
10	R.....
11	R.....
12	R.....
13	R.....
14	R.....
15	R.....
16	R.....
17	R.....
18	R.....
	COMPLETION OF CONTRACT
TOTAL	R.....

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM B9: Methodology Statement

The tenderer shall include as an attachment to their submission the detailed Methodology Statement for the works.

The methodology must demonstrate how the contractor intends to sequence the works. The manner in which the contractor intends to allocate resources must be clearly spelt out. When assessing the methodology, congruency with the project schedule will also be examined.

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM B10: Preliminary Construction Programme

The tenderer shall include as an attachment to their submission the preliminary Construction Programme for the works.

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM B11: Labour, Plant and Equipment Histograms

The tenderer shall include as an attachment to their submission the labour, plant and equipment histograms for the works.

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM B12: Financial Statements

The tenderer shall include as an attachment to their submission the Audited Financial Statements for the past three years.

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM B13: Bank Rating

The tenderer shall include as an attachment to their submission a letter from the bank at which he declares he conducts his account. The contents of the bank's letter must state the credit rating that it accords to the tenderer for the business envisaged by this tender.

In the event of a joint venture each member shall comply with the above requirement.

.....
SIGNATURE
(of person authorised to sign on behalf of the Tenderer)

.....
DATE

FORM B14: SMME Plan

The tenderer shall include as an attachment to their submission a detailed SMME plan indicating how the SMME requirements will be achieved, as detailed in Part C3: Scope of Works. The SMME Plan must clarify the manner in which the bidder intends to manage, support and empower local SMME's contractors.

The SMME plan must detail (i) how quality will be controlled, (ii) how the scope of works will be scheduled (programme), (iii) how will skills be transferred, and (iv) how will reporting to the client be done (content of reports, frequency etc.).

.....

.....
SIGNATURE

(of person authorised to sign on behalf of the Tenderer)

DATE

FORM B15: Bills of Quantities (Refer C2.2)

The BoQ pages in white (see C2.2), must be completed in full, completed in pen, corrections are to be crossed out and initialled, and each page initialled.

FORM B16: Declaration Certificate for Local Production and Content for Designated Sectors (MBD 6.2)

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011 and the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

- 1.1. Preferential Procurement Regulations, 2011 (Regulation 9) makes provision for the promotion of local production and content.
- 1.2. Regulation 9.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3. Where necessary, for bids referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.
- 1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

- x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as required in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp at no cost.

2. Definitions

- 2.1. **“bid”** includes written price quotations, advertised competitive bids or proposals;
- 2.2. **“bid price”** price offered by the bidder, excluding value added tax (VAT);
- 2.3. **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4. **“designated sector”** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5. **“duly sign”** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility(close corporation, partnership or individual).
- 2.6. **“imported content”** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour and intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.7. **“local content”** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.8. **“stipulated minimum threshold”** means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.9. **“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.

3. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold</u>
Steel Products and Component for Construction	
Steel Value-added Products	100%
Steel Power Pylons, Monopole Pylons,	
Steel Substation Structures, Power line Hardware,	100%
Street light steel poles,	
Plastic Pipes	100%
Electrical Cables	100%
Valves Products	100%
DC Combiner Boxes	65%
Mounting Structure	90%
Inverter	40%

Prepaid Electricity Meters	100%
Plastic Pipes	100%
Bulk Material Handling	85%
Structural Steel	100%
Pumps, Medium Voltage (MV) Motor and Associated Accessories	70%

4. Does any portion of the services, works or goods offered have any imported content?

(Tick applicable box)

4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as

YES		NO	
-----	--	----	--

prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by the SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za.

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

<u>Currency</u>	<u>Rates of exchange</u>
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

5. Were the Local Content Declaration Templates (Annex C, D and E) audited and certified as correct?

(Tick applicable box)

YES		NO	
-----	--	----	--

5.1. If yes, provide the following particulars:

- (a) Full name of auditor:
- (b) Practice number:
- (c) Telephone and cell number:
- (d) Email address:

(Documentary proof regarding the declaration will, when required, be submitted to the satisfaction of the Accounting Officer / Accounting Authority)

6. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the

dti to verify and in consultation with the Accounting Officer / Accounting Authority provide directives in this regard.

**LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)**

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO

ISSUED BY: (Procurement Authority / Name of Municipality / Municipal Entity):
.....

NB

1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),
do hereby declare, in my capacity as
of(name of bidder
entity), the following:

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that
 - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
 - (ii) the declaration templates have been audited and certified to be correct.

(c)The local content percentages (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C;

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above. The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

(d) I accept that the Procurement Authority / Municipality /Municipal Entity has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Municipal / Municipal Entity imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____

WITNESS No. 1 _____

WITNESS No. 2 _____

PART C1: AGREEMENT AND CONTRACT DATA

C1.1 FORM OF OFFER AND ACCEPTANCE

Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract In respect of the following works:

CONSTRUCTION OF BERTRAMS MULTIPURPOSE CENTRE – CONTRACT NO.: 20/21.7.3.B.8077

The tenderer, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:

.....
.....Rand (in words); R.....(in figures)

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the Tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the Tenderer becomes the party named as the Contractor in the conditions of contract identified in the Contract Data.

TENDERER:

WITNESS:

Signature

Signature

Name

Name

Capacity

Capacity

Date

Date

Name and address of organisation:

Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the Conditions of Contract identified in the Contract Data. Acceptance of the Tenderer's Offer shall form an agreement between the Employer and the Tenderer upon the terms and conditions contained in this agreement and in the Contract that is the subject of this agreement.

The terms of the contract, are contained in:

- Part C1 Agreements and Contract Data, (which includes this Agreement)
- Part C2 Pricing Data
- Part C3 Scope of Work
- Part C4 Site Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts 1 to 4 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Tenderer shall within two weeks of receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data at, or just after, the date this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the Parties.

EMPLOYER:

WITNESS:

Signature

Signature

Name

Name

Capacity

Capacity

Date

Date

Name and address of organisation:

JOHANNESBURG DEVELOPMENT AGENCY (PTY) LTD
NO. 3 PRESIDENT STREET (HELEN JOSEPH STREET)
NEWTOWN
JOHANNESBURG
JDA JBCC

Schedule of Deviations

Notes:

- 1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender,
- 2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter which constitutes a deviation as aforesaid become the subject of agreements reached during the process of offer and acceptance the outcome of such agreement shall be recorded here,
- 3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here,
- 4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of contract,

1 Subject
Details
.....
.....
.....

2 Subject
Details
.....
.....
.....

3 Subject
Details
.....
.....
.....

4 Subject
Details
.....
.....
.....

5 Subject
Details
.....
.....
.....

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

TENDERER:

EMPLOYER:

Signature

Signature

Name

Name

Capacity

Capacity

Name and address of organisation:

Name and address of organisation:

WITNESS:

WITNESS:

Signature

Signature

Name

Name

Date

Date

Confirmation of Receipt

The Tenderer, (now Contractor), identified in the Offer part of this Agreement hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

the _____(day) of _____(month) _____(year)

at _____(place)

CONTRACTOR:

WITNESS:

Signature

Signature

Name

Name

Capacity

Capacity

Date

Date

C1.2 CONTRACT DATA

PART 1: Data Provided by the Employer

The Conditions of Contract are the *JBCC Principal Building Agreement (May 2018, Edition 6.2)*, published by the Joint Building Contracts Committee. Copies of these documents may be obtained from the Association of South African Quantity Surveyors (011-3154140), the Master Builders Association (011-205-9000) the South African Association of Consulting Engineers (011-4632022) or the South African Institute of Architects (011-4860684).

Each item of data given below is cross-referenced to the clause in the Conditions of Contract to which it mainly applies.

Clause	Data
1.1	<p>The Employer is : JOHANNESBURG DEVELOPMENT AGENCY</p> <p>Address (physical) : The Bus Factory, 3 Helen Joseph Street (formerly President Street) Newtown, Johannesburg</p> <p>Address (postal) : PO Box 61877, Marshalltown, 2107</p> <p>Telephone : 011 688 7800</p> <p>Facsimile: : 011 688 7863</p> <p>VAT registration number : 444019718</p>
1.2 [6.1]	<p>The Principal Agent is : Pace Project Management</p> <p>Address (postal) : 1st Floor, Progress House, Lillipark Office Park, 354 Rivonia Boulevard, Rivonia, 2128</p> <p>Telephone : 010 020 2217</p> <p>Facsimile : :</p> <p>e-mail : info@pace.co.za</p>
1.3 [6.2]	<p>The Agent (1) is : Architect</p> <p>Name : The Creative Axis</p> <p>Address (postal) : 62 Central Street, Houghton Estate,</p> <p>Telephone : :</p> <p>Facsimile : :</p> <p>e-mail : bhavik@creativeaxis.co.za</p>
1.4 [6.2]	<p>The Agent (2) is : Quantity Surveyor</p> <p>Name : JVNC Capital</p> <p>Address (postal) : 46 Baliza, 1 Nature Road, Sharonlea, 2194</p> <p>Telephone : 087 821 6461</p> <p>Facsimile : :</p> <p>e-mail : john@jvnc.co.za</p>

Clause	Data
1.5 [6.2]	<p>The Agent (3) is : Civil & Structural Engineer</p> <p>Name : Kgosihadi Consulting Engineers</p> <p>Address (postal) : 05 Lynx Street, Treesbank AH, Midrand , 1683</p> <p>Telephone : 015 023 0082</p> <p>Facsimile :</p> <p>e-mail : admin@kgosihadi.co.za</p>
1.6 [6.2]	<p>The Agent (4) is : Electrical & Mechanical Engineers</p> <p>Name : MMT Consulting Engineers</p> <p>Address (postal) : Block 6A, Unit 63, Northgate Office Park, Cnr. Aureole & Profit Str., Northgate</p> <p>Telephone : 011 540 0121</p> <p>Facsimile : 011 317 3601</p> <p>e-mail : lloyd@mmtce.co.za</p>
1.7 [6.2]	<p>The Agent (5) is : Community Participation Consultant</p> <p>Name : Ikamva Consulting</p> <p>Address (postal) :</p> <p>Telephone : 012 663 5310</p> <p>Facsimile :</p> <p>e-mail : lisolomzi@kamva.co.za</p>
1.8 [6.2]	<p>The Agent (6) is : Occupational Health & Safety Consultants</p> <p>Name : Thero Services</p> <p>Address (postal) : Greenstone Hill Office Park, Building 5, Upper Floor, South Africa 1609</p> <p>Telephone : 010 021 0132</p> <p>Facsimile :</p> <p>e-mail : olga@theroserv.co.za</p>
1.10	<p>The Principal Agent named in 1.2 above is responsible for the preparation of the contract data schedule and must be contacted should the tenderer be uncertain of the information provided or to be provided. Failure to complete the contract data schedule in full may result in the tender being disqualified</p>
2.1 [1.7]	<p>The law applicable to this agreement: South Africa</p>
2.1 [1.1]	<p>The works comprise:</p> <p style="text-align: right;">The demolition of existing structures and the construction of the Bertrams Multipurpose Centre at 9 Bertrams street, Bertrams in the Johannesburg CBD</p>

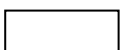
Clause	Data												
2.3 [1.1]	The site is situated in: 9 Bertrams Road, Bertrams, Johannesburg CBD (GPS Coordinates:-26.194113954068573, 28.065405252894152),												
2.4 [12.1.5]	Possession of the site : Approximately 30 days post tender closing												
2.5 [12.2.7]	The period for the commencement of the works after the contractor takes possession of the site is 5 working days, provided that all guarantees, insurances, construction permits, etc. are in place as no extension of time will be granted to the Contractor in failing to provide these documents timeously.												
2.6 [20.1]	Completion of the works in sections is required: No												
2.7 [25.14.2]	Waiver of the contractor's lien or right on continuing possession is required: Yes												
2.8 [B 7.0]	Defined restrictions to the site area: The contractor is to adhere to normal working times												
2.9 [B 16.0]	Geotechnical investigation of the site has been undertaken: Yes												
2.10 [B 7.0]	Existing premises will be occupied: No												
2.11 [B 16.0]	Provision of temporary services is required: YES (As described below)												
	<table border="1"> <thead> <tr> <th>Service</th> <th></th> </tr> </thead> <tbody> <tr> <td>Water</td> <td>A</td> </tr> <tr> <td>Electricity</td> <td>A</td> </tr> <tr> <td>Telecom</td> <td>A</td> </tr> <tr> <td>Ablutions</td> <td>A</td> </tr> <tr> <td colspan="2">Note: Option A = Contractor at his cost; Option B = Employer free of charge; Option C = Employer metered (contractor cost)</td> </tr> </tbody> </table>	Service		Water	A	Electricity	A	Telecom	A	Ablutions	A	Note: Option A = Contractor at his cost; Option B = Employer free of charge; Option C = Employer metered (contractor cost)	
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Electricity	A												
Telecom	A												
Ablutions	A												
Note: Option A = Contractor at his cost; Option B = Employer free of charge; Option C = Employer metered (contractor cost)													
2.12 [B 16.0]	Protection of existing trees and shrubs is required: Yes - to be identified on site												
3.1 [10.1.1]	Contract works insurance is to be effected by the: <ul style="list-style-type: none"> • Contractor • For an amount of Contract Sum + 20% 												

Clause	Data
3.2 <i>[10.1.2]</i>	Supplementary insurance: is to be effected by the <ul style="list-style-type: none"> • Contractor • For an amount of Contract Sum + 20%
3.3 <i>[10.1.3]</i>	Public liability insurance is to be effected by the <ul style="list-style-type: none"> • Contractor • For the sum of R10 million
4.0 <i>[19.1.2 24.1-3]</i>	<p>For the works as a whole: The date for practical completion is 30th June 2023, subject to site handover being on January 2022.</p> <p>The penalty per calendar day is R50,000</p>
5.1 <i>[5.6]</i>	Construction documents copies to be supplied to the contractor free of charge: <p style="text-align: right;">Three copies of the drawings</p>
5.2 <i>[5.4]</i>	The priced document may be used as a specification of materials and goods and work methods: <p style="text-align: right;">No</p>
5.3	The contractor shall provide a schedule of rates: <p style="text-align: right;">No (The completed Bills of Quantities must be supplied)</p>
5.4 <i>[3.11]</i>	Changes made to JBCC standard document: <p style="text-align: right;">Yes - refer to the additions, deletions and alterations to the JBCC Principal Building Agreement as listed under Clause 6.0 below.</p>
5.5	On acceptance of the tender the priced document is to be submitted within: <p style="text-align: right;">Not Applicable - Fully priced BOQ to be submitted with tender</p>
5.6 <i>[B 10.0]</i>	Work to be undertaken by direct contractors : <p style="text-align: right;">None anticipated at present, but the Employer has the right to employ direct contractors at a later date.</p>

Clause	Data
<p>5.7 [19.3.3]</p>	<p>On achievement of practical completion, the contractor is to hand over:</p> <p style="text-align: right;">All required manuals etc. related to the works which must include but not limited to: Electrical, Electronic, HVAC, Plumbing & Drainage, Fire Fighting, Waterproofing, etc.</p>
<p>5.8 [25.1]</p>	<p>The interim payment certificate:</p> <p style="text-align: right;">25th of every month</p>
<p>[25.3.4]</p>	<p>The contract value shall not be adjusted according to CPAP and shall be a fixed priced contract</p>
<p>6.0</p>	<p>CHANGES MADE TO THE STANDARD JBCC DOCUMENT ARE:</p>
	<p>The JBCC Principal Building Agreement makes several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the JBCC Principal Building Agreement.</p> <p>Each item of data given below is cross-referenced to the clause in the JBCC Principal Building Agreement to which it mainly applies.</p> <p>The additions, deletions and alterations to the JBCC Principal Agreement are:</p>
<p>1.0</p>	<p>DEFINITIONS AND INTERPRETATION</p> <p>Clause 1.1 is deemed to be amended by the addition and amendments of the following:</p> <p>Change the Definition of "AGREEMENT" to read as follows: AGREEMENT means the agreement arising from the signing of the Form of Offer and Acceptance by the parties.</p> <p>Change the Definition of "CONSTRUCTION PERIOD" to read as follows: The period commencing on the date of site hand over and ending on the date of practical completion.</p> <p>Change the Definition of "CONTRACT DOCUMENTS" to read as follows: The agreement and all documents referenced therein. The contract documents shall be taken to be mutually explanatory of one another but in the event of ambiguity, discrepancy, divergence or inconsistency in or between them, the JBCC Principal Building Agreement as amended in the contract data shall prevail over all other contract documents.</p> <p>Change the Definition of "CONTRACT SUM" to read as follows: The total of prices in the Form of Offer and Acceptance.</p>

Clause	Data
	<p>EXCEPTIONALLY INCLEMENT WEATHER means weather which is not only extreme or severe but exceeding that which, on the evidence of the past ten years, could reasonably been expected.</p>
5.0	<p>DOCUMENTS</p> <p>Clause 5.2 is amended by deleting the following:</p> <p style="padding-left: 40px;">"Formal signatures are not required to render this agreement binding"</p>
6.0	<p>EMPLOYER’S AGENTS</p> <p>Clause 6.5 is deleted and replaced with the following:</p> <p>6.5 “Should the principal agent or any agent be unable to act or cease to be an agent, the employer shall inform the contractor of the new principal agent or agent appointed.</p>
7.0	<p>DESIGN RESPONSIBILITY</p> <p>Clause 7.0 is amended by the addition of the following clauses to the end thereof:</p> <p>7.4 Notwithstanding the provisions of clause 7.2, the contractor is to ensure that nominated, selected or domestic subcontractors shall simultaneously with the signing of the relevant nominated, selected or domestic sub-contract sign and deliver to the employer a design materials and workmanship warranty and undertaking in favour of the employer.</p> <p>7.5 Any subcontractor whose subcontract involves design work will be required to provide to the employer evidence of "professional indemnity" insurance for such design work.</p> <p style="padding-left: 40px;">If the contractor fails to obtain the necessary design warranties and / or indemnities from the subcontractors, the design responsibility shall be deemed to devolve upon the contractor"</p>
9.0	<p>INDEMNITIES</p> <p>Clause 9.1 is amended by the addition of the following clause to the end thereof:</p> <p>9.1.4 The contractor indemnifies and holds harmless the employer against all liability, losses, claims, damages, penalties, actions, proceedings or judgments (collectively referred to as “Losses”) arising from any infringement of letters, patent design, trademark, name, copyright or other protected rights in respect of any machine, plant, work, materials, thing, system or method of using, fixing, working or arrangement used or fixed or supplied by the contractor, but such indemnity shall</p>

Clause	Data
	<p>not cover any use of the equipment of part thereof otherwise than in accordance with the provisions of the specification. All payments and royalties payable in one sum or by instalments or otherwise shall be included by the contractor in the price and shall be paid by him to those to whom they may be payable. The contractor shall reimburse the employer for all legal and other costs and expenses, including without limitation attorney’s fees on attorney-client scale incurred by the employer in connection with investigation, defending or settling any Losses in connection with pending or threatening litigation in which the employer is a party.</p> <p>Clause 9.2.7 is deleted.</p>
<p>11.0</p>	<p>SECURITY</p> <p>Clause 11.1 is deleted and replaced with the following clause:</p> <p>11.1 The contractor shall provide the security as stated in the contract data. Such security shall be provided to the employer within twenty-one (21) calendar days of acceptance of the contractor’s tender.</p> <p>Clause 11.1.2 is deleted and replaced with the following clauses:</p> <p>11.1.2 The employer has selected the security in terms of clause 11.0, which is a fixed construction guarantee and payment reduction. This guarantee is to be issued by the contractor:</p> <p>11.1.2.1 The contractor shall furnish the employer with a fixed construction guarantee equal in value to ten per cent (10%) of the contract sum within fourteen (14) calendar days from the offer of appointment date</p> <p>11.1.2.2 The fixed construction guarantee shall come into force, be administered and expire in terms of the construction guarantee form included under Part C1 Agreement and Contract Data, Clause C1.3 Construction Guarantee.</p> <p>11.1.2.3 The employer shall return the fixed construction guarantee to the contractor within fourteen (14) calendar days of its expiring.</p> <p>11.1.2.4 The payment reduction to the value certified in a payment certificate shall be made [31.8, 34.8].</p> <p>11.1.2.5 Where the employer has a right of recovery against the contractor [33.0], the employer may issue a written demand in terms of the fixed construction guarantee or may recover from the payment reduction [33.4] or both.</p> <p>Clause 14.6 is deleted and replaced with the following clause:</p> <p>14.6 Payment made by the guarantor to the employer in terms of a construction guarantee shall not prejudice the rights of the employer or contractor.</p>



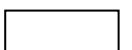
Clause	Data
<p>13.0</p>	<p>SETTING OUT</p> <p>Cause 13.0 is amended by the addition of the following clauses at the end thereof</p> <p>13.2 The contractor shall continuously perform tolerance control checks throughout the contract period and report on these at regular intervals to the principal agent in a format approved by the principal agent.</p> <p>Should the contractor fail to comply with this requirement to the satisfaction of the principal agent, progressively as the structure is constructed, the employer shall be entitled to commission a registered land surveyor to do so on the contractor's behalf and at the contractor's expense.</p> <p>13.3 The contractor shall provide general attendance and all reasonable assistance to the abovementioned or any other land surveyor who may be appointed by the employer.</p>
<p>19.0</p>	<p>PRACTICAL COMPLETION</p> <p>Clause 19.0 is amended by the addition of the following clauses to the end thereof:</p> <p>19.8 Without derogating from the generality of the requirements for practical completion the following specific requirements shall apply:</p> <p>19.8.1 Defects occurring after the issue of the practical completion list requiring remedial work that will in the opinion of the principal agent cause disruption will cause the issue of the certificate of practical completion to be withheld until such defects have been rectified to the satisfaction of the principal agent.</p> <p>19.8.2 The following certificates of compliance shall be required (excluding others that may be required by the local / national authority) from the contractor to achieve practical completion:</p> <ul style="list-style-type: none"> a) A certificate from the contractor that all aspects of the construction regulations of 2014 have been complied with. b) A certificate from the contractor that the National Building Regulations have been complied with c) A certificate of compliance with respect to plumbing and drainage d) An electrical certificate of compliance e) A certificate of compliance and fire clearance certificate from the contractor and fire chief respectively. f) A painting guarantee. g) A mechanical certificate of compliance. h) A structural certificate of compliance. i) A waterproofing certificate of compliance. j) Borehole drilling pumping tests certificate to determine the safe and k) sustainable groundwater yields l) Groundwater Test certificate by an accredited laboratory

Clause	Data
	<p>m) for hydro chemical analysis to determine if the water is suitable for human consumption n) Any other applicable guarantees.</p> <p>19.8.3 A complete set of maintenance and operating manuals together with all workmanship and material warranties and guarantees are to be compiled and issued to the principal agent prior to practical completion being granted. In addition to the abovementioned documentation a formal "on site" handover will be required to be conducted with every discipline in the presence of the contractor as well as the applicable services subcontractor.</p> <p>19.9 After the issue of the certificate of practical completion, entry upon the works to make good defects shall be at such reasonable times as shall be agreed by the principal agent.</p>
<p>23.0</p>	<p>REVISION OF DATE OF PRACTICAL COMPLETION</p> <p>Clause 23.1.1 shall be deleted and replaced with the following:</p> <p>23.1.1 Exceptionally inclement weather</p> <p>"Exceptionally inclement weather" shall be defined as weather conditions in excess of the monthly average recorded for the past 10 (ten) years by the nearest commonly recognised weather bureau in the region of the project.</p> <p>The contractor shall be deemed to have allowed in his programme for the works and opposite this item or in his rates, for the cost of all delays as a result of weather conditions which are average.</p> <p>A delay caused by exceptionally inclement weather conditions will be regarded as a delay only if, in the opinion of the principal agent, all progress on an item or items of work on the critical path of the working programme of the contractor has been brought to a halt. Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the contractor shall make provision in his programme of work for an expected delay of "n" working days caused by normal rainy weather, for which he will not receive any extension of time, where "n" equals 30 days. Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" workings days.</p> <p>Clause 23.0 is amended by the addition of the following clauses to the end thereof:</p> <p>23.9 Revision to the date for practical completion shall only be considered when work on the critical path of the agreed programme for the works is delayed.</p>
<p>25.0</p>	<p>PAYMENT</p> <p>Clause 25.2 is deleted and replaced by the following:</p>

Clause	Data
	<p>25.2 The principal agent shall issue an interim payment certificate every month until the issue of the final payment certificate. The contractor is to issue his payment requisition to the quantity surveyor by the 15th of each month in preparation for the quantity surveyor to issue a valuation to the principal agent by the 23rd of each month, failure to submit a claim will entitle the quantity surveyor to submit a reasonable value for the works done. The payment certificate shall be issued on the date stated and may be for a nil or negative amount.</p> <p>Clause 25.5 is amended by the deletion of the first sentence and replaced with the following:</p> <p style="padding-left: 40px;">Materials and goods shall not, as a general rule, be included in the value certified. Should the principal agent agree, such materials and goods shall be included in the value certified only where, to the satisfaction of the principal agent, the contractor has issued a bank guarantee to the employer in a format to be approved by the principal agent.</p> <p>Clause 25.12 is amended as follows:</p> <p>Clause 25.12.1 is deleted and replaced with the following:</p> <p>25.12.1 Ninety per cent (90%) of such value in interim payment certificates issued up to the date of practical completion.</p> <p>Clause 25.12.2 is deleted and replaced with the following:</p> <p>25.12.2 Ninety-five per cent (95%) of such value in interim payment certificates issued on to the date of practical completion and up to but excluding the date of final completion</p> <p>Clause 25.10 is deleted and replaced with the following:</p> <p>25.10 The employer shall pay to the contractor the amount certified in an interim payment certificate within thirty (30) calendar days of the date of receipt of the contractor’s tax invoice for the amount certified.</p> <p>Clause 25.15 is deleted and replaced with the following clause:</p> <p>25.15 The employer shall pay the contractor the amount certified in the final payment certificate within thirty (30) calendar days of the date of issue of the final payment certificate subject to the contractor giving the employer a tax invoice for the amount due.</p> <p>Clause 25.16 is deleted and replaced with the following clause:</p> <p>25.16 The contractor shall accept or object to the final account within forty-five (45) calendar days of receipt thereof. On acceptance, or should the contractor not</p>

Clause	Data
	<p>object with reasons to the final account within such period, the principal agent shall issue the final payment certificate.</p>
<p>29.0</p>	<p>TERMINATION BY THE EMPLOYER</p> <p>Clause 29.1 is amended by the addition of the following clauses to the end thereof:</p> <p>29.1.4 The contractor's refusal or neglect to comply strictly with any of the conditions of contract.</p> <p>29.1.5 The contractor's estate being sequestrated, liquidated or surrendered in terms of the insolvency laws in force with the Republic of South Africa.</p> <p>29.1.6 The contractor, in the judgment of the employer, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.</p> <p>29.1.7 The contractor fails to perform in terms of the agreement or the employer on reasonable ground believe that the contractor my not be able to comply with his obligation.</p>
<p>30.0</p>	<p>SETTLEMENT BY THE PARTIES</p>
<p>31.0</p>	<p>NEW CLAUSE – SMALL CONTRATOR AND TARGETED ENTERPRISE DEVELOPMENT</p> <p>New Clause 31.0 is added, as follows:</p> <p>The penalty for failing to achieve the monetary value of the target set by the Employer for contract participation by Targeted Enterprises and local SMME contractors in terms of Small Contractor Development of section C3.3 Particular Specifications in Part C3: Scope of Works, is as follows:</p> <p>For SMME:</p> <ul style="list-style-type: none"> • If the Contractor fails to ensure and prove that 40% of the 30% SMME Target Spend is met at the time that 50% of the total contract period is reached, the Employer may, at the Employer's discretion, step in to facilitate the Target being met for which such costs will be recovered from the Contractor through the Recovery Statement • If the Contractor fails to ensure and prove that 60% of the 30% SMME Target Spend is met at the time that 75% of the total contract period is reached, the Employer shall, at the Employer's discretion, apply a Penalty of 50% of the shortfall (shortfall = 75% of 30% Target minus Actual Proven Amount Spent) on the 30% SMME Target Spend Value

Clause	Data
	<ul style="list-style-type: none"> • If the Contractor fails to ensure and prove that 100% of the 30% SMME Target Spend is met at the time that 95% of the total contract period is reached, the Employer shall, at the Employer's discretion, apply a Penalty of 50% of the shortfall (shortfall = 75% of 30% Target minus Actual Proven Amount Spent) on the 30% SMME Target Spend Value • Notwithstanding anything to the contrary herein, the Contractor will not be relieved of the Contractor's obligation to pay all amounts due to an SMME(s), on a fortnightly and/or monthly basis, regardless of when the Contractor receives payments from the Employer. Should the Contractor fail to fulfil this obligation the Employer shall, at the Employer's discretion, apply a penalty of 10% of the amount(s) due to the SMME(s) on a monthly basis and pay a portion of such amounts (for which such portion shall be determined at the Employer's discretion) directly to the affected SMME(s) <p>Notwithstanding the Contractor's obligation to meet the respective Target Spends, the Contractor shall provide a status report on the progress of meeting this target in the requisite Progress Reports.</p> <p>Furthermore, it is a condition of this tender that the successful contractor is required to take full responsibility of managing all appointed Sub-contractors and the quality of their works.</p>
<p>32.0</p>	<p>NEW CLAUSE – PROGRESS REPORTS AND PROGRAMME UPDATES</p> <p>New Clause 32.0 is added, as follows:</p> <p>The Contractor is to generate progress reports and programme updates in the format to be provided by the Employer failing which Penalties will be applied as follows:</p> <ul style="list-style-type: none"> • EPWP Targets & Reporting - The Contractor shall ensure that EPWP Targets and Reporting requirements are met at all times. Reporting shall be in the format to be provided by the Employer and at intervals prescribed by the Employer. The penalty for failure, on the part of the Contractor, to submit any EPWP Reports (including all requisite back-up documentation) on the 20th day of each month (or the previous working day should the 20th fall on a non-working day) until the issue of the Certificate of Practical Completion shall be subject to a penalty of R1000.00 per report per calendar day, until the report is submitted and shall not be reversible. The Contractor shall report on the progress of all aspects relating to the Contract as requested in the report format to be provided by the Employer. • Monthly Progress Reporting: The penalty for failure, on the part of the Contractor, to submit any monthly progress report on the 20th day of each month (or the previous working day should the 20th fall on a non-working day) until the issue of the Certificate of Practical Completion shall be subject to a penalty of R1000.00 per report per calendar day, until the report is submitted and shall not be reversible. The Contractor shall report on the progress of all aspects relating to the Contract as requested in the report format to be provided by the Employer. Progress reports shall further include a report on SMME's and Targeted Enterprise for the JDA that includes the following:



Clause	Data
	<ul style="list-style-type: none"> ○ SMME resources on the site, i.e. supervisors, labour, plant tools and equipment ○ SMME progress of works on site ○ SMME Sub-contractor quality control on site ○ SMME expenditure on the Project versus target expenditure ○ Copies of minutes of the SMME Sub-contractor Contractor progress meetings ○ SMME training on the Project ○ Concerns and improvements to be made <ul style="list-style-type: none"> ● Interim Progress Reporting: The penalty for failure, on the part of the Contractor, to submit any interim progress report on the 10th day of each month (or the previous working day should the 10th fall on a non-working day) until the issue of the Certificate of Practical Completion shall be subject to a penalty of R500.00 per report per calendar day, until the report is submitted and shall not be reversible. The Contractor shall report on the progress of all aspects relating to the Contract as requested in the report format to be provided by the Employer. Progress reports shall further include a report on SMME's for the JDA that includes the following: <ul style="list-style-type: none"> ○ SMME resources on the site, i.e. supervisors, labour, plant tools and equipment ○ SMME progress of works on site ○ SMME quality control on site ○ SMME expenditure on the Project versus target expenditure ○ Copies of minutes of the SMME Sub-contractor and Contractor progress meetings ○ SMME training on the Project Concerns and improvements to be made
	<p>Refer to the Preliminaries Section in the Bill of Quantities for any additional amendments to the Standard JBCC Document.</p>

PART 2: Data Provided by the Contractor

The Contractor is advised to read the *JBCC Principal Building Agreement (May 2018, Edition 6.2)* and section 3.0 *Payment and adjustment of preliminaries* contained in the associated *Contract Data CE*, published by the Joint Building Contracts Committee, in order to understand the implications of this Data which is required to be completed. Copies of these documents may be obtained from the Association of South African Quantity Surveyors (011-3154140), the Master Builders Association (011-205-9000) the South African Association of Consulting Engineers (011-4632022) or the South African Institute of Architects (011-4860684)

Each item of data given below is cross-referenced to the clause in the Conditions of Contract to which it mainly applies.

Clause	Data with reference to the JBCC Principal Building Agreement (Edition 6.2, May 2018)	
1.0	The Contractor is. Name : The address of the Contractor is: Address (physical) : Address (postal) : Telephone : Facsimile: E-mail : TAX / VAT Registration No :	
2.1	The security provisions selected are: [11.1.1] Variable construction guarantee [11.1.2] Fixed Construction Guarantee and Payment Reduction	NO YES
3.2.4	Contract Value shall be adjusted according to the CPAP: Not applicable This tender is for a fixed rate contract.	
3.2.5 [C 3.0]	Payment of preliminaries: Option A	
3.2.6 [C 4.0]	Adjustment of preliminaries: Option A	

.....
Signature
 JDA JBCC

.....
Date

C1.3 CONSTRUCTION GUARANTEE

GUARANTOR DETAILS AND DEFINITIONS

Guarantor means _____
Physical address _____
Guarantor's signatory 1 _____ Capacity _____
Guarantor's signatory 2 _____ Capacity _____
Employer means _____
Contractor means _____
Principal Agent means _____
Works means _____
Site means _____
Agreement means The JBCC Principal Building Agreement (Edition 6.2., May 2018)
Contract Sum means The accepted amount inclusive of tax of
Amount in words _____
Guaranteed Sum means The maximum aggregate amount of
Amount in words _____
Construction Guarantee (Insert Variable or Fixed) (Insert expiry date)

AGREEMENT DETAILS

Sections: Total sections (No or n/a) Last section (No / Identification or n/a)

Principal Agent issues: Interim payment certificates, Final payment certificate, Practical completion certificate/s and Final completion certificate/s

1. VARIABLE CONSTRUCTION GUARANTEE

1.1 Where a variable Construction Guarantee in terms of the Agreement has been selected this 1.0 with 3.0 to 13.0 shall apply. The Guarantor's liability shall be limited to the diminishing amounts of the Guaranteed Sum as follows:

GUARANTOR'S LIABILITY

PERIOD OF LIABILITY

1.1.1 Maximum Guaranteed Sum (not exceeding 10% of the contract sum) in the amount of:

From and including the date of issue of this Construction Guarantee and up to and including the date of the interim payment certificate certifying in excess of 50% of the contract sum

Amount in words: _____

1.1.2 Reducing to the Guaranteed Sum (not exceeding 5% of the contract sum) in the amount of:

From and including the day after the date of the aforesaid interim payment certificate and up to and including the date of the only practical completion certificate or last practical completion certificate where there are sections

Amounts in words: _____

1.1.3 Reducing to the Guaranteed Sum (not exceeding 4.0% of the contract sum) in the amount of:

From and including the day after the date of the applicable practical completion certificate and up to and including the date of the only final completion certificate or last final completion certificate where there are sections

Amounts in words: _____

1.1.4 Reducing to the Guaranteed Sum (not exceeding 2.0% of the contract sum) in the amount of:

Amounts in words: _____

1.2 For avoidance of doubt the Guarantor's liability limits set out in 1.1.1 to 1.1.4 shall apply in respect of any claim received by the Guarantor during the period in question

2. FIXED CONSTRUCTION GUARANTEE

2.1 Where a fixed Construction Guarantee in terms of the Agreement has been selected this 2.0 with 3.0 to 13.0 shall apply. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum as follows:

GUARANTOR'S LIABILITY

Maximum Guaranteed Sum (not exceeding 10.0% of the contract sum) in the amount of:

PERIOD OF LIABILITY

From and including the date of issue of this Construction Guarantee and up to and including the date of the only practical completion certificate or the last practical completion certificate where there are sections, upon which this Construction Guarantee shall expire

Amounts in words: _____

3. The Guarantor hereby acknowledges that:

3.1 Any reference in this Guarantee to the Agreement is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship

3.2 Its obligation under this Guarantee is restricted to the payment of money

4. Subject to the Guarantor's maximum liability referred to in 1.0 or 2.0, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Principal Agent in an interim or final payment certificate has not been made in terms of the Agreement and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of 4.1 and that the sum certified has still not been paid therefore the Employer calls up this Construction Guarantee and demands payment of the sum certified from the Guarantor

4.3 A copy of the said payment certificate which entitles the Employer to receive payment in terms of the Agreement of the sum certified in 4.0

5. Subject to the Guarantor's maximum liability referred to in 1.0 or 2.0, the Guarantor undertakes to pay the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Construction Guarantee stating that:

5.1 The Agreement has been cancelled due to the Contractor's default and that the Construction Guarantee is called up in terms of 5.0. The demand shall enclose a copy of the notice of cancellation; or

5.2 A provisional sequestration or liquidation court order has been granted against the Contractor and that the Construction Guarantee is called up in terms of 5.0. The demand shall enclose a copy of the court order

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4.0 and 5.0 shall not exceed the Guarantor's maximum liability in terms of 1.0 or 2.0

7. Where the Guarantor is a registered insurer and has made payment in terms of 5.0, the Employer shall upon the date of issue of the final payment certificate submit an expense account to the Guarantor showing how all monies received in terms of the Construction Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Construction Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund

8. Payment by the Guarantor in terms of 4.0 or 5.0 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor

9. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer deems fit and the Guarantor shall not have the right to claim his release from this Construction Guarantee on account of any conduct alleged to be prejudicial to the Guarantor

10. The Guarantor chooses the physical address as stated above for all purposes in connection herewith

11. This Construction Guarantee is neither negotiable nor transferable and shall expire in terms of either 1.1.4 or 2.1, or payment in full of the Guaranteed Sum or on the Guarantee expiry date, whichever is the earlier, where after no claims will be considered by the Guarantor. The original of this Construction Guarantee shall be returned to the Guarantor after it has expired

12. This Construction Guarantee, with the required demand notices in terms of 4.0 or 5.0, shall be regarded as a liquid document for the purpose of obtaining a court order

13. Where this Construction Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court

Signed at _____

Date _____

Guarantor's Signatory 1 _____

Guarantor's Signatory 2 _____

Witness _____

Witness _____

Guarantor's seal or stamp

C1.4 OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

THIS AGREEMENT between Johannesburg Development Agency (JDA) (hereinafter called “the Employer”) on the one part, herein represented by:in his/her capacity as..... and..... (hereinafter called “the Contractor”) of the other part herein represented byin his/her capacity as

WHEREAS the Employer is desirous that certain works be constructed, being contract **CONSTRUCTION OF BERTRAMS MULTIPURPOSE CENTRE – CONTRACT NO.: 20/21.7.3.B.8077** and has accepted a tender by the Contractor for the construction, completion and maintenance of such works and whereas the Employer and the Contractor have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Contractor with the provisions of the Occupational Health and Safety Act 1993 (Act 85 of 1993).

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Contractor shall execute the work in accordance with the contract documents pertaining to this contract.
2. This Agreement shall hold good for the duration of construction, commencing from the handover of the site up to the end of the defects liability period.
3. Should the contract be terminated for any reason; this agreement shall lapse upon the date of termination.
4. The Contractor declares himself to be conversant with the following:
 - (a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as “the Act”, together with its amendments thereto.
 - (b) All the requirements of the Construction Regulations hereinafter referred to as the “Regulations”, together with any amendments thereto.
 - (c) The Health and Safety Specification of the Employer as pertaining to the Contractor and to all his subcontractors.
5. In addition to the requirements of the contract, the Contractor agrees to execute all the works forming part of this contract and to operate and utilise all machinery, plant and equipment in accordance with the Act and the Regulations.
6. The Contractor is responsible for the compliance with the Act and the Regulations by all his subcontractors, whether or not selected or nominated and/or approved by the Employer.
7. The Contractor warrants that all his and his subcontractors’ workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act 1993 which cover shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.

8. The Contractor undertakes to ensure that he and/or his subcontractors and/or their respective employees will at all times comply with the following conditions:
- (a) The Contractor undertakes to comply with all provisions of the Act and its Regulations.
 - (b) The Contractor will be obliged to report to the Employer on a regular basis regarding compliance by the Contractor with the Act and its Regulations.
 - (c) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
 - (d) The Employer hereby records an interest in the issue of any formal enquiry conducted in terms of Section 32 of the Occupational Health and Safety Act into any incident involving the Contractor and/or his employees and/or his subcontractors.

In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

for and on behalf of the Contractor who warrants to be duly authorised to do so

Name: _____

Designation: _____

As witnesses:

1. _____

for and on behalf of the Employer who warrants to be duly authorised to do so

Name: _____

Designation: _____

As witnesses:

1. _____

C1.5 AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT NO. 85 OF 1993

THIS AGREEMENT is made between the Johannesburg Development Agency represented by the(hereinafter called the EMPLOYER of the one part, herein represented by: in his/her capacity as: and: (hereinafter called the CONTRACTOR) of the other part, herein represented by..... in his/her capacity as: duly authorised to sign on behalf of the Contractor.

WHEREAS the CONTRACTOR is the Mandatory of the EMPLOYER in consequence of an agreement between the CONTRACTOR and the EMPLOYER in respect of

CONTRACT NO. : 20/21.7.3.B.8077/for the

CONSTRUCTION OF BERTRAMS MULTIPURPOSE CENTRE

AND WHEREAS the EMPLOYER and the CONTRACTOR have agreed to enter into an agreement in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993, as amended by OHS Act Amendment Act No 181/1993 (hereinafter referred to as the ACT);

NOW THEREFORE the parties agree as follows:

1. The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.
2. The CONTRACTOR undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations: Provided that should the EMPLOYER have prescribed certain arrangements and procedures that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.
3. The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations, and the CONTRACTOR expressly absolves the EMPLOYER and the Employer's AGENTS from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the contract.
4. The CONTRACTOR agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with his undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.

5. The CONTRACTOR shall be obliged to report forthwith to the EMPLOYER any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

Thus signed at for and on behalf of the **CONTRACTOR**

on this the day of 20.....

SIGNATURE: _____

NAME AND SURNAME: _____

CAPACITY: _____

WITNESS: _____

Thus signed at for and on behalf of the **EMPLOYER** on this

the day of 20.....

SIGNATURE: _____

NAME AND SURNAME: _____

CAPACITY: _____

WITNESS: _____

PART C2: PRICING DATA

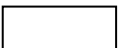
C2.1 PRICING INSTRUCTIONS

1. The Bills of Quantities have been drawn up in accordance with the Standard System of Measuring Building Work (as amended) published and issued by the Association of South African Quantity Surveyors (Sixth Edition (Revised)), 1999. Where applicable the:
 - a) civil engineering work has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardised Specifications for Civil Engineering Works.
 - b) mechanical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Refrigeration, Air-Conditioning and Ventilation Installations, published by the South African Association of Quantity Surveyors, July 1990).
 - c) electrical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Electrical Work, published by the South African Association of Quantity Surveyors, (July, 2005).
2. The agreement is based on the JBCC Principal Building Agreement, prepared by the Joint Building Contracts Committee, Edition 6.2, May 2018. The additions, deletions and alterations to the JBCC Principal Building Agreement as well as the contract specific variables are stated in the Contract Data.
3. The ASAQS Preliminaries compiled by the Association of South African Quantity Surveyors, August 2016, are forming part of the overall Preliminaries Bill of Quantities and the preliminaries specific variables are stated within the Preliminaries Bills of Quantities.
4. Descriptions in the Bills of Quantities are abbreviated and comply generally with those in the “Model Preambles for Trades 2017”.
5. Unless otherwise stated, items are measured net in accordance with the drawings and no allowance is made for waste.
6. The prices and rates to be inserted in the Bills of Quantities are to be the full inclusive for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.
7. A price or rate is to be entered against each item in the Bills of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities.
8. Except where rates only are required, insert all amounts to be included in the total tendered price in the “amount” column and show the corresponding total tendered price.
9. It will be assumed that prices included in the Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards).

10. The drawings listed in the Scope of Works used for the setting up these Bills of Quantities are kept by the quantity surveyor and can be viewed at any time during office hours up until the completion of the works.
11. Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted, subject to the Principal Agent's approval.
12. Where any item is not relevant to this specific contract, such item is marked N/A (signifying "not applicable")
13. The Contract Data and the standard form of contract referenced therein must be studied for the full extent and meaning of each and every clause set out in Section 1 (Preliminary and General) of the Bills of Quantities
14. The Bills of Quantities is not intended for the ordering of materials or programming of the works. Any ordering of materials or programming of the works, based on the Bills of Quantities, is at the Contractor's risk.
15. The amount of the Preliminary Section to be included in each monthly payment certificate shall be assessed as an amount prorated to the value of the work duly executed in the same ratio as the preliminaries bears to the total of prices excluding any contingency sum, the amount for the Preliminary and General Section and any amount in respect of contract price adjustment provided for in the contract.
16. Where the initial contract period is extended, the monthly charge shall be calculated on the basis as set out in 15 but taking into account the revised period for completing the works.
17. The amount or items of the Preliminary Section shall be adjusted to take account of the theoretical financial effect which changes in time or value (or both) have on this section. Such adjustments shall be based on adjustments in the following categories as recorded in the Bills of Quantities:
 - a) an amount which is not to be varied, namely Fixed (F)
 - b) an amount which is to be varied in proportion to the contract value, namely Value Related (V); and
 - c) an amount which is to be varied in proportion to the contract period as compared to the initial construction period excluding revisions to the construction period for which no adjustment to the contractor is not entitled to in terms of the contract, namely Time Related (T).
18. Where no provision is made in the Bills of Quantities to indicate which of the three categories in 17 apply or where no selection is made, the adjustments shall be based on the following breakdown:
 - a) 10 percent is Fixed;
 - b) 15 percent is Value Related
 - c) 75 percent is Time Related.
19. The adjustment of the Preliminary Section shall apply notwithstanding the actual employment of resources in the execution of the works. The contract value used for the adjustment of the Preliminary Section shall exclude any contingency sum, the amount for the Preliminary Section and any amount in respect of contract price adjustment provided for in the contract. Adjustments in respect of any staged or sectional completion shall be prorated to the value of each section.
20. ~~As a guide, the Bills of Quantities have separately outlined scope of works to be executed by local SMME's as per the requirements of this tender (minimum 30% SMME spend). In this regard, separate envisaged preliminaries and general items have been included for each respective trade, and the Contractor is duly advised to strictly price for these preliminary items separately from those~~

~~of the “Main Contractors” scope; failure to do so will/may result in the tenderer being disqualified from the bidding process.~~

- 21. The quantities of work as measured and accepted and certified for payment in accordance with the conditions of contract, and not the quantities stated in the Bill of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by difference between the quantities in the Bill of Quantities and the quantities certified for payment. The Ordering of materials is not to be based on the Bill of Quantities, but only on information issued for construction purposes.
- 22. For the purposes of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:
- 23. the
 - Unit : The unit of measurement for each item of work as defined in the Standardized, Project or Particular Specifications
 - Quantity : The number of units of work for each item
 - Rate : The payment per unit of work at each which the Tenderer tenders to do the work
 - Amount : The quantity of an item multiplied by the tendered rate of the (same) item
 - Sum : An amount tendered for an item, the extent of which is described in the Bill of Quantities, the Specifications or elsewhere, but of which the quantity of work is not measured in units
- 24. The units of measurements indicated in the bill of Quantities are metric units. The following abbreviations may appear in the Bill of Quantities:
 - mm = millimetre
 - m = metre
 - km = kilometre
 - km-pass = kilometre-pass
 - m² = square metre
 - m²-pass = square metre-pass
 - ha = hectare
 - m³ = cubic metre
 - m³-km = cubic metre-kilometre
 - kW = kilowatt
 - kN = kilonewton
 - kg = kilogram
 - t = ton (1 000 kg)
 - % = per cent
 - MN = meganewton
 - MN-m = meganewton-metre
 - PC Sum = Prime Cost Sum (Cost of material supplied excluding vat, profit and labour, but including transport and delivery costs)
 - Prov Sum = Provisional Sum
- 25. Occupational Health and Safety Act and Construction Regulations
A payment item in the Bill of Quantities has been made to allow the tenderers to price for compliance with OHSA and the Construction Regulations. This payment item, must also include for the erection of Visitors Indemnity Signs and for ensuring that visitors receive instructions and sign an indemnity declaration.



C2.2 BILL OF QUANTITIES (Independent numbering)

PART C3: SCOPE OF WORK

C3.1. Description of the Works

- C3.1.1. Employer's objectives
- C3.1.2. Overview of the works
- C3.1.3. Location of the works
- C3.1.4. Temporary works
- C3.1.5. Access and working areas

C3.2. Engineering

- C3.2.1. Design services and activity matrix
- C3.2.2. Employer's design
- C3.2.3. Design brief
- C3.2.4. Drawings
- C3.2.5. Design procedures

C3.3. Procurement

- C3.3.1. Requirements
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C3.4. Construction

- C3.4.1. Works specifications
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- C3.4.3. Construction Equipment
- C3.4.4. Existing services
- C3.4.5. Site establishment
- C3.4.6. Site usage
- C3.4.7. Permits and way leaves
- C3.4.8. Alterations, additions, extensions and modifications to existing works
- C3.4.9. Inspection of adjoining properties
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- C3.4.11. Survey control and setting out of the works
- C3.4.12. Features requiring special attention

C3.5. Management

- C3.5.1. Health and safety specification
- C3.5.2. Environmental specifications

PART C3: SCOPE OF WORK

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 Employer's objectives

The Johannesburg Development Agency has been appointed by the City of Johannesburg for the implementation of the Construction Works at BERTRAMS MULTIPURPOSE CENTRE.

This contract is for the **Construction works at BERTRAMS MULTIPURPOSE CENTRE**

The Johannesburg Development Agency (JDA)'s objective is to construct BERTRAMS MULTIPURPOSE CENTRE.

The Project will seek to:

- house several multipurpose functions that include a community hall, senior citizens support, women's empowerment centre, child aftercare, social development offices as well as youth and skills development facilities.
- In addition, a street facing agricultural garden as well agricultural facilities housing training rooms, hydroponic and aquaponic facilities have been allowed for. The garden component extends to the roof top through balconies and vertical walls and touches lightly on some of the interior spaces as green walls.
- Support local economic development including local SMMEs
- Encourage further investment and upgrading in the area
- Promote improved social cohesion

C3.1.2 Overview of the works

In general the scope of works is envisaged to comprise the demolition of existing structures and the construction of a new multi storey multipurpose centre.

C3.1.3 Location of the works

The site is situated on:

9 Bertrams Road, Bertrams, Johannesburg (GPS Coordinates: - 26.194113954068573, 28.065405252894152).

C3.1.4 Temporary works

The contractor is to design, supply, construct, demolish and spoil at his own cost any temporary works required for the construction of the works.

As the works are to be constructed within a built-up urban area, the Contractor will be required to carry out all temporary works that will be necessary to maintain the flow of traffic and to ensure that pedestrian and vehicular access is maintained to local residential buildings and businesses.

C3.1.5 Access and working areas

Access to the site is on Bertrams Road (No 9) in Bertrams.

Working space is sometimes restricted. The construction method used in these restricted areas largely depends on the Contractor's Plant. Notwithstanding, measurement and payment will be strictly according to the specified cross-sections and dimensions irrespective of the method used, and the rates and prices tendered will be deemed to include full compensation for any difficulties encountered by the Contractor while working in restricted areas. No extra payment nor any claim for payment due to these difficulties will be considered.

C3.2 ENGINEERING

C3.2.1 Design Services & Activity Matrix

The following parties are responsible for the various design stages of the project.

DESCRIPTION	RESPONSIBLE
Concept, feasibility and overall process	Employers Agents / Professional Team
Basic Principal Agent and Preliminary Design	Employers Agents / Professional Team
Final design to approval for construction stage	Employers Agents / Professional Team
Temporary Works	Contractor
Preparation of as built drawings	Employers Agents / Professional Team / Contractor

C3.2.2 Employers Design

All permanent works required for construction shall be designed by the employer and his appointed agents / professional team.

C3.2.3 Design Brief

The Employer has briefed the consultants as to the design requirements.

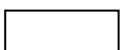
C3.2.4 Drawings

The drawings included on the CD/s attached to this document are as per the drawing register appearing in the CD/s attached. Contractors are to ensure that all drawings attached to this document are as per the drawing register. The drawings included with the tender document are for information and tender purposes only. Detail construction drawings will be issued to the contractor at site handover and revisions thereto during the construction stage of the project.

The following drawings are applicable to the contract:

Refer to drawings attached.

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



Only figured dimensions shall be used and drawings are not to be scaled unless so instructed by the principal agent. The principal agent will supply any figured dimensions, which may have been omitted from the drawings.

All drawings and documents are to be considered the sole property of the Consultants and are to be returned to them on completion of the Works.

The drawings, etc., are to be used by the Contractor for the purpose of this Contract only. All drawings must be properly cared for, protected and kept in good condition.

Should any part or parts of the Drawings, Specifications or Bills of Quantities not be clearly intelligible to the Contractor, or the material or articles to be used in the execution of the Works be considered insufficiently described or the manner in which the work is to be carried out not be clear, the Contractor must obtain from the Principal Agent the necessary information to clarify such Drawings, Specification, Bills of Quantities or instructions which request shall be in writing.

The Contractor shall be held solely responsible for and shall, at his own expense, rectify any errors arising out of incorrect interpretation of the Drawings, Specifications, Bills of Quantities or instructions.

Upon receipt of detail drawings for any work, the Contractor shall, before putting that work in hand, ascertain that the dimensions given on the detail drawings correspond with the dimensions of any work already built and which governs the sizes of any work for which details are now issued.

In the event of the detail drawings not agreeing with the works already built, the discrepancy shall be brought to the Principal Agent's attention timeously and the detail drawings shall be returned at once for alterations.

All dimensions will be figured on the drawings or may be calculated from figured dimensions and are always to be followed. No dimensions shall be obtained by scaling.

C3.2.5 Design Procedures

Where the Contractor is required to design any sub-contract or specialist works, the relevant professional indemnity must be taken out at the contractor's costs. All shop drawings must be issued timeously for approval by the Principal Agent. A late issue of shop drawings by the Contractor will not constitute a valid claim for extension of time.

C3.3 PROCUREMENT

C3.3.1 Requirements

The contractor shall be required to adopt labour-based techniques through the full spectrum of the works with the proviso that the Client's specific objectives regarding time and quality are not compromised. Maximisation of employment shall be of the essence on this contract.

Together with their tenders, all Tenderers are required to submit a comprehensive implementation plan clearly stating the labour content and number of jobs that shall be created. The employment of labour shall be reflected in a programme in sufficient details to enable the Project Manager to monitor and compare it with the implementation plan.

The Contractor shall be required to submit employment data on a monthly basis to the Project Manager.

Tenderers are to also note that it is an explicit condition of this tender that all unskilled labourers on the Project are to be employed from the local community. The Contractor shall, in general, maximise the involvement of the local community.

C3.3.2 Small Contractor Development

C3.3.2.1 Definitions and Applicable Legislation

(A) Definitions

Unless inconsistent with the context, in these specifications the following terms, words or expressions shall have the meanings hereby assigned to them:

Start-up Enterprises

An enterprise that has been in existence and operating for less than two years.

Small Enterprises

An enterprise that has a CIDB grading designation of 1 or 2.

Micro Enterprises

An enterprise that has a CIDB grading designation of 3.

Locally based SMMEs

Enterprises that have their operational base in the ward in which the Project is to be executed or, alternatively, the members of the enterprise are resident in the particular ward.

Should suitable locally based SMME contractors as defined above not be available in the particular ward, then they shall be sourced from adjacent wards.

Black Business Enterprise

Black Business Enterprise is a legal entity which adheres to statutory labour practices, is registered with SARS and is a continuing and independent Enterprise, providing a Commercially Useful Function:

- a) Whose management and daily business operations are in the control of one or more Black Persons, and
- b) Which is at least 50,1% owned by one or more Black Persons who are Principals.”

Contract Participation

Contract Participation in terms of this contract is a process by which the Employer implements Government’s objectives by setting a target relating to small contractor development which the Contractor shall achieve as a minimum.

Contract Participation Goal (CPG)

Contract Participation Goal is the monetary value of the target set by the Employer in the Contract Participation process.

Contract Participation Performance (CPP)

Contract Participation Performance is the measure of the Contractor’s progress in achieving the CPG.

(B) Applicable Legislation

The following Acts, as amended from time to time, are predominant amongst those which apply to the construction industry and are listed here for reference purposes only:

- The Constitution of South Africa;
- Preferential Procurement Policy Framework Act No. 5 of 2000;
- Construction Industry Development Board Act No. 38 of 2000;
- Broad-Based Black Economic Empowerment Act No. 53 of 2003.

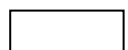
C3.3.2.2 Participation and Advancement of Start-Up, Small and Micro Enterprises

The City of Johannesburg has identified job creation and access to procurement opportunities by Start-ups, Small and Micro enterprises (SMMEs) as an essential requirement towards building an economically viable City.

It is a condition of this tender that the successful contractor is required to sub contract a minimum value of work to **SMME’s** equal to **30%** of the contract sum. **The Bidder will be required to allocate work to SMME’s at market related rates.**

If it is established that the SMMEs are sufficiently resourced to execute the proposed works as a complete package the Contractor may conclude full sub-contract agreements with locally based SMMEs to a minimum value of **30%**.

The form of contract to be used with SMMEs is the MBSA Domestic Subcontract Agreement or a JDA approved form of contract. The Contract Data must record



the specific requirements in respect of penalties, retention and payment. With regard to the latter, the Contractor is to allow for fortnightly certificates from the SMMEs and for payment to the SMMEs to be effected within 7 days of certification. In order to achieve the goals of this policy and to ensure that the SMMEs are treated fairly and given every opportunity to advance their business whilst delivering a successful Project, the Contractor is to note the following and provide for any cost that may be associated therewith.

1. The Contractor shall subcontract the local SMME works at the Contractor's tendered rates.
2. The Contractor will be expected to have clearly specified the programme dates to the SMME contractors and these dates are to be included in the contract of agreement between the two parties.

The Contractor is to monitor the SMME contractor's progress against the programme and hold progress meetings with the SMME contractors where minutes are to be kept and signed off by both parties.

3. The Contractor is to assess the skills of the SMME contractor and provide the relevant support and training where it is necessary in order for the SMME contractor to complete the works to programme, budget and specification. The Managing Contractor will be expected to provide on-site training to the SMME contractors that will ensure that the SMME contractor's staff is suitably trained to execute the works and that they receive sufficient relevant experience on the Project.
4. The Contractor is responsible for safety compliance on the Project and will assist the SMME contractors in all aspects to achieve safety compliance, that will include:
 - a) Assisting the SMME contractors with developing their safety files, legal appointments, etc.
 - b) Assisting the SMME contractors with achieving safety on site.
 - c) Having tool box talks with the SMME contractor's employees on a daily basis.
 - d) Providing all safety equipment and signage.
 - e) Providing safety training where necessary.

5. Contractor is to provide all the necessary equipment for the timeous monitoring and the checking of the quality of works as carried out by the SMME contractors. The Contractor will be expected to monitor the SMME contractor's works for quality compliance and provide all the necessary support to the SMME contractors in order to achieve quality requirements. The Contractor is to ensure that if the SMME contractor's quality of works does not achieve specification the Contractor will assist the SMME contractors to achieve specification and not allow the works to continue until the quality requirements are achieved.

6. The Contractor is to generate monthly reports for the JDA that includes the following:

- a) SMME contractor resources on the site, ie supervisors, labour, plant tools and equipment
- b) SMME contractor progress of works on site.
- c) SMME contractor quality control on site.
- d) SMME contractor expenditure on the Project versus target expenditure.
- e) Copies of minutes of the SMME contractor and Contractor progress meetings.
- f) Concerns and improvements to be made.

The Tenderers are to price the works to achieve full compliance with the above requirements. Failure of the Contractor to achieve these requirements may result in the JDA enforcing compliance by appointing 3rd parties if necessary to assist and deducting all reasonable costs for achieving compliance from money due to the Contractor.

Following from the above, the SMME's to be contracted on the Project must be selected from the provided database which is attached on this document contract. The data base includes SMME that are youth, women owned, disabled and ex-combats. The contractor will be expected to give preference to SMME's that comply with all/most of these groups. The following information must be provided by said contractor on the date of tender closure.

- 1. Detailed approach and methodology on the employment of local SMME's
- 2. SMME/s company name/s to be employed on the Project.
- 3. SMME contact persons
- 4. Works to be executed by SMME/s
- 5. Programme (anticipated start, duration and end dates) applicable to the works defined in item 4 above.
- 6. Estimated value of the works identified in item 4 above.

JDA reserves the right to withdraw our acceptance of offer, should the appointed contractor fail to satisfactorily address the above requirements (1 to 6) within 14 days of the commencement date of the contract. Approved documentation will form part of the contract.

(a) Contract Participation Goal (CPG)

The CPG is the monetary value of the target set by the Employer and will be calculated as follows:

CPG = final contract value (excluding CPA and VAT) x (target % set by the Employer for Targeted Enterprises and local SMME contractors)

The final contract value is the total value of certified work measured at the date of issue of the Certificate of Completion.

It is the Contractor's responsibility to ensure that the CPG target is achieved.

(b) Contract Participation Performance (CPP)

The CPP is the monetary value of the Contractor's actual progress towards achievement of the CPG calculated as follows:

CPP = total value (excluding CPA and VAT) of contribution by Targeted Enterprises and local SMME contractors

The Contractor's Contract Participation Performance will be measured monthly in order to monitor the extent to which he is striving to reach the CPG. The basis of monitoring shall be the levels of the individual contributions for Targeted Enterprises and local SMME contractors. Monthly returns, in a format approved by the Employer, are required from the Contractor and shall be submitted with each interim payment certificate. Failure to adhere to this requirement shall result in the delay of any payment due until the Employer's Agent confirms that the information has been received.

To assist in the measurement of CPP, the Contractor shall include in his contract programme details of how he will achieve the CPG. This shall include CPG achievement details for both the specific work indicated for CPG in terms of this contract for completion by Targeted Enterprises and local SMME contractors as well as details for any other work that the Contractor may use towards achieving the CPG. The detail shall be provided not later than one month after the Employer's Agent has accepted the original construction programme and shall be updated with every subsequent revision of the programme.

In the event that the Contractor fails to substantiate that any failure to achieve the Contract Participation Goal (CPG) is due to quantitative under runs, the elimination of items contracted to Targeted Enterprises and local SMME contractors, or any other reason beyond the Contractor's control which may be acceptable to the Employer, the Contractor shall be liable for a penalty as prescribed in Clause JBCC B 12.0 of the Contract Data.

C3.4 CONSTRUCTION

C3.4.1 Works specifications

Applicable national and international standards

For preambles refer to “General Specification of Materials and Methods used for Building Contracts” (GP/ASC)

Particular / generic specifications

Works are to be carried out in accordance with the construction drawings and according to the Johannesburg Development Agency, Johannesburg Roads Agency and City of Johannesburg’s norms and standards.

Certification by recognized bodies

None Applicable.

C3.4.2 Plant and Materials

The contractor shall ensure that adequate plant and materials are procured at his own cost and available as required in order to complete the works as specified in line with the contract programme. The contractor shall supply a report to the Principal Agent on a fortnightly basis as to the plant and materials on site (or on order), and their utilization in relation to the construction programme.

There is no guarantee given or implied that the Contractor will be permitted to utilise any or all of the plant he proposes to use in the construction of the Works.

C3.4.3 Construction Equipment

The contractor shall ensure that adequate construction equipment is available at his own cost as required in order to complete the works as specified in line with the contract programme. The contractor shall supply a report to the Principal Agent on a fortnightly basis as to the construction equipment on site and their utilization in relation to the construction programme.

There is no guarantee given or implied that the Contractor will be permitted to utilise any or all of the equipment he proposes to use in the construction of the Works.

C3.4.4 Existing Services

All known existing services and those services which require relocation and protection, are shown on the services plans. The Contractor’s attention is drawn to the fact that such services information is based on information supplied by others, and accuracy and completeness of this information has not been confirmed. The contractor will therefore be required to proceed with extreme caution in order to avoid damage to existing services.

In general, the engineer may call upon the contractor to re-excavate trenches previously dug and backfilled by others where in the opinion of the engineer such work is necessary to ensure the stability of any other works over such trenches. This in no way relieves the contractor of his responsibilities in term of the works.

C3.4.5 Site Establishment

The Contractor shall make available temporary facilities necessary for providing the works which are not provided by the Employer including telecommunications, security services, medical, fire protection, sanitation and toilets, waste disposal, etc.

The contractor shall not make any changes to the senior management relative to the agreement without the principal agent's express written approval.

Services and Facilities Provided by the Employer:

- Nil

Facilities Provided by the Contractor:

- The contractor is to provide facilities, necessary to complete the project as specified.
- The contractor is to provide suitable hoarding to the entire site for the entire duration of the project to meet the Principal Agent's requirements. Including any necessary making good upon completion.

Storage and Laboratory Facilities:

- The contractor is to provide facilities, necessary to complete the project as specified.

Other Facilities and Services:

- The contractor is to provide facilities, necessary to complete the project as specified.

Vehicles and Equipment:

- The contractor is to provide vehicles and equipment necessary to complete the project as specified.

Advertising Rights:

- The contractor may not place any advertising boards or the like on the site or in any public area without the express written permission of the employer.

Notice Boards:

- The contractor must place a contract notice board outside his site camp as specified by the employer.

Office Accommodation for Meeting Room:

- The contractor must provide a meeting room to accommodate a maximum of 20 people. The meeting room is to be air-conditioned.
- The contractor must provide an air-conditioned office space for the engineers for construction monitoring.

C3.4.6 Site Usage

The contractor will have unlimited access to the site, however all construction activities are to comply with the City of Johannesburg's by laws. The accommodation of vehicular and pedestrian traffic on the site is to be maintained at all times.

The contractor is to allow for the accommodation and diversion of pedestrian traffic in his preliminaries & general items all in accordance with the South African Road Traffic Signs Manual, The Occupational Health & Safety Act & The Construction Regulations as amended, including on-going liaison with the traffic authorities and management of traffic, alterations to kerbing and landscaping, barricading road entrances, temporary signage, dust screens,

painting of lines, etc. The traffic accommodation proposal shall be approved by the Principal Agent prior to the execution of the works.

The contractor is to maintain temporary accesses to all businesses during business hours and to all residential properties outside of business hours. In the event that the contractor cannot maintain access to residents' properties for vehicular parking and the like, the contractor is to provide alternative secure parking for residents at his own cost. Similarly, should residents be forced to park on the street due to construction activities, the contractor shall provide security personnel to guard the resident's vehicles.

The cost hereof shall be included in the contractor's preliminaries & general items.

C3.4.7 Permits and way leaves

Way leaves shall be supplied by the contractor. Contractors are to comply with the terms and conditions of the way leaves as supplied by the various service provider departments.

C3.4.8 Alterations, additions, extensions and modifications to existing works

Care must be taken not to affect the structures stability and props must be installed if there is any doubt as to the structural integrity of the building. All rubble must be removed in a manner acceptable to the Principal Agent.

The works at tender stage are not finalised and are subject to change.

The Architect will prepare a handover document including photographs of the existing building.

C3.4.9 Inspection of Adjoining Properties

Contractors are to ensure that adequate inspections of adjoining properties are carried out (and records are kept thereof) to ensure that any claims received from adjoining properties due to damage can be dealt with decisively. The settlement of any claims in this regard shall be dealt with in terms of the policies in place by the City of Johannesburg. Photographs must be taken to document the inspection.

C3.4.10 Water and Electricity for Construction Purposes

The cost for temporary water and electricity would be for the contractor's account.

C3.4.11 Survey Control and setting out of the works

By the Contractor

C3.4.12 Features requiring special attention

(a) Site maintenance

During progress of the work and upon completion thereof, the Site of the Works shall be kept and left in a clean and orderly condition. The Contractor shall store materials and equipment for which he is responsible in an orderly manner, and shall keep the Site free from debris and obstructions.

(b) Testing and quality control

(i) Contractor to Engage Services of an Independent Laboratory

Notwithstanding the requirements of the Specifications pertaining to testing and quality control, the Contractor shall engage the services of an approved independent laboratory to undertake all testing of materials, the results of which are specified in, or may reasonably be inferred from, the Contract. These results will be taken into consideration by the Principal Agent in deciding whether the quality of materials utilised and workmanship achieved by the Contractor comply with the requirements of the Specifications. .

The Contractor shall be responsible for arranging with the independent testing laboratory for the timeous carrying out of all such testing specified in the Contract, at not less than the frequencies and in the manner specified. The Contractor shall promptly provide the Principal Agent with copies of the results of all such testing carried out by the independent laboratory.

For the purposes of this clause, an "independent laboratory" shall mean an "approved laboratory" which is not under the management or control of the Contractor and in which the Contractor has no financial interest, nor which has any control or financial interest in the Contractor.

(ii) Costs of Testing

(a) Costs of Testing

The costs of all testing carried out by the independent laboratory shall be borne by the Contractor and shall be deemed to be included in the bided rates and prices for the respective items of work as listed in the Schedule of Quantities and which require testing in terms of the Specifications. No separate payments will be made by the Employer to the Contractor in respect of any testing carried out.

Where, as a result of the consistency of the materials varying or as a result of failure to meet the required specifications for the work, it becomes necessary to carry out additional tests (e.g. re-tests on rectified work and/or replacement materials), the costs of such additional testing shall be for the Contractor's account.

(b) Additional Tests Required by the Principal Agent

Additional testing required by the Principal Agent, shall be reimbursed to the Contractor against substitution of the Provisional Sum allowed therefore in the Schedule of Quantities; provided always that the costs of any such additional tests ordered by the Principal Agent, the results of which indicate that the quality of the materials utilised and/or the standard of workmanship achieved are/is not in accordance with the specifications, shall not be reimbursable to the Contractor.

(c) Subcontractors

All matters pertaining to subcontractors (including Nominated Subcontractors) and the work executed by them shall be dealt with directly between the Principal Agent and the Contractor in the context of all subcontract work being an integral part of the Works for which the Contractor is responsible.

The Principal Agent will not liaise directly with any subcontractors nor will he issue instructions concerning the subcontract works directly to any subcontractor.

All matters arising from the subcontract agreements shall be dealt with directly between the Contractor and the subcontractors and the Principal Agent will not become involved.

C3.5 MANAGEMENT

C3.5.1 HEALTH AND SAFETY SPECIFICATIONS

This part of C3.5 Management contains specifications for Health and Safety matters not covered by C3.4 Construction Specifications.

The number of each clause in this specification is prefixed with an E to differentiate these clauses and items.

SECTION E1000: HEALTH AND SAFETY REQUIREMENTS

E1001 SCOPE

This health and safety specification establishes the overarching framework within which a contractor is required to satisfy general requirements for occupation health and safety in an engineering and construction works contract.

Note: (1) This specification establishes general requirements to enable the employer and the contractor to satisfy the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations, 2014.

(2) The Construction Regulations, 2014, require an employer to stop any contractor from executing construction work which is not in accordance with the contractor's health and safety plan for the site or which poses a threat to the health and safety of persons.

E1002 DEFINITIONS

Act: the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).

competent person: any person having the knowledge, training and experience specific to the work or task being performed.

ergonomics: the application of scientific information concerning humans to the design of objects, systems and the environment for human use in order to optimize human well-being and overall system performance.

hazard: a source of or exposure to danger.

incident: an event or occurrence occurring at work or arising out of or in connection with the activities of persons at work, or in connection with the use of plant or machinery, in which, or in consequence of which:

- (a) any person dies, becomes unconscious, suffers the loss of a limb or part of a limb or is otherwise injured or becomes ill to such a degree that he is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or to continue with the activity for which he was employed or is usually employed;
- (b) a major incident occurred; or
- (c) the health or safety of any person was endangered and where:

- (i) a dangerous substance was spilled;
- (ii) the uncontrolled release of any substance under pressure took place;
- (iii) machinery or any part thereof fractured or failed resulting in flying, falling or uncontrolled moving objects; or machinery ran out of control.

health and safety plan: a documented plan which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified.

health and safety specification: a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons.

inspector: a person designated as such under section 28 of the Act.

major incident: an occurrence of catastrophic proportions, resulting from the use of plant or machinery, or from activities at a workplace.

reasonably practicable: practicable having regard to:

- (a) the severity and scope of the hazard or risk concerned;
- (b) the state of knowledge reasonably available concerning that hazard or risk and of any means of removing or mitigating that hazard or risk;
- (c) the availability and suitability of means to remove or mitigate that hazard or risk; and
- (d) the cost of removing or mitigating that hazard or risk in relation to the benefits deriving therefrom.

risk: the probability that injury or damage will occur.

safe: free from any hazard.

scaffold: any temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both.

specification data: data, provisions and variations that make this specification applicable to a particular contract.

Structure:

- (a) any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
- (b) any formwork, false work, scaffold or other structure designed or used to provide support or means of access during construction work; or
- (c) any fixed plant in respect of work which includes the installation, commissioning, decommissioning or dismantling and where any such work involves a risk of a person falling two meters or more.

substance: any solid, liquid, vapour, gas or aerosol, or combination thereof.

suitable: capable of fulfilling or having fulfilled the intended function or fit for its intended purpose.

E1003 INTERPRETATION

E3.1 The Act and its associated regulations shall have precedence in the interpretation of any ambiguity or inconsistency between it and this specification.

E3.2 Compliance with the requirements of this specification does not necessarily result in compliance with the provisions of the Act.

E1004 REQUIREMENTS

E4.1 General requirements

- E4.1.1 The contractor shall execute the works in a manner that complies with all the requirements of the Act and all its associated regulations, and in so doing, minimize the risk of incidents occurring.
- E4.1.2 The contractor shall with respect to the site and the engineering and construction works that are contemplated:
 - a) Identify the hazards and evaluate the risks associated with such work constituting a hazard to the health and safety of such employees and the steps that need to be taken to comply with the Act
 - b) As far as is reasonably practicable, prevent the exposure of such employees to the hazards concerned or, where prevention is not reasonably practicable, minimize such exposure.
- E4.1.3 The contractor shall as far as is reasonably practicable, cause every employee to be made conversant with the hazards to his health and safety attached to any work which he has to perform, any article or substance which he has to produce, process, use, handle, store or transport and any plant or machinery which he is required or permitted to use, as well as with the precautionary measures which should be taken and observed with the respect to those hazards.

- E4.1.4 The contractor shall ensure that all employees under his or her control are:
- (a) informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment
 - (b) issued with proof of health and safety induction training issued by a competent person and carry proof of such induction when working on site.
- E4.1.5 The contractor shall not allow or permit any employee to enter any site, unless such person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.
- E4.1.6 The contractor shall ensure that each visitor to a construction site, save where such visitor only visits the site office and is not in direct contact with the construction work activities:
- (a) Undergoes health and safety instruction pertaining to the hazards prevalent on the site; and
 - (b) Is provided with the necessary personal protective equipment.
- E4.1.7 The contractor shall provide suitable on-site signage to alert workers and visitors to health and safety requirements.
- E4.1.8 The contractor shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace.

E4.2 Health and safety representatives

- E4.2.1 The contractor shall appoint in writing one health and safety representative for every 50 employees of the contractor working on the site, whenever there are more than 20 employees on the site; to:
- (a) review the effectiveness of health and safety measures;
 - (b) identify potential hazards and potential major incidents;
 - (c) in collaboration with his employer, examine the causes of incidents;
 - (d) investigate complaints by any employee of the contractor relating to that employee's health or safety on the site;
 - (e) make representations to the contractor on matters arising from a), b), c) or d) or on general matters affecting the health or safety of the employees at the workplace;
 - (f) inspect the site with a view to the health and safety of employees, at regular intervals;
 - (g) participate in consultations with inspectors at the workplace and accompany inspectors on inspections of the workplace; and
 - (h) participate in any internal health or safety audit.

- E4.2.2 The contractor shall inform the relevant safety representative:
- (a) beforehand of inspections, investigations or formal inquiries of which he has been notified by an inspector; and
 - (b) as soon as reasonably practicable of the occurrence of an incident on the site.
- E4.2.3 The contractor shall convene health and safety meetings whenever more than two health and safety representatives have been appointed for the site. These meetings shall be attended by all health and safety representatives and shall be convened at least once every month to:
- (a) make recommendations to the employer regarding any matter affecting the health or safety of persons on the site; and
 - (b) discuss any incident on the site in which or in consequence of which any person was injured, became ill or died.
- E4.2.4 The contractor shall consult with the health and safety committee on the development, monitoring and review of the risk assessment.

E4.3 Appointment of construction supervisor and safety officers

- E4.3.1 The contractor shall appoint a full-time competent employee designated in writing as the construction supervisor for the site, with the duty of supervising the performance of the work falling within the scope of the contract and may appoint one or more competent employees to assist the appointed construction supervisor.
- E4.3.2 A contractor may having considered the size of the Project, the degree of dangers likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction safety officer in writing, who has in the contractor's opinion the necessary competencies and resources, to assist the contractor in the control of all safety related aspects on the site.
- E4.3.3 The contractor shall ensure that the construction supervisor is in possession of the most recently updated version of the fall protection plan.
- E4.3.4 The contractor shall ensure that the construction supervisor is in possession of the most recently updated version of the fall protection plan.
- E4.3.5 The contractor shall ensure that the following activities, as relevant, are carried out under the supervision of a competent person and that such persons are appointed in writing:
- (a) all formwork and support work operations;
 - (b) excavation work;
 - (c) demolition work;
 - (d) scaffolding work operations;
 - (e) suspended platform work operations;
 - (f) operation of batch plants; and
 - (g) the stacking and storage of articles on the site.

E4.4 Risk assessment

E4.4.1 The contractor performing work falling within the contract shall, before the commencement of any such work and during construction work, cause a risk assessment to be performed by a competent person appointed in writing. Such an assessment shall as a minimum:

- (a) identify the risks and hazards to which persons may be exposed to;
- (b) analyse and evaluate the identified risks and hazards;
- (c) document a plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
- (d) provide a monitoring plan; and
- (e) provide a review plan.

Note: A risk assessment is an important step in protecting workers as well as complying with the law. It helps you focus on the risks that really matter in a particular workplace – the ones with the potential to cause real harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures. The following four steps are recommended:

Identify the hazards by looking at what could reasonably be expected to cause harm, ask employees or their representatives what they think, obtain advice from trade associations or publications on health and safety, check manufacturer's instructions or data sheets for chemicals and equipment as they can be very helpful in spelling out the hazards and putting them in their true perspective, review accident and ill-health records, think about long-term hazards to health (e.g. high levels of noise or exposure to harmful substances) as well as safety hazards etc.

Identify who may be harmed and how by identifying how groups of people might be harmed i.e. what type of injury or ill health might occur.

Evaluate the risks and decide on precautions by doing everything 'reasonably practicable' to protect people from harm i.e. by looking at how things are done, what controls are in place and how the work is organised and comparing this against good practice to see if more can be done to bring practices up to standard. Consider if the hazard can be got rid of all together, and if not how can the risks be controlled so that harm is unlikely, e.g. try a less risky option (e.g. switch to using a less hazardous chemical); prevent access to the hazard (e.g. by guarding); organise work to reduce exposure to the hazard (e.g. put barriers between pedestrians and traffic); issue personal protective equipment (e.g. clothing, footwear, goggles etc.); and provide welfare facilities (eg first aid and washing facilities for removal of contamination).

Record the findings by writing down the findings of the risk assessment.

E4.4.2 The contractor shall ensure that as far as is reasonably practicable, ergonomic related hazards are analysed, evaluated and addressed in the risk assessment.

E4.4.3 The contractor shall require a competent person to prepare a fall protection plan in compliance with the requirements of the Construction Regulations.

E4.4.4 Notwithstanding the provisions of the fall protection plan, the contractor shall ensure that:

- (a) all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;
- (b) no person works in an elevated position, unless such work is performed safely as if working from a scaffold or ladder;
- (c) notices are conspicuously placed at all openings where the possibility exists that a person might fall through such openings;
- (d) fall prevention and fall arrest equipment is:
 - (i) suitable and of sufficient strength for the purpose or purposes for which it is being used having regard to the work being carried out and the load, including any person, it is intended to bear; and
 - (ii) securely attached to a structure or plant and the means of attachment thereto is suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who is liable to fall; fall arrest equipment is only used where it is not reasonably practicable to use fall prevention equipment; and
- (e) suitable and sufficient steps are taken to ensure, as far as is reasonably practicable, that in the event of a fall by any person, the fall arrest equipment or the surrounding environment does not cause injury to the person.

E4.4.5 Where roof work is being performed on a construction site, the contractor shall ensure that it is indicated in the fall protection plan that:

the roof work has been properly planned;

the roof erectors are competent to carry out the work;

no employees are permitted to work on roofs during inclement weather conditions or if weather conditions are a hazard to the health and safety of the employees;

prominent warning notices are to be placed where all covers to openings are not of sufficient strength to withstand any imposed loads and where fragile material exists;

the areas mentioned in paragraph (d) are to be barricaded off to prevent persons from entering;

suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and there is suitable and sufficient guard-rails or barriers and toe-boards or other similar means of protection to prevent, so far as is reasonably practicable, the fall of any person, material or equipment.

E4.4.6 The contractor shall ensure that:

- (a) all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;
- (b) no structure or part of a structure is loaded in a manner which would render it unsafe; and
- (c) specification data prepared by the designer of the structure is taken into account in the risk assessment;

Note: The specification data provided by the designer should outline known or anticipated dangers or hazards relating to the works and make available all information required for the safe execution of the work. It should provide as relevant, geotechnical information (or make reference to reports provided in the site information), the loading the structure is designed to withstand, the methods and sequence of construction.

E4.5 Health and safety plans

E4.5.1 The contractor shall prior to commencing the works to which this specification applies, submit to the employer for approval a suitable and sufficiently documented health and safety plan, based on this specification and the risk assessment that is conducted.

E4.5.2 The health and safety plan shall as a minimum provide:

- (a) the information contained in Table 1 in respect of each of the hazards associated with work falling within the scope of the contract (see Figure 1); and

Table 1: Example of the format of a health and safety plan

What are the hazards?	Who might be harmed and how?	What are the safe work procedures for the site?	What further action is necessary (monitoring and review)?	Action by whom	Action by when

- (b) an outline of the manner in which the contractor intends complying with the requirements of this specification.

E4.5.3 The contractor shall discuss the submitted health and safety plan with the employer’s representative, modify such plan in the light of the discussions and resubmit the modified plan for approval.

E4.5.4 The contractor shall apply the approved health and safety plan from the date of commencement of and for the duration of the works to which this specification applies.

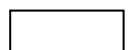
E4.5.5 The contractor shall conduct periodic audits for compliance with the approved health and safety plan at intervals agreed upon with the employer, but at least once every month.

E4.5.6 The contractor shall update the health and safety plan whenever changes to the works are brought about.

E4.6 Subcontractors

E4.6.1 The contractor may only subcontract work in terms of a written subcontract and shall only appoint a Sub-contractor should he be reasonably satisfied that such a Sub-contractor has the necessary competencies and resources to perform the work falling within the scope of the contract safely. Such a subcontract shall require that the Sub-contractor shall:

- (a) co-operate with the contractor as far as is necessary to enable both the contractor and Sub-contractor to comply with the provisions of the Act; and



- (b) as far as is reasonably practicable, promptly provide the contractor with any information which might affect the health and safety of any person at work carrying out work or any person who might be affected by the work of such a person at work or which might justify a review of the health and safety plan.
- E4.6.2 The contractor shall provide any Sub-contractor who is submitting a tender or appointed to perform a sub-contract falling within the scope of the contract, with the relevant sections of this specification and associated specification data which might be pertinent to the sub-contract.
- E4.6.3 The contractor shall take reasonable steps as are necessary to ensure:
- (a) co-operation between all Sub-contractors to enable each of those Sub-contractors to comply with the requirements of the Act and associated regulations; and
 - (b) that each Sub-contractor's health and safety plan is implemented.
- E4.6.4 The contractor shall conduct periodic audits for compliance with the approved health and safety plan of each and every Sub-contractor working on the site at intervals agreed upon with such contractors, but at least once per month.
- E4.6.5 The contractor shall stop any contractor from executing construction work which is not in accordance with the contractor's or Sub-contractor's health and safety plan for the site or which poses a threat to the health and safety of persons.
- E4.6.6 The contractor shall ensure that where changes to the works occur, sufficient health and safety information and appropriate resources are made available to the Sub-contractor to execute the work safely.
- E4.6.7 The contractor shall ensure that:
- (a) every Sub-contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing on site.
 - (b) potential Sub-contractors submitting tenders have made provision for the cost of health and safety measures during the construction process; and
 - (c) every Sub-contractor has in place a documented health and safety plan prior to commencing any work on site which falls within the scope of the contract.
- E4.6.8 The contractor shall receive, discuss, and approve health and safety plans submitted by Sub-contractors.
- E4.6.9 The contractor shall ensure that all Sub-contractors are informed regarding any hazard as stipulated in the risk assessment before any work commences, and thereafter at such times as may be determined in the risk assessment.
- E4.6.10 The contractor shall reasonably satisfy himself that all employees of Sub-contractors are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment. The contractor shall satisfy himself and ensure that all Sub-contractor employees deployed in the site are:
- a) informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment; and

- b) issued with proof of health and safety induction training issued by a competent person and carry proof such induction when working on site.

E4.7 Reporting of incidents

The contractor shall notify the employer's representative of any incident as soon as possible after it has occurred and report such incidence to an inspector.

E4.8 Administration

E4.8.1 Notification of intention to commence construction work

The contractor shall notify the Provincial Director of Labour in writing using a form similar to that contained in Annexure A of the Construction Regulations issued in terms of the Act before construction work commences and retain a copy of such notification in the health and safety file where such work:

involves the demolition of a structure exceeding a height of 3m;

involves the use of explosives to perform construction work;

involves the dismantling of fixed plant at a height greater than 3m;

exceeds 30 days or will involve more than 300 person days of construction work; and includes:

- (a) excavation work deeper than 1m; or
- (b) working at a height greater than 3 m above ground or a landing.

E4.8.2 Health and safety file

E4.8.2.1 The contractor shall maintain on site a health and safety file on site which contains copies of the following, as relevant:

- (a) the notification made to the Provincial Director of Labour in terms of 4.4.1;
- (b) the letters of appointment of health and safety representatives;
- (c) the minutes of all health and safety meetings;
- (d) a comprehensive and updated list of all the Sub-contractors (nominated, selected or domestic) employed on site by the contractor, indicating the type of work being performed by such Sub-contractors;
- (e) a copy of each and every subcontract agreement;.
- (f) the contractor's health and safety plan;
- (g) the health and safety plans of all the contractor's Sub-contractors who are required to provide such plans;
- (h) the recommendations made to the contractor by the health and safety committee referred to in 4.2.3
- (i) any report made to an inspector by the health and safety committee referred to in 4.2.3; and

- (j) the findings of all audit reports made regarding the implementation of the contractor's or a Sub-contractor's health and safety plan;
- (k) proof that the contractor and every Sub-contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer;
- (l) the inputs of the safety officer, if any, into the health and safety plan;
- (m) a copy of risk assessments made by competent persons;
- (n) details of induction training conducted whenever it is conducted;
- (o) proof of all Sub-contractor's induction training whenever it is conducted;
- (p) letters of appointments for competent persons to supervise prescribed activities;
- (q) proof of the following where suspended platforms are used:
 - (i) a certificate of system design issued by a professional engineer, professional certificated engineer or a professional engineering technologist;
 - (ii) proof of competency of erectors;
 - (iii) proof of compliance of operational design calculations with requirements of the system design certificate;
 - (iv) proof of performance test results;
 - (v) sketches indicating the completed system with the operational loading capacity of the platform;
 - (vi) procedures for and records of inspections having been carried out;
 - (vii) procedures for and records of maintenance work having been carried out;
 - (viii) proof that the prescribed documentation has been forwarded to the provincial director;
- (r) records of the register of inspections made by a competent person immediately before and during the placement of concrete or any other load on formwork; and
- (s) the names of the first aiders on site and copies of the first aid certificates of competency.

E4.8.2.2 The health and safety file shall be made available for inspection by any inspector, Sub-contractor, employer's representative, employer's agent, health and safety representative or employee of the contractor upon the request of such persons.

E4.8.2.3 The contractor shall hand over the health and safety file to the employer upon completion of the contract together with a record of all drawings, designs, materials used and other similar information concerning the completed structure.

E4.9 First aid, emergency equipment and procedures

The contractor shall where more than five employees are employed at a workplace, provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace. Such first aid boxes shall contain suitable first aid equipment.

The contractor shall ensure that where there are more than 10 employees employed on the site that for every group of up to 50 employees at that workplace, at least one person is readily available during normal working hours, who is in possession of a valid certificate of competency in first aid.

C3.5.2 ENVIRONMENTAL SPECIFICATIONS

This part of C3.5 Management contains specifications for Environmental matters not covered by C3.4 Construction Specifications.

The number of each clause in this specification is prefixed with an F to differentiate these clauses and items.

SECTION F1000 : ENVIRONMENTAL MANAGEMENT

F1001 SCOPE

The Contractor is required to comply with the requirements of the detailed EMP throughout construction.

The following are standardised additional specifications applicable. They are intended to assist the appointed Contractors to fulfill the environmental requirements of the Project. The objective of the EMP is to ensure that the potential impacts upon the environment are minimised, and that upon completion of each section of work the area is left in a clean and sustainable condition.

Overall the environmental impacts of the Project are considered to be low as long as the listed procedures are followed. These are given in the EMP.

The Contractor is advised that there are cost implications to the EMP and these must be factored into the tendered price.

F1002 ENVIRONMENTAL MANAGEMENT PLAN

F2.1 Objectives

The prime objective of the EMP is to minimise or avoid significant environmental impacts by using a pro-active approach and planning procedures.

The second objective is to have a plan in place to rehabilitate areas that have been impacted upon and, thirdly,

To have a plan in place for emergency situations that arise and are detrimental to the environment e.g. fuel or bitumen spills.

The Contractor will be responsible for the day-to-day implementation of the EMP, by himself and all other Sub-contractors. During the course of construction regular compliance audits will be undertaken. This environmental auditing will be conducted by qualified environmental practitioners.

F2.2 Environmental Control

The Contractor will oversee the environmental aspects of the construction phase of the Project in consultation with the Engineer.

The Contractor will report back to the bi-weekly site meetings with regards to compliance to the environmental specifications.

F2.3 Environmental Awareness Programme

The Engineer will implement an Environmental Awareness Programme for the Contractor, his staff, Sub-contractors and all people working on the Project. The initial session will be immediately prior to construction commencing.

F2.4 Method Statements

The Contractor shall submit written method statements for activities that are identified by the Engineer, as being potentially harmful to the environment, or for work that is to be undertaken in areas identified as being environmentally sensitive.

Such activities include dewatering of excavations, pumping, working with cement, erection of construction camps and fuel stores, etc.

The Method Statement shall cover applicable details with regard to:

- construction procedures,
- materials and equipment to be used,
- getting the equipment to and from site,
- how the equipment/ material will be moved while on site,
- how and where material will be stored,
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur,
- timing and location of activities,
- compliance/ non-compliance with the Specifications, and
- any other information deemed necessary by the Engineer.

Method statements shall be submitted at least 7 days prior to commencing work on the activity to give the Engineer time to study the method statement and consult with contractor and specialists and to obtain written approval of the method statements. The Contractor shall not commence on that activity until such time as the method statement has been agreed to in writing by the Engineer. This will be done within this 10 day period.

Any changes required to the method statements once construction has commenced must be agreed upon in writing with the Engineer before being instituted.

F2.5 Working Areas

Regardless of the extent of the work, the following applies to all of these areas:

- All materials must be stockpiled or stored in a designated area (at each site) avoiding sensitive areas.
- No materials must be left on site once work is completed neither may they be dumped at any other place on site.
- Litter bins and containers for waste materials must be provided by the Contractor at each site. Bins should be weatherproof and scavenger proof.
- All waste must be placed in the bins and containers. No waste may be left lying on the site.
- Visible anti-litter signs must be displayed around the waste collection points and all employees must be encouraged to observe site rules pertaining to solid waste management practices. A

concerted effort should be made to collect and dispose of materials suitable for recycling, separately from the other solid waste.

- No burning or burial of waste is permitted.
- Any soils contaminated by the contractor must be removed or rehabilitated. If a significant amount of soil has to be removed fresh soil must be imported and the site rehabilitated by grading and planting vegetation.
- All waste must be removed to an authorised landfill site, or taken to a facility for recycling.
- Any excess road building materials must either be:
 - taken to a site for stockpiling and future re-use,
 - used for localised rehabilitation, or
 - removed from site by the contractor for disposal.
- The contractor shall provide waste bins for solid waste collection and storage. Such bins should be placed at designated areas within the site. The refuse collected from the site must be removed for landfill disposal at least once a week.
- Vehicles may not park in the road reserve except with the prior permission of the Engineer.
- Every care should be taken to avoid damaging vegetation or land when vehicles are in use.
- Fuel tanks, pumps, and all equipment using oil, diesel, etc. must have drip trays. The drip trays must have sufficient capacity to contain liquids that will spill in the case of failure of the tanks, etc. The waste liquids taken from the trays must be disposed of at a landfill which permits disposing of liquid wastes.
- Only emergency repairs to vehicles and equipment may take place on site. Where emergency repairs take place it is the responsibility of the contractor to ensure that all waste (e.g. spare parts and oils) are removed from site as soon as possible. All other repairs must take place at a yard off-site, where facilities are suitable and waste facilities are appropriate.
- Whenever practical a tarpaulin should be laid down, prior to emergency repairs taking place, to protect the environment from contamination.
- No natural vegetation may be gathered, removed or destroyed in the course of the Project, except where agreed to by the landowner.
- No hunting is permitted.
- Fires are prohibited.
- Erosion control measures must be implemented if the need arises.
- Pollution of water courses by any means must be avoided.
- No defacement of any natural or other features will be allowed; this includes markings for road works, unless markings are restricted to the road surface.
- Dust suppression measures should be implemented if and when required.
- Chemical toilets must be provided at all sites and must be within walking distance of the workers. They must be serviced on a regular basis in order to be kept clean and hygienic. The toilets

must be placed in a sheltered place and should be locked after working hours if they are outside a camp area. Alternative arrangements to use existing toilets with owners' written consent may be allowed when submitted in writing.

- All waste from toilets must be disposed of at a permitted landfill or waste treatment works.

F2.6 On-site Workers Camp

F2.6.1 Site Camp

The campsite selection should be carried out in consultation with the landowner or relevant authority.

The site must be selected with due regard to the environment. Due care should be taken to avoid areas where sensitive vegetation and habitats occur.

When the site selection process has been completed, the contractor will define the boundaries of the site and erect a fence with a controlled access around it if practical.

All activities associated with the camp must be restricted to the demarcated area.

It is the responsibility of the contractor to ensure the safety of all personnel within the boundaries of the site. The contractor should have an on-site contingency plan detailing measures to be observed in the case of a health, safety or environmental emergency.

The contractor should ensure that all employees, employed by him and/or employed by Sub-contractors, have a clear understanding of safety regulations and procedures.

F2.6.2 Water, wastewater, and storm water

Site occupants must have access to safe drinking water.

If water is stored on site a clear distinction should be made between drinking water and multi-purpose water storage facilities.

All water used on site must be taken from a legal source and comply with recognised standards for potable and other uses.

Wastewater that is contaminated with soaps, detergents and other undesirable materials, such as grease and oils, should be collected in conservancy tanks and disposed of safely in a wastewater treatment facility.

It is illegal to discharge water into a public stream if the quality does not conform with required health standards.

In all camps storm water must be managed to prevent erosion.

Run-off will be diverted to control ponds so that silt may settle and any pollutants are trapped.

Subsequently, any pollutants must be treated, or removed and disposed of at a permitted landfill site or recycling facility.

All materials should be protected from the rain to prevent them being washed into stormwater channels.

F2.6.3 Ablution Facilities

The contractor shall provide proper and adequate sanitary facilities for all site employees.

These facilities shall be maintained in good and working condition at all times. Odours emanating from these facilities should be controlled within acceptable levels.

F2.6.4 Fires and Cooking Facilities

Fires will not be allowed.

The contractor must supply cooking facilities that are suitable for the environment and are not liable to cause the outbreak of fires. Fire-fighting equipment must be supplied by the Contractor at suitable locations.

F2.7 Plant and Equipment Storage Facility

F2.7.1 Plant

At the end of the shift all plant should be driven or transported back to the campsite for proper and safe overnight storage.

The contractor should ensure that equipment left elsewhere is stored in a manner that will not impact negatively upon the environment.

The plant should be regularly inspected for fuel and oil leaks that may be harmful to the environment, and/or aquatic life if washed into a stream or river.

F2.7.2 Hazardous Materials

Hazardous materials should be stored under lock and key in designated areas with properly displayed and visible warning signs.

All storage of hazardous materials must comply with legislation and regulations.

(c) F1003 REHABILITATION

Upon completion of each section of work the site must be cleared of all equipment, waste and any rehabilitation work must be undertaken. This may include local grading of soils and re-vegetation where sites have been disturbed.

Immediately after the demolition of the campsite, the contractor shall restore the site to its original state, paying particular attention to its appearance relative to the general landscape.

It is imperative that any potential erosion problems are addressed. This may require subsequent site visits to monitor the efficacy of erosion control measures.

(d) F1004 EMERGENCY PLANS

The onus is on the contractor to assess the potential risks to the environment as a result of the Project. For example, accidental spillage of materials may pollute the soil or any water body.

The contractor must draw up a suitable emergency plan to contain such pollution. The emergency plans and procedures must be taught to all the workers on site, so that everyone is prepared to cope with an emergency.

Appropriate equipment must be available to carry out the emergency plans.

(e) F1005 ENVIRONMENTAL AUDITING AND PENALTIES

On a regular basis, a qualified auditor will carry out a site audit to ascertain and verify the contractor's level of compliance with the requirements of the EMP.

Transgression will be treated as a contravention of the contractual agreement.

Deviation from these prescribed requirements will be met with penalties that are intended to enforce compliance.

It is a requirement that the contractor keep concise records of mitigatory measures undertaken at each site to minimise environmental impacts.

Any emergency situations that impact upon the environment should be recorded by the contractor together with the action that was taken to rehabilitate and remediate the site.

A copy of all completed environmental audits will be given to the contractor and the employer by the auditor.

Any public complaints regarding the environment must be recorded and discussed with the Engineer to determine an appropriate course of action.

The contractor will be responsible for all costs incurred in the rehabilitation of sites.

The contractor will be responsible for all costs incurred where emergency procedures are implemented to deal with accidents that impact upon the environment.

The contractor will be responsible for ensuring that all procedures required to rehabilitate all sites are implemented.

If third parties are called to the site to perform clean up and rehabilitation procedures, the contractor will be responsible for all costs.

Penalties will be imposed for contravention of the EMP, as specified in the EMP:

PART C4: SITE INFORMATION

Information Only

All data and descriptions contained in this section of the contract documents are given for information purposes only and cannot be interpreted as prescriptive despite the fact that the text may give the opposite perspective. If any conflict arises between the content of this section and other sections of the contract documents, the latter take precedence.

C4.1 LOCALITY PLAN



C4.2 CONDITIONS ON SITE

- Geotechnical Report (Annexure A – see C2.2)

C4.3 OCCUPATIONAL HEALTH & SAFETY SPECIFICATIONS

Attached hereto.

C4.4 DRAWINGS

Attached hereto

C4.5 GEOHYDROLOGIST REPORT

Not applicable

Bertrams Multipurpose Centre

Bills of Quantities

Item No		Quantity	Amount
	<p><u>SECTION NO 1</u></p> <p><u>BILL NO. 1</u> <u>PRELIMINARIES</u></p> <p><u>BUILDING AGREEMENT AND PRELIMINARIES</u></p> <p>The JBCC Principal Building Agreement (Edition 6.2 - May 2018) prepared by the Joint Building Contracts Committee shall be the applicable building agreement, amended as hereinafter described</p> <p>The JBCC Principal Building Agreement contract data form an integral part of this agreement</p> <p>The JBCC General Preliminaries (May 2018) published by the Joint Building Contracts Committee for use with the JBCC Principal Building Agreement (Edition 6.2 - May 2018) shall be deemed to be incorporated in these bills of quantities, amended as hereinafter described</p> <p>The contractor is deemed to have referred to the abovementioned documents for the full intent and meaning of each clause</p> <p>The clauses in the abovementioned documents are hereinafter referred to by clause number and heading only</p> <p>Where any item is not relevant to this agreement such item is marked N/A signifying "not applicable"</p> <p>Where standard clauses or alternatives are not entirely applicable to this agreement such amendments, modifications, corrections or supplements as will apply are given under each relevant clause heading and such amendments, modifications, corrections or supplements shall take precedence notwithstanding anything to the contrary contained in the abovementioned documents</p> <p><u>PREAMBLES FOR TRADES</u></p> <p>The General Preambles for Trades 2017 published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these bills of quantities and no claims arising from brevity of description of items fully described in the said General Preambles will be entertained</p> <p>Supplementary preambles and/or specifications are incorporated in these bills of quantities to satisfy the requirements of this project. Such supplementary preambles and/or specifications shall take precedence over the provisions of the General Preambles</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		
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	<p>The contractor's prices for all items throughout these bills of quantities shall take account of and include where applicable for all of the obligations, requirements and specifications given in the General Preambles and in any supplementary preambles and/or specifications</p> <p><u>STRUCTURE OF THIS PRELIMINARIES BILL</u></p> <p>Section A : A recital of the headings of the individual clauses in the aforementioned JBCC Principal Building Agreement</p> <p>Section B : A recital of the headings of the individual clauses in the aforementioned JBCC General Preliminaries</p> <p>Section C : Any special clauses to meet the particular circumstances of the project</p> <p><u>PRICING OF PRELIMINARIES</u></p> <p>Should the contractor select Option A in the contract data for the adjustment of preliminaries, the amounts entered against the relevant items in these preliminaries are to be divided into one or more of the three categories provided namely fixed (F), value related (V) and time related (T)</p> <p><u>SECTION A: PRINCIPAL BUILDING AGREEMENT</u></p> <p><u>Interpretation (A1-A7)</u></p> <p>1 Clause 1.0 - Definitions and interpretation</p> <p>Pricing of bills of quantities</p> <p>The contractor is to allow opposite each item for all costs in connection therewith. All prices to include, unless otherwise stated, for all materials, fabrication, conveyance and delivery, unloading, storing, unpacking, hoisting, labour, setting, fitting and fixing in position, cutting and waste (except where to be measured in accordance with the standard system of measurement), patterns, models and templates, plant, temporary works, returning of packaging, duties, taxes (other than Value Added Tax), imposts, establishment charges, overheads, profit and all other obligations arising out of this agreement. Value Added Tax (VAT) is to be separately stated on the summary page of these bills of quantities</p> <p>Items left unpriced will be deemed to be covered in prices against other items throughout these bills of quantities and no claim for any extras arising out of the contractor's omission to price any item will be entertained</p>		
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	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

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	<p>Prices for all construction equipment, temporary works, services and other items shall include for the supply, maintenance, operating cost and subsequent removal and making good as necessary</p> <p>Abbreviated descriptions</p> <p>The items in these bills of quantities utilise abbreviated descriptions. It is the intention that the abbreviated descriptions be fully described when read with the applicable measuring system and the relevant preambles and/or specifications. However, should the full intent and meaning of any description not be clear, the contractor shall, before submission of his tender, call for a written directive from the principal agent, failing which it shall be assumed that the contractor has allowed in his pricing for materials and workmanship in terms of international best practice</p> <p>Legal status of contractor</p> <p>If the contractor constitutes a joint venture, consortium or other unincorporated grouping of two or more persons then:</p> <ol style="list-style-type: none"> 1. These persons are deemed to be jointly and severally liable to the employer for the performance of this agreement 2. These persons shall notify the employer of their leader who has assigned authority to bind the contractor and each of these persons 3. The contractor shall not alter its composition or legal status without the prior written consent of the employer <p>F:..... V:..... T:.....</p>		
2	<p>Clause 2.0 - Law, regulations and notices</p> <p>NHBRC levies</p> <p>The employer shall allow for and pay any levies required by the National Home Builders Registration Council (NHBRC). The contractor warrants that he is registered and will maintain registration with the NHBRC for the duration of this agreement [2.1]</p> <p>F:..... V:..... T:.....</p>	Item	
3	<p>F:..... V:..... T:.....</p>	N/A	
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

		Brought Forward	R
4	<p>Clause 3.0 - Offer and acceptance</p> <p>F:..... V:..... T:.....</p>		Item
5	<p>Clause 4.0 - Cession and assignment</p> <p>F:..... V:..... T:.....</p>		Item
6	<p>Clause 5.0 - Documents</p> <p>Value Added Tax</p> <p>Provision is made in the summary page of these bills of quantities for the inclusion of Value Added Tax (VAT)</p> <p>Priced document as specification</p> <p>Clause 5.4 is deemed to be deleted</p> <p>The principal agent shall decide which portion of the priced document may be used as a specification of materials and goods or methods, if any.</p> <p>Electronic issue of drawings</p> <p>All drawings for this project will be issued electronically and the contractor shall be deemed to have received such drawings on the date that such drawings have been dispatched electronically [5.6]</p> <p>F:..... V:..... T:.....</p>		Item
7	<p>Clause 6.0 - Employer's agents</p> <p>Delegated authority</p> <p>The authority of the principal agent to issue contract instructions [17.1] and perform duties for specific aspects of the works is delegated to agents as follows [6.2]. This does not preclude the principal agent from issuing such contract instructions:</p> <p>1. <u>Architect</u></p>		
		Carried Forward	R
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

<p style="text-align: right;">Brought Forward</p> <p>1.1 Duties [6.2] :</p> <p>The architect is responsible for the architectural design, functional design and quality inspection of the works</p> <p>1.2 Contract instructions [6.2; 17.1] :</p> <p>1.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the agreement other than in the JBCC Principal Building Agreement</p> <p>1.2.2 Alteration to design, standards or quantity of the works provided that such contract instructions shall not substantially change the scope of the works</p> <p>1.2.3 The site [13.0]</p> <p>1.2.4 Compliance with the law, regulations and bylaws [2.1]</p> <p>1.2.5 Provision and testing of samples of materials and goods and/or of finishes and assemblies of elements of the works</p> <p>1.2.6 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]</p> <p>1.2.7 Removal or re-execution of work</p> <p>1.2.8 Removal or substitution of any materials and goods</p> <p>1.2.9 Protection of the works</p> <p>1.2.10 Making good physical loss and repairing damage to the works [23.2.2]</p> <p>1.2.11 Rectification of defects [21.2]</p> <p>1.2.12 A list for practical completion specifying outstanding or defective work to be rectified to achieve practical completion, a list for completion and a list for final completion specifying outstanding or defective work to be rectified to achieve final completion</p> <p>1.2.13 Expenditure of budgetary allowances, prime cost amounts and provisional sums</p> <p>1.2.14 Appointment of a subcontractor [14.0; 15.0]</p>	R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	R	

<p style="text-align: right;">Brought Forward</p> <p>1.2.15 Work by direct contractors [16.0]</p> <p>1.2.16 On suspension or termination, protection of the works, removal of construction equipment and surplus materials and goods [29.0]</p> <p>2. <u>Quantity surveyor</u></p> <p>2.1 Duties [6.2] :</p> <p>The quantity surveyor is responsible for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions of the works</p> <p>2.2 Contract instructions [6.2; 17.1] :</p> <p>2.2.1 No contract instructions delegated to the quantity surveyor.</p> <p>3. <u>Civil and structural engineer</u></p> <p>3.1 Duties [6.2] :</p> <p>The civil and structural engineer is responsible for all aspects of civil and structural engineering design and quality inspection of the works</p> <p>3.2 Contract instructions [6.2; 17.1] :</p> <p>3.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the agreement other than in the JBCC Principal Building Agreement</p> <p>3.2.2 Alteration to design, standards or quantity of the works provided that such contract instructions shall not substantially change the scope of the works</p> <p>3.2.3 The site [13.0]</p> <p>3.2.4 Compliance with the law, regulations and bylaws [2.1]</p> <p>3.2.5 Provision and testing of samples of materials and goods and/or of finishes and assemblies of elements of the works</p> <p>3.2.6 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]</p> <p>3.2.7 Removal or re-execution of work</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	R	
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<p style="text-align: right;">Brought Forward</p> <p>3.2.8 Removal or substitution of any materials and goods</p> <p>3.2.9 Protection of the works</p> <p>3.2.10 Making good physical loss and repairing damage to the works [23.2.2]</p> <p>3.2.11 Rectification of defects [21.2]</p> <p>3.2.12 A list for practical completion specifying outstanding or defective work to be rectified to achieve practical completion, a list for completion and a list for final completion specifying outstanding or defective work to be rectified to achieve final completion</p> <p>3.2.13 Expenditure of budgetary allowances, prime cost amounts and provisional sums.</p> <p>4. <u>Mechanical engineer</u></p> <p>4.1 Duties [6.2] :</p> <p>The mechanical engineer is responsible for all aspects of mechanical engineering design and quality inspection of the works and, where appointed by the employer for quantity surveying services in respect of the mechanical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions</p> <p>4.2 Contract instructions [6.2; 17.1] :</p> <p>4.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the agreement other than in the JBCC Principal Building Agreement</p> <p>4.2.2 Alteration to design, standards or quantity of the works provided that such contract instructions shall not substantially change the scope of the works</p> <p>4.2.3 Compliance with the law, regulations and bylaws [2.1]</p> <p>4.2.4 Provision and testing of samples of materials and goods and/or of finishes and assemblies of elements of the works</p> <p>4.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]</p> <p>4.2.6 Removal or re-execution of work</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	R	
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<p style="text-align: right;">Brought Forward</p> <p>4.2.7 Removal or substitution of any materials and goods</p> <p>4.2.8 Protection of the works</p> <p>4.2.9 Making good physical loss and repairing damage to the works [23.2.2]</p> <p>4.2.10 Rectification of defects [21.2]</p> <p>4.2.11 A list for practical completion specifying outstanding or defective work to be rectified to achieve practical completion, a list for completion and a list for final completion specifying outstanding or defective work to be rectified to achieve final completion</p> <p>4.2.12 Expenditure of budgetary allowances, prime cost amounts and provisional sums.</p> <p>5. <u>Electrical engineer</u></p> <p>5.1 Duties [6.2] :</p> <p>The electrical engineer is responsible for all aspects of electrical engineering design and quality inspection of the works and, where appointed by the employer for quantity surveying services in respect of the electrical installations, for all measurements, valuations, financial assessments and all other quantity surveying and cost control functions</p> <p>5.2 Contract instructions [6.2; 17.1] :</p> <p>5.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the agreement other than in the JBCC Principal Building Agreement</p> <p>5.2.2 Alteration to design, standards or quantity of the works provided that such contract instructions shall not substantially change the scope of the works</p> <p>5.2.3 Compliance with the law, regulations and bylaws [2.1]</p> <p>5.2.4 Provision and testing of samples of materials and goods and/or of finishes and assemblies of elements of the works</p> <p>5.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]</p> <p>5.2.6 Removal or re-execution of work</p>	R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	R	

<p style="text-align: right;">Brought Forward</p> <p>5.2.7 Removal or substitution of any materials and goods</p> <p>5.2.8 Protection of the works</p> <p>5.2.9 Making good physical loss and repairing damage to the works [23.2.2]</p> <p>5.2.10 Rectification of defects [21.2]</p> <p>5.2.11 A list for practical completion specifying outstanding or defective work to be rectified to achieve practical completion, a list for completion and a list for final completion specifying outstanding or defective work to be rectified to achieve final completion</p> <p>5.2.12 Expenditure of budgetary allowances, prime cost amounts and provisional sums.</p> <p>6. <u>Wet services engineer</u></p> <p>6.1 Duties [6.2] :</p> <p>The wet services engineer is responsible for all aspects of wet services engineering design and quality inspection of the works</p> <p>6.2 Contract instructions [6.2; 17.1] :</p> <p>6.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the agreement other than in the JBCC Principal Building Agreement</p> <p>6.2.2 Alteration to design, standards or quantity of the works provided that such contract instructions shall not substantially change the scope of the works</p> <p>6.2.3 Compliance with the law, regulations and bylaws [2.1]</p> <p>6.2.4 Provision and testing of samples of materials and goods and/or of finishes and assemblies of elements of the works</p> <p>6.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]</p> <p>6.2.6 Removal or re-execution of work</p> <p>6.2.7 Removal or substitution of any materials and goods</p> <p style="text-align: right;">Carried Forward</p>	R	
<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	R	

<p style="text-align: right;">Brought Forward</p> <p>6.2.8 Protection of the works</p> <p>6.2.9 Making good physical loss and repairing damage to the works [23.2.2]</p> <p>6.2.10 Rectification of defects [21.2]</p> <p>6.2.11 A list for practical completion specifying outstanding or defective work to be rectified to achieve practical completion, a list for completion and a list for final completion specifying outstanding or defective work to be rectified to achieve final completion</p> <p>6.2.12 Expenditure of budgetary allowances, prime cost amounts and provisional sums.</p> <p>7. <u>Fire consultant</u></p> <p>7.1 Duties [6.2] :</p> <p>The fire consultant is responsible for all aspects of rational fire design and quality inspection of the works</p> <p>7.2 Contract instructions [6.2; 17.1] :</p> <p>7.2.1 Rectification of discrepancies, errors in description or quantity or omission of items in the agreement other than in the JBCC Principal Building Agreement</p> <p>7.2.2 Alteration to design, standards or quantity of the works provided that such contract instructions shall not substantially change the scope of the works</p> <p>7.2.3 Compliance with the law, regulations and bylaws [2.1]</p> <p>7.2.4 Provision and testing of samples of materials and goods and/or of finishes and assemblies of elements of the works</p> <p>7.2.5 Opening up of work for inspection, removal or re-execution [23.2.4; 26.4.2]</p> <p>7.2.6 Removal or re-execution of work</p> <p>7.2.7 Removal or substitution of any materials and goods</p> <p>7.2.8 Protection of the works</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	R	
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<p style="text-align: right;">Brought Forward</p> <p>7.2.9 Making good physical loss and repairing damage to the works [23.2.2]</p> <p>7.2.10 Rectification of defects [21.2]</p> <p>7.2.11 A list for practical completion specifying outstanding or defective work to be rectified to achieve practical completion, a list for completion and a list for final completion specifying outstanding or defective work to be rectified to achieve final completion</p> <p>7.2.12 Expenditure of budgetary allowances, prime cost amounts and provisional sums.</p> <p>8. <u>Health and safety consultant</u></p> <p>8.1 Duties [6.2] :</p> <p>The health and safety consultant is responsible for all aspects of health and safety of the works. Without derogating from the generality thereof, the health and safety consultant will perform the following specific functions and duties in respect of the health and safety aspects of the works. He shall:</p> <p>8.1.1 Act as the employer's agent in terms of the Construction Regulations issued in terms of the Occupational Health and Safety Act,1993 as amended</p> <p>8.1.2 Prepare and update the health and safety specification for the works</p> <p>8.1.3 Agree with the contractor the health and safety plan for the works</p> <p>8.1.4 Carry out regular audits to ensure adherence to the safety plan and compliance with the act and regulations</p> <p>8.1.5 Stop the execution of the works where the agreed specification or plan is not adhered to.</p> <p>F:..... V:..... T:.....</p>	R	
<p>8 Clause 7.0 - Design responsibility</p> <p>F:..... V:..... T:.....</p>	Item Item	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	R	

	Brought Forward	R	
	<u>Insurances and securities (A8-A11)</u>		
9	Clause 8.0 - Works risk F:..... V:..... T:.....	Item	
10	Clause 9.0 - Indemnities F:..... V:..... T:.....	Item	
11	Clause 10.0 - Insurances F:..... V:..... T:.....	Item	
12	Clause 11.0 - Securities Guarantee for payment		
13	The employer shall provide to the contractor a guarantee for payment in the amount ofNot Applicable.....Rand (R.....N/A.....) [11.5.1]. The contractor shall consequently waive his lien or right of continuing possession of the works [11.10] F:..... V:..... T:.....	N/A	
	Extension of waiver of lien		
14	The contractor shall ensure that a waiver of lien is included in all subcontracts and that the works executed on the site are kept free of all liens and other encumbrances at all times [11.10]		
15	F:..... V:..... T:.....	Item	
	<u>Execution (A12 - A17)</u>		
16	Clause 12.0 - Obligations of the parties Office accommodation The contractor shall provide, maintain and remove on practical completion air conditioned office accommodation with suitable tables and chairs for meetings to be held on the site . Such offices shall be kept clean and fit for use at all times [12.2.18]		
	Carried Forward	R	
	Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries JVNC Capital (Pty) Ltd		

	Brought Forward	R	
	<p>Notice board</p> <p>The contractor shall erect in a position approved by the principal agent, maintain and remove on practical completion a notice board recommended by the South African Institute of Architects and as approved by the principal agent listing the names and logos of the employer, the contractor and the professional consultants. No subcontractor or supplier notice boards may be erected unless permission is granted by the principal agent for such notice boards to be erected [12.2.18]</p> <p>Statutory and other notices</p> <p>The contractor shall submit and/or comply with all statutory and other notices that may be required by any local or other authority in order not to cause any delay to the commencement of the works by the contractor. The contractor shall pay all deposits or fees in this regard</p> <p>It is, however, specifically recorded that the employer shall be responsible for the timeous approval of building plans by any local or other authorities and the payment of any fees or charges related thereto</p> <p>F:..... V:..... T:.....</p>		
17	<p>Clause 13.0 - Setting out</p> <p>F:..... V:..... T:.....</p>	Item	
18	<p>Clause 14.0 - Nominated subcontractors</p> <p>F:..... V:..... T:.....</p>	Item	
19	<p>Clause 15.0 - Selected subcontractors</p> <p>F:..... V:..... T:.....</p>	Item	
20	<p>Clause 16.0 - Direct contractors</p> <p>Attendance on direct contractors</p> <p>In respect of direct contractors the contractor shall:</p> <ol style="list-style-type: none"> 1. Designate an area for the direct contractor to establish a temporary office and workshop and storage of equipment and materials 2. Allow the use of personnel welfare facilities, where provided 	Item	
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
	3. Provide water, lighting and single phase electric power to a position within 50m of the place where the direct contract work is to be carried out, other than fuel or power for commissioning of any installation 4. Permit the direct contractor to use erected scaffolding, hoisting facilities, etc provided by the contractor , in common with others having the like right, while it remains erected on the site [16.1] F:..... V:..... T:.....	Item	
21	Clause 17.0 - Contract instructions Site instructions Instructions issued on site are to be recorded in a site instruction book which is to be supplied and maintained on site by the contractor . F:..... V:..... T:.....	Item	
22	<u>Completion (A18 - A24)</u> Clause 18.0 - Interim completion	N/A	
23	Clause 19.0 - Practical completion F:..... V:..... T:.....	Item	
24	Clause 20.0 - Completion in sections F:..... V:..... T:.....	Item	
25	Clause 21.0 - Defects liability period and final completion F:..... V:..... T:.....	Item	
26	Clause 22.0 - Latent defects liability period F:..... V:..... T:.....	Item	
	Carried Forward	R	
	Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries JVNC Capital (Pty) Ltd		

		Brought Forward	R
27	<p>Clause 23.0 - Revision of the date for practical completion</p> <p>Substitution of materials and goods</p> <p>The removal or substitution of any materials and goods which do not conform to the specification or the contract drawings shall not constitute grounds for the extension of the construction period nor for the adjustment of the contract value [17.1.8; 23.1 & 2]</p> <p>F:..... V:..... T:.....</p>		Item
28	<p>Clause 24.0 - Penalty for late or non-completion</p> <p>F:..... V:..... T:.....</p> <p>Payment (A25 - A27)</p>		Item
29	<p>Clause 25.0 - Payment</p> <p>Prices submitted</p> <p>Where prices are submitted by the contractor or subcontractor during the progress of the works in respect of contract instructions or in regard to a claim under the terms of this agreement and notwithstanding the fact that such prices may be used in an interim payment certificate, there is to be no presumption of acceptance. Should the principal agent wish to accept any such prices prior to the issue of the certificate of final completion, it shall be in writing</p> <p>F:..... V:..... T:.....</p>		Item
30	<p>Clause 26.0 - Adjustment of the contract value and final account</p> <p>Fluctuations in costs</p> <p>All fluctuations in costs, with the exception of fluctuations in the rate of Value Added Tax and CPAP (Where applicable), shall be for the account of the contractor [26.9.5]</p> <p>Contract Price Adjustment Provision to be calculated in accordance with the CPAP Indices Application Manual for use with P0151.1 indices published by Statistics South Africa</p>		
		Carried Forward	R
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
	<p>Tenant installation/user requirements delayed</p> <p>There is a possibility that certain works related to tenant installation/user requirements may have to be delayed and may consequently not be executed prior to practical completion</p> <p>Should the contractor be instructed to do so he shall execute this work under the conditions pertaining to this agreement on the basis that a separate amount for preliminaries appurtenant to this work (if applicable) is agreed to between the contractor and the principal agent and on condition that instruction to proceed with such work is given to him within a period of three (3) calendar months after the date of practical completion of the works</p> <p>The employer reserves the right to omit such work without compensation to the contractor for loss of profit or any other loss which the contractor may suffer as a result of such omission.</p> <p>Cost of claims</p> <p>All costs incurred by the contractor in the preparation of claims shall be borne by the contractor. This provision shall not preclude an adjudicator or an arbitrator appointed in terms of this agreement [30.6 & 7] from making a determination on costs</p> <p>Claims from subcontractors</p> <p>The contractor shall review, assess and adjudicate any claims received by him from any subcontractor and thereafter submit same to the principal agent with a recommendation in order to assist the principal agent in adjudicating the claim [26.6]</p> <p>F:..... V:..... T:.....</p>		
31	<p>Clause 27.0 - Recovery of expense and/or loss</p> <p>F:..... V:..... T:.....</p>	Item	
	<p><u>Suspension and termination (A28 - A29)</u></p>		
32	<p>Clause 28.0 - Suspension by the contractor</p> <p>F:..... V:..... T:.....</p>	Item	
33	<p>Clause 29.0 - Termination</p> <p>F:..... V:..... T:.....</p>	Item	
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
	<u>Dispute resolution (A30)</u>		
34	Clause 30.0 - Dispute resolution F:..... V:..... T:.....	Item	
35	<u>Agreement</u> The required information of the parties and the amount of the contract sum shall be inserted in the agreement for signature of the agreement by the parties F:..... V:..... T:.....	Item	
36	<u>Contract data</u> Tenderer's selections Before submission of his tender the contractor is to complete the tenderer's selections in the contract data F:..... V:..... T:.....	Item	
	<u>SECTION B: GENERAL PRELIMINARIES</u>		
	<u>Definitions and interpretation (B1)</u>		
37	Clause 1.1 - Definitions F:..... V:..... T:.....	Item	
38	Clause 1.2 - Interpretation F:..... V:..... T:.....	Item	
	<u>Documents (B2)</u>		
39	Clause 2.1 - Checking of documents F:..... V:..... T:.....	Item	
40	Clause 2.2 - Provisional bills of quantities		
	Carried Forward	R	
	Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries JVNC Capital (Pty) Ltd		

		Brought Forward	R
	<p>Multiple procurement</p> <p>These bills of quantities are in multiple procurement format ie the "wet trades" - earthworks, concrete, formwork and reinforcement, precast concrete, masonry, waterproofing and sub-surface drainage - are provisionally measured and the subsequent trades are budgetary allowances and/or provisional sums.</p> <p>F:..... V:..... T:.....</p>		Item
41	<p>Clause 2.3 - Availability of construction information</p> <p>F:..... V:..... T:.....</p>		Item
42	<p>Clause 2.4 - Ordering of materials and goods</p> <p>F:..... V:..... T:.....</p>		Item
	<p><u>Previous work and adjoining properties (B3)</u></p>		
43	<p>Clause 3.1 - Previous work - dimensional accuracy</p> <p>F:..... V:..... T:.....</p>		Item
44	<p>Clause 3.2 - Previous work - defects</p> <p>F:..... V:..... T:.....</p>		Item
45	<p>Clause 3.3 - Inspection of adjoining properties</p> <p>F:..... V:..... T:.....</p>		Item
	<p><u>The site (B4)</u></p>		
46	<p>Clause 4.1 - Handover of site in stages</p> <p>F:..... V:..... T:.....</p>		Item
47	<p>Clause 4.2 - Enclosure of the works</p> <p>F:..... V:..... T:.....</p>		Item
48	<p>Clause 4.3 - Geotechnical and other investigations</p> <p>F:..... V:..... T:.....</p>		Item
		Carried Forward	R
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

		Brought Forward	R
49	Clause 4.4 - Encroachments F:..... V:..... T:.....		Item
50	Clause 4.5 - Existing premises occupied F:..... V:..... T:.....		Item
51	Clause 4.6 - Services - known F:..... V:..... T:.....		Item
<u>Management of contract (B5)</u>			
52	Clause 5.1 - Management of the works F:..... V:..... T:.....		Item
53	Clause 5.2 - Progress meetings F:..... V:..... T:.....		Item
54	Clause 5.3 - Technical meetings F:..... V:..... T:.....		Item
<u>Samples, shop drawings and manufacturer's instructions (B6)</u>			
55	Clause 6.1 - Samples of materials F:..... V:..... T:.....		Item
56	Clause 6.2 - Workmanship samples F:..... V:..... T:.....		Item
57	Clause 6.3 - Shop drawings F:..... V:..... T:.....		Item
58	Clause 6.4 - Compliance with manufacturer's instructions F:..... V:..... T:.....		Item
		Carried Forward	R
Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries JVNC Capital (Pty) Ltd			

		Brought Forward	R
	<u>Deposits and fees (B7)</u>		
59	Clause 7.1 - Deposits and fees F:..... V:..... T:.....		Item
	<u>Temporary services (B8)</u>		
60	Clause 8.1 - Water F:..... V:..... T:.....		Item
61	Clause 8.2 - Electricity F:..... V:..... T:.....		Item
62	Clause 8.3 - Ablution and welfare facilities F:..... V:..... T:.....		Item
63	Clause 8.4 - Communication facilities F:..... V:..... T:.....		Item
	<u>Prime cost amounts (B9)</u>		
64	Clause 9.1 - Responsibility for prime cost amounts <i>Where details of materials for which prime cost amounts are to be allowed <u>are</u> readily available, the quantity surveyor may elect to insert the relevant prime cost amounts in measured items, which measured items shall contain sufficient detail for the contractor to price for fixing and installation, waste, etc</i> F:..... V:..... T:.....		Item
	<u>Attendance on subcontractors (B10)</u>		
65	Clause 10.1 - General attendance <i>General attendance is defined as being the duties of the contractor in terms of clause 12.2 of the JBCC n/s subcontract agreement</i> F:..... V:..... T:.....		Item
66	Clause 10.2 - Special attendance		
		Carried Forward	R
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	Brought Forward	R	
	F:..... V:..... T:.....	Item	
	General (B11)		
67	Clause 11.1 - Protection of the works		
	F:..... V:..... T:.....	Item	
68	Clause 11.2 - Protection/isolation of existing works and works occupied in sections		
	F:..... V:..... T:.....	Item	
69	Clause 11.3 - Security of the works		
	F:..... V:..... T:.....	Item	
70	Clause 11.4 - Notice before covering work		
	F:..... V:..... T:.....	Item	
71	Clause 11.5 - Disturbance		
	Disturbance		
	All work is to be carried out in such a manner as to cause no unacceptable or unreasonable dust, noise, vibrations, nuisance, inconvenience, annoyance and the like to the public, others, other properties and traffic in so far as they exceed the permissible limitations set by government legislation or by the local authority. Any delays, stoppages and the like arising from or in order to comply with the above will not constitute grounds for an adjustment to the construction period or contract value whatsoever.		
	F:..... V:..... T:.....	Item	
72	Clause 11.6 - Environmental disturbance		
	Controlling all forms of pollution		
	The contractor shall be responsible for and take all precautions in controlling by whatever means necessary all forms of pollution emanating from the site during the construction period due inter alia to noise, artificial light, wind-blown sand, dust, deposits of mud, etc		
	(Contractor to refer to ENVIRONMENTAL MANAGEMENT PLAN FOR BERTRAMS MULTIPURPOSE CENTRE annexed E to these Bills of Quantities)		
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	Brought Forward	R	
	<p>The contractor is to ensure that all roads which border the site and are used by the contractor during the execution of the works are kept clean and free of any dirt or debris caused by the execution of the works.</p> <p>(Contractor to refer to ENVIRONMENTAL MANAGEMENT PLAN FOR BERTRAMS MULTIPURPOSE CENTRE annexed E to these Bills of Quantities)</p> <p>F:..... V:..... T:.....</p>		Item
73	<p>Clause 11.7 - Works cleaning and clearing</p> <p>F:..... V:..... T:.....</p>		Item
74	<p>Clause 11.8 - Vermin</p> <p>F:..... V:..... T:.....</p>		Item
75	<p>Clause 11.9 - Overhand work</p> <p>F:..... V:..... T:.....</p>		Item
76	<p>Clause 11.10 - Tenant installations</p> <p>F:..... V:..... T:.....</p>		Item
77	<p>Clause 11.11 - Advertising</p> <p>F:..... V:..... T:.....</p>		Item
	<u>SECTION C: SPECIFIC PRELIMINARIES</u>		
78	<p>Warranties for materials and workmanship</p> <p>Where warranties for materials and/or workmanship are called for, the contractor shall obtain a written warranty, addressed to the employer, from the entity supplying the materials and/or executing the work and shall deliver same to the principal agent on final completion of the contract</p> <p>The warranty shall state that workmanship, materials and installation are warranted for a specific period from the date of practical completion and that any defects that may arise during the specified period shall be made good at the expense of the entity supplying the materials and/or doing the work, upon written notice to do so</p>		
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
	<p>The warranty will not be enforced if the work is damaged by defects in the execution of the works, in which case the responsibility for replacement shall rest entirely with the contractor</p> <p>F:..... V:..... T:.....</p>	Item	
79	<p>Overtime</p> <p>Should overtime be required to be worked for any reason whatsoever, the cost of such overtime is to be borne by the contractor unless the principal agent has specifically authorised, prior to execution thereof, that costs for such overtime are to be borne by the employer</p> <p>F:..... V:..... T:.....</p>	Item	
80	<p>Cooperation of the contractor for cost management</p> <p>It is specifically agreed that the contractor accepts the obligation of assisting the principal agent in implementing proper cost management. The contractor will be advised by the principal agent of all cost management procedures which will be implemented to ensure that the contract value does not exceed the budget</p> <p>F:..... V:..... T:.....</p>	Item	
81	<p>Overloading</p> <p>The contractor shall take all necessary steps to ensure that no damage occurs due to overloading of any portion of the works or temporary works eg scaffolding, etc. The contractor shall submit details of his proposed loading, storage, plant erection, etc to the principal agent for approval prior to proceeding with such loading, storing or erecting and shall comply with and pay for the principal agent's requirements in connection with the provision of temporary support work, etc. Any damage caused to the works by overloading shall be made good by the contractor at his sole expense</p> <p>F:..... V:..... T:.....</p>	Item	
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
82	<p>Propping of floors below</p> <p>The contractor is advised that propping of floors below may be required if he wishes to use any areas of completed suspended reinforced concrete slabs for vehicle access, storage of materials and goods and location of plant, scaffolding, etc. The location of these areas and any necessary propping shall be approved by the principal agent and the cost thereof shall be borne by the contractor</p> <p>F:..... V:..... T:.....</p>	Item	
83	<p>Testing of flat roof waterproofing for watertightness</p> <p>Flat roof waterproof areas shall be flooded and kept "ponded" for at least forty eight (48) hours as a test to ensure the watertightness of the waterproofing and before any further construction work is carried out above the waterproofing</p> <p>F:..... V:..... T:.....</p>	Item	
84	<p>Site instructions</p> <p>Instructions issued on site are to be recorded in a triplicate site instruction book which is to be maintained on site by the contractor</p> <p>F:..... V:..... T:.....</p>	Item	
85	<p>Non-Cession of Monies</p> <p>The Contractor shall not cede or assign his right or claims to any monies due to or to become due under this Contract</p> <p>F:..... V:..... T:.....</p>	Item	
86	<p>Drawings on Site</p> <p>The Contractor shall maintain on Site at all times, a complete set of the latest revisions of the working drawings issued by the Architect, the Engineer, and the Electrical Consultant</p> <p>F:..... V:..... T:.....</p>	Item	
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
87	<p>Labour Record</p> <p>At the end of each week the contractor shall provide the Principal Agent with a written record, in schedule form, reflecting the number and description of tradesmen and labourers employed by him and all subcontractors on the works each day</p> <p>F:..... V:..... T:.....</p>	Item	
88	<p>Plant Record</p> <p>At the end of each week the contractor shall provide the Principal Agent with a written record, in schedule form, reflecting the number, type and capacity of all plant, excluding hand tools, currently used for the works.</p> <p>F:..... V:..... T:.....</p>	Item	
89	<p>Scaffolding</p> <p>No scaffolding is measured as these Bills of Quantities are based on the Sixth edition of the Standard System for Measuring Building Work. However, the Tenderer is advised to study the drawings as scaffolding shall be required in certain areas for use by himself and selected/nominated subcontractors and the contractor must establish or otherwise required by him or selected/nominated subcontractor including taking down and reerecting as may be necessary and no claims whatsoever will be entertained</p> <p>F:..... V:..... T:.....</p>	Item	
90	<p>Daywork</p> <p>Where in the opinion of the Principal Agent any extra work cannot properly be measured or valued, the Contractor will be allowed daywork prices therefore calculated upon the costs defined hereunder together with the stated percentages. The total thus arrived at shall be the total amount recoverable by the Contractor for performing such work</p> <ol style="list-style-type: none"> 1. The costs to the Contractor or sub-contractor of materials, being the net cost (at current market prices) actually paid for such materials after the deduction of cash discounts or if materials are supplied from the Contractor's or sub-contractor's stock then the cost of such materials shall be based upon the current market price plus the cost of delivery to Site; to which net cost 7,5% thereof shall be added. 2. The cost of labour to the Contractor or sub contractor, being all items of direct cost of labour actually remunerated to the workmen concerned which shall include the cost of all allowances in terms of the industrial 		
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

<p>91</p>	<p align="right">Brought Forward</p> <p>Clause 6.3: Shop Drawings</p> <p>The term 'Shop Drawings' shall mean drawings, layout drawings, illustrations, schedules, performance charts, brochures, operating manuals, other data which are prepared by the Contractor or Sub-contractor, Manufacturer, Supplier or Distributor and which illustrate some portion of the work.</p> <p>The Contractor shall ensure that all shop drawings required for the work in terms of this Contract, all selected/nominated Sub-contracts and/or Architect's instructions, are prepared and submitted timeously in accordance with the following procedure:</p> <ol style="list-style-type: none"> 1. Three prints of shop drawings of all fabricated work, working or setting out drawings, shop details and schedules shall be submitted to the Architect for approval. Such work shall not be carried out until such approval has been given. 2. Shop drawings shall be submitted to the Architect for approval at least two weeks prior to the date on which such approval is required in order to comply with the Contract Programme. 3. All submissions shall be prepared in accordance with the Contract Drawings and specifications and/or any Architect's instructions and any deviation shall be specifically highlighted in writing, with a detailed explanation of the reason of such deviation, together with any cost and/or time implication <p>Delays in approval of shop drawings due to non compliance with drawings, specifications and/or Architect's instructions shall not constitute grounds for any delay claims</p> <p>F:..... V:..... T:.....</p>	<p align="center">R</p>	
	<p align="right">Carried Forward</p> <p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>	<p align="center">R</p>	

	Brought Forward	R	
92	<p>Location of Temporary Building and Temporary Services</p> <p>The Contractor shall provide all necessary temporary works, including temporary roads, tracks, crossings, hard standing, and services, etc., required for his own Sub-contractors use during the construction and maintenance period.</p> <p>There is no guarantee given or implied that site conditions will be such that the Contractor will be able to erect such offices, stores and temporary accommodation within the site boundaries and it shall be the Contractors responsibility to adopt whatever measures he deems necessary in this regard and to obtain all necessary permission and pay all costs in connection therewith</p> <p>F:..... V:.....T:.....</p>		
93	<p>Removal and Making Good of Temporary Works, etc on Completion</p> <p>The Contractor shall remove all temporary works, roads, services and the like used for this contract and shall make good to the entire satisfaction of the Architect any damages resulting therefrom</p> <p>F:..... V:.....T:.....</p>		Item
94	<p>Indemnities</p> <p>Indemnities shall be sought by the Architect from all Contractors and Sub-contractors undertaking any design responsibility</p> <p>F:..... V:.....T:.....</p>		Item
Carried Forward		R	
<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>			

	Brought Forward	R	
95	<p>SMME Management, Transformation and Empowerment Requirements</p> <p>The contractor shall take all necessary measures to comply with Clause 31 of the Contract Data (Small Contractor and Targeted Enterprise Development) and Clause 3.3.2 under Part C3: Scope of Works of the returnable document (Small Contractor Development, Participation and Advancement of Start-Up, Small and Micro Enterprises) and make adequate provision to accommodate the requirements relating to job creation, job intensity, training and development, local SMME utilisation, local material utilisation, enterprise development, etc. as detailed in the returnable document</p> <p>The contractor will be required to allocate work to SMME's at market related rates</p> <p>F:..... V:.....T:.....</p>		Item
96	<p>SMME Preliminaries and Generals</p> <p>The contractor shall price against this item for preliminaries and generals costs required to cover all the necessary costs for the number of SMME's to be appointed (minimum of 10) under the main contractor over the duration of the works assigned to the respective SMME's.</p> <p>F:..... V:.....T:.....</p>		Item
97	Health and safety		
98	<p>Without limiting the generality of the provisions of clause 2.0, the contractor's attention is drawn to the provisions of the Construction Regulations issued in terms of the Occupational Health and Safety Act, 1993 as amended. It is specifically stated that the employer shall prepare a documented health and safety specification for the works (refer to CONSTRUCTION HEALTH AND SAFETY SPECIFICATION for JOHANNESBURG DEVELOPMENT PROGRAMMES: BERTRAMS MULTIPURPOSE CENTRE annexed D to the Bills of Quantities) and that the employer shall ensure that the contractor has made provision for the cost of health and safety measures during the execution of the works. The contractor shall price opposite this item for compliance with the act and the regulations and the provisions of the aforementioned health and safety specification [2.1]</p>		
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
	<p>For compliance with Occupational health and Safety Act 1993 as amended, The contractor shall:</p> <ol style="list-style-type: none"> 1. Comply with the health and safety specification for the works that will include provision for COVID-19 Regulations. 2. Prepare and agree with the health and safety consultant the health and safety plan for the works 3. Cooperate with the health and safety consultant in all respects 4. Manage the compliance of all subcontractors with the regulations and with the health and safety plan and specification 5. Conform to the conditions contained in the employer's health and safety specification <p>F:..... V:..... T:.....</p>	Item	
99	<p>Green star building certification</p> <p>F:..... V:..... T:.....</p>	N/A	
100	<p>Broad based black economic empowerment (BBBEE)</p> <p>Tenders submitted will be evaluated taking into account their empowerment rating</p> <p>The employer will be monitoring the broad based black economic empowerment (BBBEE) status of the contractor throughout the execution of the works</p> <p>The contractor is to submit to the principal agent on an annual basis a schedule of spend, split into vendors engaged as subcontractors and suppliers indicating their BBBEE rating including proof of the said rating</p> <p>F:..... V:..... T:.....</p>	Item	
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R	
101	<p>Advertising rights</p> <p>The employer may elect to contract with advertising agencies for the erection of advertising hoardings, banners, wraps or the like for the duration of the contract. The contractor shall not prevent such an arrangement and will assist in the facilitation of same. The position and type of advertising structure to be agreed with the principal agent so as not to hinder the contractor in meeting his obligations under this agreement</p> <p>F:..... V:..... T:.....</p>	Item	
102	<p>Confidentiality</p> <p>The contractor undertakes to maintain in confidence any and all information regarding this project and shall obtain appropriate similar undertakings from all subcontractors and suppliers. Such information shall not be used in any way except in connection with the execution of the works</p> <p>No information regarding this project shall be published or disclosed without the prior written consent of the employer</p> <p>F:..... V:..... T:.....</p>	Item	
103	<p>Media releases</p> <p>All rights of publication of articles in the media, together with any advertising relating thereto or in any way connected with this project, shall vest with the employer</p> <p>The contractor together with his subcontractors shall not, without the prior written consent of the employer, cause any statement or advertisement connected with this project to be printed, screened or aired by the media</p> <p>F:..... V:..... T:.....</p> <p><u>NOTE:</u></p> <p>The information listed below is in respect of certain clauses in the Preliminaries, requiring the supplementary information</p>	Item	
104	<p>CLAUSE NO A24 - 18 months including public holidays and statutory builders holidays</p> <p>F:..... V:..... T:.....</p>	Item	
	Carried Forward	R	
	<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

	Brought Forward	R
<p>The date for site handover :- TO BE ANNOUNCED</p> <p>The contractual practical completion date is : 18 months after the date of site handover</p> <p><u>SUMMARY OF CATEGORIES</u></p> <p>Category : Fixed R.....</p> <p>Category : Value R.....</p> <p>Category : Time R.....</p>		
Carried to Final Summary		R
<p>Section No. 1 Section 1- Preliminaries and General Bill No. 1 Preliminaries</p> <p>JVNC Capital (Pty) Ltd</p>		

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 1 DEMOLITIONS (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Descriptions and Preambles</u></p> <p>The full descriptions of the items and all preambles in the previous and following trades, shall, unless otherwise stated, also be applicable to the relevant items in this trade.</p> <p><u>View site</u></p> <p>Before submitting this tender, the contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained.</p> <p><u>Explosives</u></p> <p>No explosives whatsoever may be used for demolition purposes unless otherwise stated.</p>			
	Carried Forward			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions</p> <p>JVNC Capital (Pty) Ltd</p>			

<p style="text-align: center;">Brought Forward</p> <p>General</p> <p>Water supply pipes and other piping that may be encountered and found necessary to disconnect or cut, shall be effectively stopped off or grubbed up and removed, and any new connections that may be necessary shall be made with proper fittings, to the satisfaction of the principal agent.</p> <p>Doors, fanlights, fittings, frames, linings, etc which are to be re-used shall be thoroughly overhauled before refixing including taking off, easing and rehangng, cramping up, re-wedging as required and making good cramps, dowels, etc, and easing, oiling, adjusting and repairing ironmongery as necessary, replacing any glass damaged in removal or subsequently and stopping up all nail and screw holes with tinted plastic wood to match timber, unless otherwise described. Re-painting or re-varnishing is given separately.</p> <p>Prices for taking out of doors, windows, etc shall include for removal of all beads, architraves, ironmongery, doorstops, etc and making good floor and wall finishes to match existing.</p> <p>With regard to building up of openings in existing walls, cement screeds and pavings, granolithic, tops of walls, etc, shall be levelled and prepared for raising of brickwork.</p> <p>Making good of finishes shall include making good of the brick and concrete surfaces onto which the new finishes are applied where necessary.</p> <p>The contractor will be required to take all dimensions affecting the existing buildings on the site and he will be held solely responsible for the accuracy of all such dimensions where used in the manufacture of new items (doors, windows, fittings, etc)</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions</p> <p>JVNC Capital (Pty) Ltd</p>		R	

<p style="text-align: center;">Brought Forward</p> <p><u>Asbestos removal</u></p> <p>Removal of asbestos materials shall be executed in compliance with the regulations set out in the Occupational Health and Safety Act</p> <p>Removal of asbestos materials shall be executed by a certified asbestos removal contractor</p> <p>The disposal of the removed asbestos to be disposed at a registered approved asbestos dumpsite with certificate of disposal.</p> <p><u>Old materials to be carted away</u></p> <p>Old materials from the alterations, except where described to be re-used or handed over, as well as all rubbish, etc., must be regularly carted from the site and not be allowed to accumulate on or around the site.</p> <p><u>Old materials not to be re-used</u></p> <p>None of the old materials are to be used for new work except where specifically described to be set aside for re-use.</p> <p><u>Handing over of materials</u></p> <p>Where certain materials or articles from demolitions or articles are described as to be handed over by the Contractor to the Client, such materials or articles shall be properly stored by the contractor, until handing over thereof. The contractor must obtain an official receipt listing the materials or articles and dates of handing over. If the contractor fails to submit the receipt when requested, it shall be deemed that the materials or articles are still in his possession and he will be held liable to the Client for the full replacement value thereof, which amount will be deducted from any monies due to the contractor.</p> <p><u>Abbreviations</u></p> <p>For the purpose of this bill certain abbreviations have been made use of, the full meanings of which are as follows:</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions</p> <p>JVNC Capital (Pty) Ltd</p>		R	

<p style="text-align: center;">Brought Forward</p> <p>"Breaking down and removing" walls, etc implies that the wall is to be taken down to the extent shown on the drawings or as may be described and that all necessary shoring is to be provided and allowed for to ensure the safety of the building during the pulling down or until new walls are erected and all portions of the remaining walls where disturbed or affected by the removal are to be made good and left ready for the plaster or other finishings</p> <p>"Taking out and removing doors, windows, etc" implies that the door, etc is to be carefully taken down together with the frame, linings, architraves, window sills, etc complete and where brick lintels occur, it must be supported and propped until the openings are built up or new doors or windows built in position</p> <p>"Making good" implies that all necessary repairs are to be made to reinstate articles that may be damaged through the removal or otherwise, and the supplying of any new materials to match existing work, and is to include any necessary repairs to adjacent finishings such as floors, skirtings, plaster, painting, etc and such making good is to match adjoining work in all respects and in all trades</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward			R
<u>REMOVAL OF EXISTING WORK</u>			
<u>Breaking up and removing</u>			
1	Break down and remove existing reinforced concrete steps with foundations, brickwork, balustrades, etc complete including carting away all materials to a dumping site located by the contractor	m3	5
2	Break down and remove existing reinforced concrete ramp with foundations, brickwork, balustrades, etc complete including carting away all materials to a dumping site located by the contractor	m3	12
3	Break down and remove existing stone retaining wall approximately 300mm thick x 1600mm high on average including removing reinforced strip footings, backfilling and carting away all materials to a dumping site located by the contractor	m	222
4	Take up and remove 60mm thick concrete and brick paving with mortar joints on sand bedding and cart away to a dumping site located by the contractor	m2	587
5	Break down and remove cold storage container plinth approximately 3750 x 3000mm including concrete surface bed, cutting off reinforcement, breaking down brickwork, removing foundations, backfilling, compacting and carting away all materials to a dumping site located by the contractor	No	1
6	Break down and remove prefabricated structure plinth approximately 9400 x 5460mm including concrete surface bed, cutting off reinforcement, breaking down brickwork, removing foundations, backfilling, compacting and carting away all materials to a dumping site located by the contractor	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions JVNC Capital (Pty) Ltd			

Brought Forward				R
<u>Demolishing and removing of building structures and removing from site including removal of existing foundation where required</u>				
7	Rectangular shaped double storey building with pitched roof overall, 23835 x 9155mm on plan and approximately 6000mm high at eaves, comprising of reinforced concrete foundations and surface bed, plastered brick external walls including glazed steel windows, steel security gates, plastered internal walls and timber roof structure with asbestos roof covering (asbestos elsewhere), joinery fittings, sanitary fitting, sanitary plumbing complete including cartaway off site to a dumping site located by the contractor (area provided is footprint of building)	m2	218	
8	T- shaped single storey building with pitched roof overall, 32955 x 10745mm and 9550 x 10660mm on plan and approximately 3500mm high at eaves, comprising of reinforced concrete foundations and surface bed, plastered brick external walls including glazed steel windows, steel security gates, plastered internal walls and timber roof structure with asbestos roof covering (asbestos elsewhere), joinery fittings, sanitary fitting, sanitary plumbing complete including cartaway off site to a dumping site located by the contractor (area provided is footprint of building)	m2	456	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions JVNC Capital (Pty) Ltd				

Brought Forward		R
9	Rectangular shaped single storey building with pitched roof overall, 4950 x 2650mm on plan and approximately 3500mm high at eaves, comprising of reinforced concrete foundations and surface bed, plastered brick external walls including glazed steel windows, steel security gates, plastered internal walls and timber roof structure with asbestos roof covering (asbestos elsewhere), joinery fittings, sanitary fitting, sanitary plumbing complete including cartaway off site to a dumping site located by the contractor (area provided is footprint of building)	13
	m2	
10	Rectangular shaped single storey building with pitched roof overall, 3050 x 2800mm on plan and approximately 3500mm high at eaves, comprising of reinforced concrete foundations and surface bed, plastered brick external walls including glazed steel windows, steel security gates, plastered internal walls and timber roof structure with asbestos roof covering (asbestos elsewhere), joinery fittings, sanitary fitting, sanitary plumbing complete including cartaway off site to a dumping site located by the contractor (area provided is footprint of building)	9
	m2	
11	Rectangular shaped single storey building with pitched roof overall, 12415 x 6430mm on plan and approximately 3500mm high at eaves, comprising of reinforced concrete foundations and surface bed, plastered brick external walls including glazed steel windows, steel security gates, plastered internal walls and timber roof structure with asbestos roof covering (asbestos elsewhere), joinery fittings, sanitary fitting, sanitary plumbing complete including cartaway off site to a dumping site located by the contractor (area provided is footprint of building)	80
	m2	
Carried Forward		R
Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions JVNC Capital (Pty) Ltd		

Brought Forward				R
12	Rectangular shaped single storey prefabricated structure with pitched roof overall, 9400 x 5460mm on plan and approximately 2800mm high at eaves, comprising of glazed steel windows, steel security gates, with steel roof covering , joinery fittings, sanitary fitting, sanitary plumbing complete including cartaway off site to a dumping site located by the contractor (area provided is footprint of building)	m2	51	
13	Take down and remove carport overall, 10215 x 5465mm on plan and approximately 2400mm high at eaves, comprising of steel posts, steel roof structure with metal roof covering ,complete including cart away off site to a dumping site located by the contractor	m2	56	
14	Take down and remove carport overall, 16510 x 5465mm on plan and approximately 2400mm high at eaves, comprising of steel posts, steel roof structure with metal roof covering ,complete including cart away off site to a dumping site located by the contractor	m2	90	
<u>Taking out and removing asbestos materials</u>				
15	Removal of asbestos material from site by a specialist as per specification contained in the asbestos removal report including all necessary certificates (areas measured flat on plan)	m2	776	
<u>Carefully take down, transport and assemble at a site approximately 23km distance</u>				
16	Carefully dismantle green houses on site and disconnect drip irrigation system, load, transport to Eikenhof Farm approximately 23km away from Bertrams including offloading, assembling and connecting drip irrigation system at delivery site (area provided is approximate and contractor to visit site to determine what is required)	m2	750	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions JVNC Capital (Pty) Ltd				

Brought Forward			R
17	<p>Carefully dismantle, load, transport the following furniture to Eikenhof Farm approximately 23km away from Bertrams including offloading and assembling the furniture at destination (Contractors are to confirm size and type of furniture to at site inspection)</p> <p><u>Old furniture</u></p> <p>1 x boardroom desk 9 x boardroom chairs 7 x cabinets 5 x foldable steel tables 10 x office desks 3 x steel racks 89 x chairs</p>	Item	
18	<p>Carefully disconnect from services, load, transport mobile cold storage approximately 3m2 to Eikenhof Farm approximately 23km away from Bertrams including offloading and assembling and connecting services at delivery site (Contractors are to confirm size at site inspection)</p>		No 1
19	<p>Carefully disconnect from services, load, transport mobile office approximately 2500 x 5000mm to Eikenhof Farm approximately 23km away from Bertrams including offloading and assembling and connecting services at delivery site (Contractors are to confirm size at site inspection)</p>		No 1
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
20	Carefully disconnect from services, load, transport mobile change rooms approximately 2500 x 5000mm to Eikenhof Farm approximately 23km away from Bertrams including offloading and assembling and connecting services at delivery site (Contractors are to confirm size at site inspection)	No	1
21	Carefully disconnect from services, load, transport 5000 litre jojo tank Eikenhof Farm approximately 23km away from Bertrams including offloading and assembling and connecting services at delivery site	No	3
22	Carefully disconnect from services, load, transport 2500 litre jojo tank Eikenhof Farm approximately 23km away from Bertrams including offloading and assembling and connecting services at delivery site	No	1
<u>BUDGETARY ALLOWANCES</u>			
<u>The following budgetary allowances are for work to be carried out by the Main Contractor and remeasured on completion. For payment purposes all scheduled items with rates in the Bills of Quantities will be applicable and take preference over any negotiated rates if not available and so required</u>			
23	Allow a budgetary allowance of R200,000.00 (Two Hundred Thousand Rand) for work associated with relocating equipment, furniture, green house, drip irrigation, etc as directed by the Principal Agent and measured and valued at schedule rates and omitted if not so used	Item	200 000.00
Carried Forward to Summary of Section No. 2			R
Section No. 2 Section 2 - Main Building Bill No. 1 Demolitions			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 2 EARTHWORKS (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Nature of material to be excavated</u></p> <p>The material to be excavated is assumed to be predominantly of a composition that will allow excavation in "earth" as specified, but including a percentage of excavation in "soft rock" and "hard rock"</p> <p><u>Classification of excavated material</u></p> <p>Hard rock" shall mean granite, quartzitic sandstone or other rock of similar hardness, the removal of which requires drilling, wedging and splitting or the use of explosives.</p> <p>Soft rock" shall mean hard material the removal of which warrants the use of pneumatic tools and includes hard shale, ferricite, compact oukclip and material of similar hardness.</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 2 Earthworks</p> <p>JVNC Capital (Pty) Ltd</p>			<p style="text-align: right;">R</p>

Brought Forward			R
<u>Carting away of excavated material</u>			
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			
<u>Dewatering of excavations</u>			
The Contractor shall allow for removing seepage and other water from subterranean sources from the excavations by pumping, baling or otherwise			
Accurate records of all such dewatering shall be kept to determine the total volume of water so removed and a clear distinction shall be made between water from subterranean sources and other water			
<u>Density testing on filling</u>			
Rates for filling, etc. shall include for all density and soil type testing to prove that the specified compaction is achieved			
When additional testing is done on instruction of the Principal Agent and these tests are successful, they will be paid for additionally			
<u>SITE CLEARANCE, ETC</u>			
<u>Site clearance</u>			
1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc	m2	10 145
<u>EXCAVATION, ETC</u>			
<u>Excavation in earth not exceeding 2m deep</u>			
2	Surface trenches	m3	966
3	Holes	m3	1 198
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 2 Earthworks			
JVNC Capital (Pty) Ltd			

Brought Forward				R
<u>Excavation in earth not exceeding 2m deep below reduced level</u>				
4	Trenches	m3	150	
<u>Back excavation of vertical sides of excavations in earth for working space including backfilling compacted to 95% Mod AASHTO density</u>				
5	Exceeding 1,5m and not exceeding 3m deep for placing and removing formwork to walls etc, 500mm away from excavated face	m2	843	
<u>Extra over trench and hole excavations in earth for excavation in</u>				
6	Soft rock	m3	97	
7	Hard rock	m3	108	
<u>Extra over all excavations for carting away</u>				
8	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	1 249	
<u>Risk of collapse of excavations</u>				
9	Sides of trench and hole excavations not exceeding 1,5m deep	m2	3 381	
<u>Keeping excavations free from water</u>				
10	Keeping excavations free from mud and all water other than from subterranean sources		Item	
<u>FILLING, ETC</u>				
<u>Selected filling obtained from the excavations and/or prescribed stock piles on site compacted to 93% Mod AASHTO density</u>				
11	Under floors, etc	m3	651	
12	Backfilling to trenches, holes, etc	m3	1 044	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 2 Earthworks				
JVNC Capital (Pty) Ltd				

Brought Forward			R
<u>Filling of imported G5 material supplied by the contractor, compacted to 98% Mod AASHTO density</u>			
13	Under floors, steps, pavings, etc	m3	1 110
<u>Compaction of surfaces</u>			
14	Compaction of ground surface under floors, etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density	m2	3 971
<u>Prescribed density tests on filling</u>			
15	"Modified AASHTO Density" test on fill material	No	35
<u>PROTECTION AGAINST TERMITES</u>			
<u>Soil insecticide</u>			
16	Under floors, etc including forming and poisoning shallow furrows against foundation walls, etc and filling in furrows and ramming	m2	3 971
17	To bottoms and sides of trenches etc	m2	4 931
Carried Forward to Summary of Section No. 2			R
Section No. 2 Section 2 - Main Building Bill No. 2 Earthworks			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 3 PILING (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Indemnity</u></p> <p>The contractor shall take full responsibility for piling work and shall guarantee that piling work will support the calculated loads laid down by the engineer without injurious settlement. The actual lengths of piles shall be determined on site by the contractor in consultation with the engineer who will give all assistance possible. This does not in any way relieve the contractor of his responsibility or obligation to provide the specified guarantee</p> <p>The contractor shall indemnify the employer against any injury to or death of any person and all loss or damage to all structures resulting from the failure of any pile. In the event of the failure of a pile the contractor shall make good such pile and all consequent damage at his own expense</p>			
	Carried Forward		R	
	<p>Section No. 2 Section 2 - Main Building Bill No. 3 Piling</p> <p>JVNC Capital (Pty) Ltd</p>			

<p style="text-align: center;">Brought Forward</p> <p>The contractor shall insure by means of a policy, approved by the principal agent, against risks arising out of the responsibilities, guarantee and indemnities specified. The contractor shall pay all premiums in respect of this insurance policy. The guarantee shall be for the amount and effective period as stated hereafter in this bill</p> <p><u>Scope of work</u></p> <p>The work comprises the design and installation of cast in situ augered piles. The contractor is referred to the engineers drawings and specifications issued together with these bills of quantities in order to acquaint himself fully with the nature and scope of the work</p> <p>Piles are to be installed subsequent to the site being excavated or filled to the correct levels</p> <p><u>Classification of material</u></p> <p>"Hard rock" shall mean granite, quartzitic sandstone or other rock of similar hardness, the removal of which would normally require drilling, wedging and splitting or the use of explosives</p> <p>"Earth" shall mean all ground other than that classified as "hard rock" and shall include made-up ground and loose stones or pieces of concrete not exceeding 0,03m³ in volume as well as hard material the removal of which would normally warrant the use of pneumatic tools and which includes hard shale, ferricite, compact outcrop and material of similar hardness</p> <p>Tenderers are referred to Engineer's Piling Layout Drawing accompanying these Bills of Quantities for tender purposes.</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 3 Piling</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward		R
<u>GUARANTEE AND INSURANCE</u>		
1	<p>The 'Piling Liability Insurance Policy' should have insurance cover for the following sections:</p> <ol style="list-style-type: none"> 1. Public Liability Cover: this is standard on all piling insurance policies, a minimum of R5 million cover is required. 2. General Construction (Contractors) Liability Cover: this is standard on all piling insurance policies, a minimum of R5 million cover is required and generally all piling contractors have this cover. This is to cover damage to existing internal or neighbouring structures during the piling process. 3. Foundation Failure Indemnity Cover: this is now standard on all piling insurance policies, a minimum of R5 million cover and generally all the piling contractors have this cover. This policy covers only the replacement of the piles installed if they have failed. 4. Products Liability Cover: this is now standard on all piling insurance policies, a minimum of R 10 million cover and generally all the piling contractors have this cover. This policy covers the repair to the entire building structure due to the failure of the piles. 	Item
<u>ESTABLISHMENT</u>		
2	Transporting to and establishment on site of necessary plant for the execution of the work and removal thereof on completion	Item
<u>SETTING UP</u>		
3	Setting up plant at pile position	No 204
<u>SETTING OUT</u>		
4	Setting out of piles by a Registered Land Surveyor and provision of as built information and certificates upon completion of the works	Item
Carried Forward		R
Section No. 2 Section 2 - Main Building Bill No. 3 Piling JVNC Capital (Pty) Ltd		

Brought Forward				R
<u>PILES DESIGNED BY THE CONTRACTOR</u>				
<u>Piles suitable for the working loads indicated on the Engineer's piling layout etc including concrete, precast concrete, reinforcement, couplings, drilling, driving or boring, etc complete and disposal of surplus excavated material to a dumping site to be located by the contractor. (Refer to Pile Layout Drawing No: S100-REV-C attached to these bills of quantities)</u>				
5	Design, supply and install pile foundation to satisfy the pile foundation requirements specified on Engineer's Pile Layout Drawing No: S100-REV-C	No	204	
<u>Continuous flight auger drilling in strata of a more difficult character</u>				
6	Extra over continuous flight auger drilling in earth for continuous flight auger drilling in hard rock	m3	101	
<u>Extra over continuous flight auger drilling for carting away</u>				
7	Surplus material from pile shafts etc to a dumping site to be located by the contractor		Item	
<u>TEST CUBES</u>				
8	Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional)		Item	
<u>EXPOSING PILES FOR INSPECTION</u>				
9	Exposing pile for inspection including excavation not exceeding 1m deep in earth and backfilling compacted to 93% Mod AASHTO density	No	204	
<u>TRIMMING ETC</u>				
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 3 Piling				
JVNC Capital (Pty) Ltd				

	Brought Forward				R
	<u>Stripping back head of concrete pile for a height not exceeding 1m to expose reinforcement, including trimming to defined level and bending reinforcement as necessary for casting into pile cap</u>				
10	Pile as per contractor's design	No	204		
	<u>TESTING</u>				
11	Transporting to and establishment on site of necessary testing plant for the execution of the work and removal thereof on completion			Item	
12	Testing pile to a maximum load as per contractor's design	No	204		
13	Integrity testing in-situ concrete pile	No	204		
	Carried Forward to Summary of Section No. 2				R
	Section No. 2				
	Section 2 - Main Building				
	Bill No. 3				
	Piling				
	JVNC Capital (Pty) Ltd				

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 4 CONCRETE, FORMWORK AND REINFORCEMENT</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Cost of tests</u></p> <p>Descriptions of concrete items shall be deemed to include for all necessary testing of concrete components and trial mixes</p> <p>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 and to the approval of the architect. (Test cubes are measured separately)</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 4 Concrete, Formwork & Reinforcement</p> <p>JVNC Capital (Pty) Ltd</p>			<p style="text-align: right;">R</p>

Brought Forward			R
<u>Formwork</u>			
Formwork Descriptions 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.			
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"			
Unless otherwise described, formwork to soffits of slabs and beams shall be deemed to be propped up exceeding 1,5m and not exceeding 3,5m high			
Formwork to soffits of slabs shall not exceed 250mm thick			
<u>UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</u>			
<u>10MPa/19mm concrete</u>			
1	Surface blinding under footings and bases (Provisional)	m3	78
<u>REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</u>			
2	Strip footings (Provisional)	m3	341
3	Bases (Provisional)	m3	717
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 4 Concrete, Formwork & Reinforcement			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>30MPa/19mm concrete with Penetron Admix</u>			
4	Retaining walls in foundations (Provisional)	m3	55
<u>REINFORCED CONCRETE</u>			
<u>30MPa/19mm concrete</u>			
5	Surface beds cast in panels on waterproofing	m3	398
6	Columns	m3	293
7	Beams and Inverted beams	m3	722
8	Walls	m3	255
9	Lift Shaft Walls	m3	113
10	Postension slabs	m3	47
11	Slabs	m3	4 477
12	Ramps	m3	95
13	Stairs including landings	m3	132
<u>30MPa/19mm concrete with Penetron Admix</u>			
14	Surface beds with penetron cast in panels on waterproofing	m3	270
15	Walls	m3	387
<u>CONCRETE TESTING</u>			
16	Making and testing 150 x 150 x 150 mm concrete strength test cube (Provisional)	No	125
<u>CONCRETE SUNDRIES</u>			
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 4 Concrete, Formwork & Reinforcement			
JVNC Capital (Pty) Ltd			

Brought Forward			R
	<u>Finishing top surfaces of concrete smooth with a wood float</u>		
17	Surface beds, slabs, etc to falls	m2	256
	<u>Finishing top surfaces of concrete smooth with a steel float (off shutter finish)</u>		
18	Slabs - Top of tiered seating	m2	91
	<u>Finishing top surfaces of concrete smooth with a power float</u>		
19	Surface beds, slabs, etc	m2	17 990
	<u>Finishing top surfaces of concrete smooth with a power float with high quality grey non-metallic commercial hardener added (7kg/m² in two operations), curing with curing compound at a rate of 7-10m²/l, subsequently removing curing compound and sealing with suitable sealer at a rate of 7m²/l</u>		
20	Surface beds, slabs, etc to falls	m2	365
	<u>Grooves, channels, mortices, sinkings, etc in concrete</u>		
21	Chamfered edges to exposed concrete	m	2 450
	<u>60MPa non-shrink grout</u>		
22	Bedding approximately 25mm thick under 500 x 500mm base plate	No	0.3
	<u>ROUGH FORMWORK (DEGREE OF ACCURACY 11)</u>		
	<u>Formwork to sides</u>		
23	Outer face of retaining walls and total wall height exceeding 1.5m and not exceeding 3.5m)	m2	781
Carried Forward			R
Section No. 2			
Section 2 - Main Building			
Bill No. 4			
Concrete, Formwork & Reinforcement			
JVNC Capital (Pty) Ltd			

Brought Forward			R
24	Columns in foundations	m2	141
<u>SMOOTH FORMWORK (DEGREE OF ACCURACY 1)</u>			
<u>Smooth formwork to sides of</u>			
25	Rectangular columns	m2	25
26	Rectangular columns with total height exceeding 3,5m and not exceeding 5m above bearing level	m2	21
27	Square columns	m2	46
28	Capsule shaped columns	m2	48
29	Inner face of shaft walls (shaft approximately 2740mm x 3260mm internally and total wall height not exceeding 1.5m)	m2	432
30	Square columns with total height exceeding 3,5m and not exceeding 5m above bearing level	m2	18
31	Sloping and stepped outer edges of stairs not exceeding 300mm high extreme	m	62
32	Slabs exceeding 250mm and not exceeding 500mm thick	m2	6 704
<u>Smooth formwork to circular and capsule shaped columns</u>			
33	600mm Diameter raking column 3410m high	No	15
34	600mm Diameter raking column 3430m high	No	30
35	600mm Diameter raking column 4950m high	No	20
36	300mm Diameter column 3410m high	No	15
37	450mm Diameter column 3410m high	No	111
38	300mm Diameter column 3430m high	No	5
39	450mm Diameter column 3430m high	No	3
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 4 Concrete, Formwork & Reinforcement JVNC Capital (Pty) Ltd			

Brought Forward			R
40	600mm Diameter column 3410m high	No	26
41	450mm Diameter column 4950m high	No	63
42	600mm Diameter column 3430m high	No	3
43	300mm Diameter column 4950m high	No	3
44	600mm Diameter column 4950m high	No	7
<u>Smooth formwork to a class 1 off-shutter finish to:</u>			
45	Walls not exceeding 3.5m high	m2	2 831
46	Walls exceeding 3.5m and not exceeding 5m high	m2	1 702
47	Slabs exceeding 250mm and not exceeding 500mm thick	m2	3 379
48	Slabs exceeding 250mm and not exceeding 500mm propped up exceeding 3,5m and not exceeding 5m high	m2	3 647
<u>Smooth formwork to sides and soffits</u>			
49	Beams	m2	2 060
50	Beams propped up exceeding 3.5m and not exceeding 5m high	m2	491
51	Beams circular to exceeding 1m radius	m2	168
52	Slabs	m2	41
53	Slabs with sloping soffits	m2	515
54	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	3 075
<u>Boxing out smooth formwork to form</u>			
55	Opening exceeding 1m and not exceeding 2m girth through 350mm slab	No	28
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 4 Concrete, Formwork & Reinforcement JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>MOVEMENT JOINTS, ETC</u>			
<u>Horizontal construction joints through concrete including bond breaker on interface, R25mm x 450mm long dowel bars at 300mm c/c and thick cement slurry or similar to one face</u>			
56	Surface beds not exceeding 300mm thick	m	1 481
<u>Horizontal construction joints through concrete including 10mm thick softboard joint filler with silicone sealant and cement slurry to one face</u>			
57	Surface beds not exceeding 300mm thick	m	746
<u>Expansion joints with 10mm "Masonite" bitumen impregnated insulation board between horizontal and/or vertical concrete and brick surfaces including 10 x 10mm polysulphide sealant:</u>			
58	10mm Joints not exceeding 300mm high	m	2 961
<u>Saw cut joints and seal with flexible polyurethane sealant (sikaflex 11FC) directly after sawing</u>			
59	6 x 30mm Saw cut joints in two operations in top of concrete	m	1 481
<u>REINFORCEMENT(PROVISIONAL)</u>			
<u>Mild steel reinforcement to structural concrete work</u>			
60	Steel reinforcing in various Diameter bars	t	797.31
<u>High tensile steel reinforcement to structural concrete work</u>			
61	Steel reinforcing in various Diameter bars	t	438.94
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 4 Concrete, Formwork & Reinforcement			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Fabric reinforcement</u>			
62	Type 245 fabric reinforcement in concrete surface beds, slabs, etc	m2	256
63	Type 395 fabric reinforcement in concrete surface beds, slabs, etc	m2	3 971
<u>REINFORCEMENT SUNDRIES</u>			
64	Joluka Steel Hollow Boxes (product no. 4962) for pull-out bars to be installed for full length of slab/wall interface.	No	803
65	Allowance to fix & tension all reinforcing as per engineer specification to the post tension slab complete		Item
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Section 2 - Main Building			
Bill No. 4			
Concrete, Formwork & Reinforcement			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 5 MASONRY</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Sizes in descriptions</u></p> <p>Where sizes in descriptions are given in brick units, "one brick" shall be the length and "half brick" the width of a brick</p> <p><u>Hollow walls etc</u></p> <p>Descriptions of hollow walls and brickwork in two skins shall be deemed to include wall ties and leaving every fifth perpend of the bottom course of the external skin open as a weep hole</p> <p>Walls in two skins described as "bagged and sealed" shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats "Brixéal" bitumen emulsion waterproofing coating.</p> <p><u>Cement mortar</u></p> <p>Unless otherwise described, all brickwork shall be built in 1:6 cement mortar</p>			
	Carried Forward			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 5 Masonry</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
<u>Face bricks</u>			
Bricks shall be ordered timeously to obtain uniformity in size and colour			
<u>Pointing</u>			
Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc			
<u>Samples, etc</u>			
Rates for brickwork, faced brickwork, etc shall include for all required samples			
<u>BRICKWORK FOUNDATIONS (PROVISIONAL)</u>			
<u>Brickwork of NFX bricks (14 MPa nominal compressive strength) in class 1 mortar</u>			
1	One brick walls	m2	229
<u>SUPERSTRUCTURE</u>			
<u>Brickwork of NFP bricks in class II mortar</u>			
2	205	m2	1 574
3	One brick walls	m2	6 980
4	One brick wall circular on plan	m2	466
5	One brick walls in beamfilling	m2	30
<u>BRICKWORK SUNDRIES</u>			
<u>Bagging and sealing the outer face of the inner skin of walls with 1:6 cement and sand mixture and seal with two coats "Brixal" bitumen emulsion waterproofing coating.</u>			
6	To walls (Provisional)	m2	2 610
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 5 Masonry			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Joint forming material in movement joints</u>			
7	12mm Bitumen impregnated fibre board built in vertically through brick walls in foundations (Provisional)	m2	290
<u>Reinforcement to brickwork</u>			
8	Approved high tensile steel brick reinforcement 75 mm wide well lapped at all angles and passings and built into brick walls	m	5 337
9	Approved high tensile steel brick reinforcement 155 mm wide well lapped at all angles and passings and built into brick walls	m	24 399
<u>Concrete prestressed fabricated lintels</u>			
10	110 x 75mm Lintels in lengths not exceeding 3m	m	1 614
<u>Turning pieces</u>			
11	115mm Wide turning piece to lintels etc	m	329
12	230mm Wide turning piece to lintels etc	m	442
<u>FACE BRICKWORK</u>			
<u>Corobrik or equal approved Platinum facebricks in Satin texture or similar approved in stretcher bond pointed with recessed horizontal and vertical joints</u>			
13	Extra over brickwork in NFP bricks for face brickwork	m2	1 483
<u>Brick-on-edge header course copings, sills, etc of face bricks, pointed with flush recessed joints on all exposed faces</u>			
14	220mm Wide sills set sloping and slightly projecting	m	146
15	Extra over brickwork for brick-on-edge header course lintels one course high, pointed on face and 110mm soffit	m	184
Carried Forward to Summary of Section No. 2			R
Section No. 2 Section 2 - Main Building Bill No. 5 Masonry			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 6 WATERPROOFING</u>			
	<u>PREAMBLES</u>			
	Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	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			
	<u>Proprietary products in descriptions</u>			
	Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent			
	<u>DAMPPROOFING OF WALLS AND FLOORS</u>			
	<u>One layer of 375 micron embossed damp proof course</u>			
1	In walls	m2	181	
	<u>One layer of 250 micron USB green waterproof sheeting sealed at laps with pressure sensitive tape</u>			
2	Under surface beds	m2	4 276	
	<u>WATERPROOFING TO ROOFS, BASEMENTS, ETC</u>			
	Carried Forward			R
	Section No. 2 Section 2 - Main Building Bill No. 6 Waterproofing			
	JVNC Capital (Pty) Ltd			

Brought Forward			R
	<u>4mm "Bitumen" waterproofing system by specialist with 100mm side laps and 150mm end laps sealed by means of ' torch-on fusion' on screed to receive protection applied in accordance to manufacturer's specification.</u>		
3	On concrete walls	m2	411
4	On tops and sides of inverted beams	m2	117
5	On floors and slabs	m2	2 707
	<u>Double layer of 4mm Derbigum torch-on waterproofing system by specialist with 100mm side laps and 150mm end laps sealed by means of ' torch-on fusion' on screed to receive protection applied in accordance to manufacturer's specification.</u>		
6	Planted sloped roof	m2	912
	<u>Bituthene 3000 waterproofing or equal approved installed complete in strict accordance with manufacturer's instructions</u>		
7	On concrete walls	m2	892
	<u>Two coats Sikalastic®-560 GCC waterborne liquid applied waterproofing membrane,highly elastic and UV-resistant on top of bitumen waterproofing applied in accordance to manufacturer's specification.</u>		
8	On floors	m2	1 951
	<u>Two layers "Bitumen" mastic asphalt trowelled-on waterproofing</u>		
9	30 x 30mm Triangular fillets	m	152
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 6 Waterproofing			
JVNC Capital (Pty) Ltd			

Brought Forward			R
	<u>Wickdrain GPW 100 (or equal approved) at 45 angle at 1500 c/c spacing sloped in the direction of pipe fall</u>		
10	On concrete walls	m2	1 976
	<u>PROTECTIVE BOARD</u>		
	<u>Interdek or similar approved protective layer installed as per manufacturer's specification</u>		
11	On floor	m2	3 523
	<u>PROTECTIVE STONE DRESSING</u>		
	<u>19mm Crushed stone dressing evenly spread with larger stones around outlets</u>		
12	50mm Thick on waterproofing to flat roofs	m2	2 715
	<u>JOINT SEALANTS, ETC</u>		
	<u>Two-part grey polysulphide sealing compound including backing cord, bond breaker, primer, etc</u>		
13	20 x 10mm In expansion joints in floors or walls including raking out expansion joint filler as necessary (Provisional)	m	746
	<u>Clear silicone sealant</u>		
14	In joint sealing and pointing between external window frames and plastered walls surround		Item
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Section 2 - Main Building			
Bill No. 6			
Waterproofing			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 7 ROOF COVERINGS, ETC</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Fixing</u></p> <p>Fixing shall be done according to SABS 1200HB with minimum 225mm end laps</p> <p><u>Guarantee</u></p> <p>The contractor will be required to provide a written guarantee, stating that :</p> <ol style="list-style-type: none"> 1. The roof sheeting is of the specified thickness 2. The client is indemnified against any defects, including colour deterioration for a minimum period of 15 years <p><u>STEEL ROOF SHEETING AND ACCESSORIES</u></p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 7 Roof Coverings, Etc</p> <p>JVNC Capital (Pty) Ltd</p>			
			R	

Brought Forward			R
<p><u>Global Roofing Solutions, or equal approved 0.8mm thick 406mm cover Brownbuilt profile Chromadek Ultima at Z275 spelter ISOQ559 Charcoal grey finish top coat and rebble grey backing coat roof sheeting, fixed to steel intermediate purlins at max 2700mm centres and eaves and ridge purlins at max 2400mm centres using duplex clips fixed with 10no.16 x 16mm long self drilling wafer head ph2 screws, no.3 drill point fasteners, all in accordance with the manufacturer's specifications.</u></p>			
1	Roof covering with pitch not exceeding 25 degrees	m2	427
2	Side cladding continuous profile as per drawing	m2	54
3	Head wall flashings 308mm girth	m	276
4	Counter flashings 142mm girth	m	18
5	Drip flashing 154mm girth	m	17
6	Extra over roof covering for curved turn-up (lip up) to radius at top edge	m	64
7	Extra over roof covering for 85 degree bullnose to radius, at ends	m	16
<p><u>ROOF AND WALL INSULATION</u></p>			
<p><u>"Sisalation 420" heavy industrial grade aluminium foil based insulation</u></p>			
8	Insulation laid taut over purlins and fixed concurrent with roof covering including galvanised steel straining wires	m2	481
<p><u>Non-combustible lightweight fibreglass insulation blanket:</u></p>			
9	Isotherm 145mm thick thermally bonded polyester thermal insulation laid closely fitted between tie beams and laid loose on top of brandering complete	m2	481
<p>Carried Forward to Summary of Section No. 2</p>			R
<p>Section No. 2 Section 2 - Main Building Bill No. 7 Roof Coverings, Etc</p>			
<p>JVNC Capital (Pty) Ltd</p>			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 8 CARPENTRY AND JOINERY</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Roof trusses</u></p> <p>The truss system shall be designed by an Engineer and the Contractor shall complete and submit a certificate of confirmation. This certificate will state that the trusses have been designed, manufactured and erected in accordance with the relevant SABS code. The details of the registered engineer certifying this will appear on the certificate</p> <p><u>Joinery</u></p> <p>Descriptions of frames shall be deemed to include frames, transoms, mullions, rails, etc</p> <p>Descriptions of hardwood joinery shall be deemed to include pelleting of bolt holes</p> <p><u>Decorative laminate finish</u></p> <p>Laminate finish shall be glued under pressure. Edge strips shall be butt jointed at junctions with adjacent similar finish</p>			
	Carried Forward		R	
	<p>Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward		R
<u>Fixing</u>		
All nailing of timber roof trusses, purlins, etc shall be done with galvanised nails. In coastal areas, copper, aluminium or stainless steel nails shall be used		
Items described as "nailed" shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete		
Where items are described as "bolted" the bolts have been measured elsewhere		
NOTE:For pricing of the structural roof trusses, tenderers are referred to the drawings included at the end of these Bills of Quantities		
Dimensions in descriptions of trusses are nominal and actual measurements are to be obtained from the architect/engineer and/or taken on site before design or fabrication commences		
<u>STRUCTURAL TIMBERWORK ETC</u>		
<u>TIMBER FLOOR CONSTRUCTION</u>		
1	Supply and install hardwood timber decking floor to mezzanine area as per architect specification	m2 54
<u>DOORS, ETC</u>		
<u>"40" Solid laminated internal quality flush doors hung to steel frames</u>		
2	40mm Double door 760 x 2135mm high (D07)	No 20
3	40mm Door 813 x 2032mm high (D05)	No 2
<u>"40" Solid quality solid core flush doors with commercial veneer to inside with hardwood concealed edges all round, 1.2mm Galvanised sheet outside, folded over to inside on all four sides and fixed with S/S fasteners, door hung to steel frames</u>		
4	40mm Double leaf door 1300 x 2100mm high (D02)	No 8
Carried Forward		R
Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery		
JVNC Capital (Pty) Ltd		

Brought Forward			R
5	40mm Single leaf door 650 x 2030mm high (D08)	No	5
6	40mm Double leaf door 760 x 2135mm high (D09)	No	4
7	40mm Double leaf door 815 x 2135mm high (D09&04)	No	2
8	40mm Double leaf door 1300 x 2100mm high (D03)	No	2
9	40mm Single leaf door 1000 x 2030mm high (D01)	No	28
<p><u>"Bitcon Industries" or similar approved fire doors with timber veneer to inside with hardwood concealed edges all round, 0.6mm Galvanised sheet outside, folded over to inside on all four sides and fixed with S/S fasteners, door hung to steel frames</u></p>			
10	44mm thick Class "B" (120 min fire rating) fire rated single door set, size 1000 x 2030mm high single leaf door including 1.6mm pressed steel frame for 220mm brick wall ,flush panelled 'masonite' with concealed hardwood edging and heavy duty hinges as per manufacturer. (FD1 220wall) (FD1)	No	21
11	44mm thick Class "B" (120 min fire rating) fire rated single door set, size 760 x 2030mm high single leaf door including 1.6mm pressed steel frame for 220mm brick wall ,flush panelled 'masonite' with concealed hardwood edging and heavy duty hinges as per manufacturer. (FD1 220wall) (FD03)	No	15
12	44mm thick Class "B" (120 min fire rating) fire rated solid double door set, size 1800 x 2400mm high double leaf door including steel frame for 230mm brick wall ,flush panelled 'masonite' with concealed hardwood edging and heavy duty hinges as per manufacturer. (FD02Fire Escape)	No	11
<p><u>JOINERY SUNDRIES</u></p>			
<p><u>BENCHES</u></p>			
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery</p>			
<p>JVNC Capital (Pty) Ltd</p>			

	Brought Forward			R
	<u>Saligna hardwood</u>			
13	25 x 500mm seat screwed to steel frame from top and plugged	m2	94	
	<u>Timber slats (Guardhouse)</u>			
14	100 x 50 Composite Timber slats @ 100c/c spacing fixed to 38 x 38 galvanised steel tubing subframe as per architect specification including steel fixing complete	m2	16	
	<u>JOINERY FITTINGS</u>			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Cupboard Exterior:</u>			
	16mm thick Piazza Solid Melamine Deco Surface			
	<u>Cupboard Interior:</u>			
	16mm thick Piazza Solid Melamine Deco Surface			
	<u>Counter tops:</u>			
	Countertops to be manufactured out of 40mm thick Corian White Onyx			
	<u>Plinth / Skirting:</u>			
	19mm moisture resistant board with floor finish by others to turn against plinth.			
	75mm aluminium skirting			
	<u>Backing Board:</u>			
	22mm Backing Board, 16mm MDF Board, 32mm MDF Board			
	Carried Forward			R
	Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery			
	JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Fixing</u>			
Items described as "nailed" shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete			
<u>Decorative laminate finish:</u>			
Laminate finish shall be glued under pressure. Edge strips shall be butt joined at junctions with adjacent similar finish			
<u>VANITIES</u>			
<u>The following Corian White Onyx, as per approved sample in long lengths fixed complete including pointing, jointing, bevelled edges, cut outs, all square, circular cutting waste and cleaning off on completion to, galvanized frame work, epoxy resin glue, support members, fixing blocks and clear silicone sealant, as per Architectural drawings and specifications</u>			
15	2700mm wide x 600mm deep x 1200mm high continues side panel Corian White Onyx vanity (40mm) with sloping bottom and front panels, fixed with galvanised bracket to walls including cut-out for 16mm MDF board with concealed strip light, including all necessary cut outs fixed and executed complete to frame work (all necessary framework and supports to be included) all in accordance to Architectural abluion drawing 291 (male & female)	No	2
16	Ditto but 900mm wide (caretaker)	No	1
17	Ditto but 3600mm wide as per Architects drawing 293 (male & female)	No	2
18	Ditto but 1815mm wide with no vertical panel or cut-outs as per Architects drawing 293 (male)	No	1
19	Ditto but 3522mm wide as per Architects drawing 294 (female)	No	1
20	Ditto but 1818mm wide as per Architects drawing 295 (male & female)	No	2
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery			
JVNC Capital (Pty) Ltd			

Brought Forward			R
21	Ditto but 1765mm wide as per Architects drawing 296 (baby feed/change)	No	2
22	Ditto but 2200mm wide special vanity with various connecting height tops as per Architects drawing 296 (family room)	No	1
23	Ditto but 4317mm wide as per Architects drawing 297 (male)	No	1
24	Ditto but 1760mm wide as per Architects drawing 298 (male & female change)	No	2
<u>CUSTOM MADE JOINERY FITTINGS TO CLASSROOMS</u>			
<u>Fitted seats, Cupboards, shelves, etc.</u>			
25	200 x 32mm thick Open shelves formed of Merino 21065 Cardinal HGL Melamine 32mm Chipboard finished with edge strips fixed to wall in accordance with architect's joinery detail	m	3
26	200 x 32mm thick L- Shaped open shelves formed of Merino 21065 Cardinal HGL Laminate on 32mm MDF backing board fixed to wall in accordance with architect's joinery detail	m	3
27	300 x 32mm thick Open shelves formed of Merino 21065 Cardinal HGL Melamine 32mm Chipboard finished with edge strips fixed to wall in accordance with architect's joinery detail (library)	m	38
<p><u>The following fittings have been measured as complete units i.e. the components of the units have not been separately measured. The descriptions, therefore, of such units shall be deemed to include all components, assembling, housing, notching, glueing, blocking, planting on and screwing with countersunk screws, edge strips, decorative plastic finish, glass, ironmongery, metalwork, paint or varnish finishes, etc</u></p>			
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward				R
28	Custom made "Zebra" animated joinery fitting to classroom comprising of 1446 x 500mm wide cushioned seating fixed in a semi-circular shaped Merino 21067 sunflower SF Laminate on 32mm MDF backing board secured, 963 x 500 x 1130mm high floor open shelves with 75mm aluminium skirting at bottom, including all laser cut graphics boards fixed complete all in accordance with Architectural Joinery detail (Black school board paint, open shelves, Belgotex grass elsewhere measured)	No	2	
29	Custom made "Oval Insect" animated joinery fitting to classroom comprising of 1473 x 500 x 450mm high floor cupboard with 1452 x 500mm cushioned seating fixed on top, with Oval shaped Merino 21067 sunflower SF Laminate on 32mm MDF backing board secured to wall and floor cupboard including 75mm high aluminium skirting at bottom, etc including all laser cut graphics and ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Black school board paint, open shelves, elsewhere measured)	No	1	
30	Custom made joinery comprising of 2 No approx 1500mm wide cushioned seating fixed to library wall in a semi-circular shaped Merino 21067 sunflower SF Laminate on 32mm MDF backing board secured, including 2 No x 1020 x 760mm high half round wall shelves including all laser numbers cut from 1220 x 2440mm graphics boards fixed complete all in accordance with Architectural Joinery detail Drawing 604 (paint and Belgotex grass elsewhere measured)	No	1	
31	Custom made curved joinery fitting to Library comprising of 3520 x 300 x 275mm high floor cupboard with 3520 x 300mm one curve seating fixed on top shelf, bottom shelf, divider with 20mm thick curved shaped Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail Drawing no. 605 (Kids library open shelves)	No	1	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery JVNC Capital (Pty) Ltd				

Brought Forward			R
32	Custom made curved joinery fitting to Library comprising of 3520 x 300 x 275mm high floor cupboard with 1210 x 300mm semi-circular shaped timber seating fixed on top shelf, bottom shelf, divider with curved 20mm thick shaped Merino 21065 cardinal SF Laminate board secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 605)	No	1
33	Custom made curved joinery fitting to Library comprising of 2985 x 300 x 275mm high floor cupboard with 1330 x 300mm semi-circular shaped timber seating fixed on top shelf including bottom shelf and divider with curved 20mm thick shaped Merino 21065 cardinal SF Laminate on 20mm secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 607)	No	1
34	Custom made curved joinery fitting to Library comprising of 2750 x 300 x 275mm high floor cupboard with 1330 x 300mm semi-circular shaped timber seating fixed on top shelf including bottom shelf and divider with 20mm thick curved shaped Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 608)	No	1
35	Custom made curved joinery fitting to Library comprising of 2490 x 300 x 275mm high floor cupboard with 1455 x 300mm semi-circular shaped timber seating fixed on top shelf including bottom shelf and divider with 20mm thick curved shaped Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 609)	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery JVNC Capital (Pty) Ltd			

Brought Forward							
36	Custom made straight joinery fitting to Library comprising of 3716 x 300 x 275mm high floor cupboard with 1690 x 300mm 2No semi-circular shaped timber seating fixed on top shelf, bottom shelf, divider with 20mm thick Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 610)	No	1				R
37	Custom made straight joinery fitting to Library comprising of 3716 x 300 x 275mm high floor cupboard with 1690 x 300mm 2N0 semi-circular shaped timber seating fixed on top shelf, bottom shelf, divider with 20mm thick straight shaped Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 611)	No	1				
38	Custom made straight joinery fitting to Library comprising of 3716 x 300 x 275mm high floor cupboard with 1690 x 300mm 2Nr semi-circular shaped timber seating fixed on top shelf, bottom shelf, divider with 20mm thick straight shaped Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 612)	No	1				
39	Custom made straight joinery fitting to Library comprising of 3000 x 300 x 275mm high floor cupboard with 1445 x 300mm semi-circular shaped timber seating fixed on top shelf, bottom shelf, divider with 20mm thick straight shaped Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 613)	No	1				
Carried Forward							R
Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery JVNC Capital (Pty) Ltd							

Brought Forward			R
40	<p>Custom made straight joinery fitting to Library comprising of 3001 x 300 x 275mm high floor cupboard with 1445 x 300mm semi-circular shaped timber seating fixed on top shelf, bottom shelf, divider with 20mm thick straight shaped Merino 21065 cardinal SF Laminate secured to wall and floor cupboard including all ironmongery to cupboards fixed complete all in accordance with Architectural Joinery detail (Kids library open shelves, Drawing no. 614)</p> <p style="text-align: right;">No</p>	1	
<p><u>KITCHEN</u></p> <p><u>Worktops, Cupboards, Shelving, etc</u></p> <p><u>The following fittings have been measured as complete units i.e. the components of the units have not been separately measured. The descriptions, therefore, of such units shall be deemed to include all components, assembling, housing, notching, glueing, blocking, planting on and screwing with countersunk screws, edge strips, decorative plastic finish, glass, ironmongery, metalwork, paint or varnish finishes, etc</u></p>			
41	<p>Sink unit cupboard size 4370mm x 625mm x 900mm high overall with fittings, 40mm Corian White Onyx Moulded worktop (elsewhere measured), 2 x 1200 x 625 x 900mm cupboards with shelves unit, 450 x 600 x 900mm drawers (3 No.), open shelves and under counter spaces, all doors, side panels of cupboard interior and exterior, flooring made of 16mm backing and chipboard Piazza Solid Melamine Deco surface with Impact edging cut to size, plinth made of 50 x 114mm SAP timber with skirting made of 100mm brushed aluminium kick plate secured with contact adhesive, close steel concealed hinges and base plate, 3M aluminium cover handle cut to required lengths (Stainless Steel) installed complete, all as per Architect's drawings (Kitchen Layout 511)</p> <p style="text-align: right;">No</p>	1	
42	<p>Ditto but 5610mm wide as per Architects drawing 512A</p> <p style="text-align: right;">No</p>	1	
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
43	Wall Mounted unit with open shelves and wall cupboards overall size 3352 x 350 x 635mm, with 1220 x 350 x 298mm and 1070 x 350 x 298mm high closed cupboards with all doors, side panels of cupboard interior and exterior made of 16mm Backing and flooring Chipboard Piazza Melamine Deco surface with Impact edging cut to size, closed steel hinges and base plate, 3M cover handlecut to required lengths (Stainless Steel) installed complet, all as per Architect's drawing (Kitchen Layout 511)	No	1
44	Ditto but 4610mm wide as per Architects drawing 512A	No	1
45	Wall Mounted "Microwave" open shelves unit overall size 600 x 350 x 800mm, with all side panels of cupboard interior and exterior made of 16mm Backing and flooring Chipboard Piazza Melamine Deco surface with Impact edging cut to size, installed complete, all as per Architects drawings (Kitchen Layout 511)	No	2
	<u>The following Corian White Onyx counter approved sample in long lengths fixed complete including pointing, jointing, bevelled edges, cut outs, all square, circular cutting waste and cleaning off on completion to, cupboard frame work, epoxy resin glue, fixing blocks and clear silicone sealant as per architectural drawing and specifications</u>		
46	4370mm x 625mm deep x 40mm thick moulded to shape (including vertical side panel to ground) kitchen top counter with 40mm thick edging including all cut outs for sink and taps fixed and executed complete to cupboard frame work all in accordance to Architectural detail drawing (Kitchen Layout 511 & 512) - counter top	No	1
47	Ditto but 5610mm long	No	1
48	625mm wide x 40mm thick panel moulded to 200mm radius and cut to slope kitchen top counter with 40mm thick fixed and executed complete to cupboard frame work (framework elsewhere) all in accordance to Architectural detail drawing (Kitchen Layout 511 & 512) - side panel	m	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 8 Carpentry And Joinery JVNC Capital (Pty) Ltd			

Brought Forward									
49	350mm wide x 40mm thick moulded to shape kitchen shelf panel with 40mm thick edging including all necessary cut outs fixed to wall and executed complete to cupboard frame work (all necessary framework and supports to be elsewhere measured) all in accordance to Architectural detail drawing (Kitchen Layout 511 & 512) - soffit of wall cupboards	m	6						
50	350mm wide x 40mm thick moulded to 300mm radius kitchen wall counter top panel with 40mm thick edging including all necessary cut outs fixed to wall and executed complete to cupboard frame work (all necessary framework and supports to be elsewhere measured) all in accordance to Architectural detail drawing (Kitchen Layout 511 & 512) - top side panel	m	2						
	<u>Shelving</u>								
51	250 x 32mm thick Open shelves formed of Piazza Solid Melamine Deco Surface finished with edge strips fixed to wall in accordance with architect's joinery detail (Kitchen Layout 511 & 512)	m	7						
52	250 x 32mm thick L- Shaped open shelves formed of Piazza Solid Melamine Deco Surface finished with edge strips fixed to wall in accordance with architect's joinery detail (Kitchen Layout 511 & 512)	m	5						
Carried Forward to Summary of Section No. 2									
Section No. 2									
Section 2 - Main Building									
Bill No. 8									
Carpentry And Joinery									
JVNC Capital (Pty) Ltd									

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 9 CEILINGS, PARTITIONS AND ACCESS FLOORING</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Descriptions</u></p> <p>Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete.</p> <p>Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted", the bolts are measured elsewhere.</p> <p><u>SUSPENDED CEILINGS</u></p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary suspended ceilings</u></p> <p>Hangers, suspension grids, "lay-in" panels, etc. are to be in accordance with the manufacturers' recommendations</p>			
	Carried Forward			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p> <p>JVNC Capital (Pty) Ltd</p>			

<p style="text-align: center;">Brought Forward</p> <p>Electrical light fittings, diffusers, panels etc. are generally "lay-in" units of the same dimensions as the suspension grid described and allowance must be made in the rates accordingly for their support inclusive of any flexibility in setting out that may be required (ceiling panels have not been deducted and pricing is to take cognisance thereof)</p> <p><u>Flush plastered gypsum plasterboard suspended ceilings</u></p> <p>Ceilings shall comprise 12,5mm gypsum plasterboard boards screwed to and including screw-up suspension grid consisting of main tees at 1 200mm centres and galvanised steel capped cross tees at 400mm centres and with tape fixed over joints and the whole finished with gypsum plaster trowelled to a smooth polished surface</p> <p>The grid shall be suspended by means of galvanised steel L-section hangers at suitable centres, securely shot-pinned or screwed to concrete, steel or wood</p> <p><u>Flush plastered gypsum plasterboard suspended bulkheads</u></p> <p>Bulkheads shall comprise galvanised steel studding of 63,5mm top and bottom tracks with vertical studs at maximum 400mm centres, pop-riveted to the top and bottom tracks with similar additional vertical studs as necessary at abutments, ends, etc and covered as described with plasterboard screwed to studding with drywall screws at maximum 300mm centres. Boards shall be butt jointed and finished with tape and jointing compound and the whole finished with gypsum plaster trowelled to a smooth polished surface to the thickness recommended by the manufacturer</p> <p>Descriptions shall be deemed to include any additional studs at ends and intersections, corner beads, cornices at junctions with ceilings, jointing compound, tape, etc</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward				R
<p><u>12.5mm thick RhinoBoard (locally manufactured, ISO 9001 & 14001 certification, recycled paper content, Greentag Level B) fixed to Gypframe/Donn T32K suspension tee grid system. Suspension grid system comprising of cross tee using Gyproc sharp-point screws 25mm at maximum 150mm centres, Gypframe/Donn T37K main tee installed at 1200mm centres and suspended using Gyproc galvanised angle 25mm x 25mm hangers at 1200mm centres with Gypframe/Donn T32K cross tee at 600mm centres. Hanger to be maximum 400mm from perimeter wall with ceiling sealed with Gyproc Rhinotape to all joints finished with 1 layer of Gyproc RhinoLite multi purpose trowelled to a smooth polished surface including installation of Gypframe corner bead to all external corners complete in accordance with manufacturer's recommendations (Type CE03)</u></p>				
1	Ceilings suspended not exceeding 1m below concrete soffits	m2	2 191	
2	Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits	m2	728	
3	Vertical side of rectangular bulkheads not exceeding 300mm high, suspended not exceeding 1m below concrete soffits	m	141	
4	Vertical side of rectangular bulkheads not exceeding 300mm high circular on plan, suspended not exceeding 1m below concrete soffits	m	282	
5	Extra over ceiling for 600 x 600 x 15mm thick pressed steel trap door, hinged to open 180 degrees onto ceiling, in T-section steel frame	No	63	
Carried Forward				R
<p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p> <p>JVNC Capital (Pty) Ltd</p>				

Brought Forward			R
<p><u>12.5mm thick Green Coated Flush RhinoBoard (locally manufactured, ISO 9001 & 14001 certification, recycled paper content, Greentag Level B) fixed to Gypframe/Donn T32K suspension tee grid system . Suspension grid system comprising of cross tee using Gyproc sharp-point screws 25mm at maximum 150mm centres, Gypframe/Donn T37K main tee installed at 1200mm centres and suspended using Gyproc galvanised angle 25mm x 25mm hangers at 1200mm centres with Gypframe/Donn T32K cross tee at 600mm centres. Hanger to be maximum 400mm from perimeter wall with ceiling sealed with Gyproc Rhinotape to all joints finished with 1 layer of Gyproc rhinoLite multi purpose trowelled to a smooth polished surface including installation of Gypframe corner bead to all external corners complete in accordance with manufacturer's recommendations. (Type CE07)</u></p>			
6	Ceilings suspended not exceeding 1m below concrete soffits	m2	75
7	Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits	m2	344
8	Circular cutting	m	94
9	Extra over ceiling for openings exceeding 0.6m2	No	1 750
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward				R
	<p><u>Lay-in Gyproc Celotex Fine Fissured Tiles Size 600 x 600 x 12.5 mm thick laid into the framework formed of Gypframe suspension grid. Suspension grid comprising of Gyproc hanger strap/ Gyproc suspension wire at 1200 mm centre and fixed to the main tee web using 2 steel pop-rivets or one Gyproc wafer head Tek screws 13mm, hangers at maximum 400mm from perimeter wall, Gypframe cross tee (600mm long) at 600mm, Gyproc hold down clips per tile in areas susceptible to draught (2 x per 600 mm cross tee) installed complete in accordance with manufacturer's recommendations. (Type CE02)</u></p>			
10	Ceilings suspended not exceeding 1m below concrete soffits	m2	728	
11	Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits	m2	1 187	
12	Horizontal ceilings suspended not exceeding 1m below concrete soffits	m2	1 910	
	<p><u>Gyproc DonnCeil Gypframe or equal approved "Vinyl" finished with cladd silicate square edged ceiling tiles size 600 x 600 x 12.5mm thick laid on white exposed tee suspension system comprising T38 main tees at 600mm centres with T24/38 cross tees between each tile, hold-down clips, etc., all suspended with galvanised 19mm strap suspension hangers and hook with spring clip and T-suspension plate at centres not exceeding 1200mm in both directions. Suspension rods are to be attached with 25 x 25 x 25mm x 1,6mm angle cleats shot nailed to concrete, bolted to steel or screwed to timber purlins, etc. (Type CE08)</u></p>			
13	Ceilings suspended not exceeding 1m below concrete soffits	m2	359	
14	Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits	m2	107	
Carried Forward				R
<p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p> <p>JVNC Capital (Pty) Ltd</p>				

Brought Forward				R
	<p><u>1200 x 600 x 12.5mm Suspended Gyproc ceiling boards cut diagonally in mixed colours of white and charcoal and fixed as per architect pattern. Ceilings fixed to Gypframe/Donn ceiling grid as per manufacturers details and specification. (Boardrooms, consulting rooms, dining area etc.)</u></p>			
15	<p>Ceilings suspended not exceeding 1m below concrete soffits</p>	m2	261	
	<p><u>ACOUSTIC SUSPENDED CEILING</u></p> <p><u>Gyptone Tile point 11 "Acoustic" square edged ceiling tiles size 600 x 600 x 12.5mm thick laid on white exposed tee suspension system comprising T38 main tees at 600mm centres with T24/38 cross tees between each tile, hold-down clips, etc., all suspended with galvanised 19mm strap suspension hangers and hook with spring clip and T-suspension plate at centres not exceeding 1200mm in both directions. Suspension rods are to be attached with 25 x 25 x 25mm x 1,6mm angle cleats shot nailed to concrete, bolted to steel or screwed to timber purlins, etc. (Type CE05)</u></p>			
16	<p>Ceilings suspended not exceeding 1m below concrete soffits</p>	m2	135	
17	<p>Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits</p>	m2	300	
	<p><u>1 Layer Gyproc Acoustic Ceiling System (boards) Gypton Big Curve 7 (with active air) ,or similar approved, fixed to Gypframe/Donn ceiling grid fix. fix Gyptone boards installed to manufacturers details and specification. (Type CE06)</u></p>			
18	<p>Ceilings suspended not exceeding 1m below concrete soffits</p>	m2	103	
	<p>Carried Forward</p>			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward				R
19	Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits	m2	186	
<u>TIMBER & COMPOSITE SUSPENDED CEILING</u>				
<u>Composite suspended ceiling comprising of 100 x 50mm composite timber slats at 100mm centres fixed to 38 x 38mm galvanised steel tubing subframe at 1300 x 800mm spacing suspended on 18mm galvanised threaded rod chemically anchored at not less than 150mm deep into concrete soffit where applicable fixed complete in strict accordance with manufacturer's instructions (Type CE01)</u>				
20	Ceilings suspended not exceeding 1m below concrete soffits	m2	128	
21	Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits	m2	77	
22	Vertical side of rectangular bulkheads not exceeding 300mm high, suspended not exceeding 1m below concrete soffits	m	43	
<u>Composite suspended ceiling comprising of 100 x 50mm composite timber slats at 100mm centres fixed to 38 x 38mm galvanised steel tubing subframe at 1300 x 800mm spacing suspended on 18mm galvanised threaded rod chemically anchored at not less than 150mm deep into concrete soffit where applicable fixed complete in strict accordance with manufacturer's instructions (Type CE09)</u>				
23	Ceilings suspended not exceeding 1m below concrete soffits	m2	368	
24	Ceilings suspended exceeding 1m and not exceeding 2m below concrete soffits	m2	37	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring				
JVNC Capital (Pty) Ltd				

Brought Forward			R
<u>CORNICES, TRIMS, ETC</u>			
<u>White Epoxy coated "SIGMA" or equal approved cornices, perimeter trims, etc to suspended ceilings</u>			
25	SIGMA Ceiling Transition 20 satin white epoxy coated aluminium shadowline trim between same level gypsum flush plastered ceiling and exposed tee suspended ceiling. Ceiling transition to be suspended from RC slab at 1,200m centres by means of 25 x 25 x 0,6mm GMS angle fixed with 6 x 40mm express nails and M6 washers to slab and 4,2 x 13mm wafer-tek screws to ceiling transition.	m	347
26	SIGMA Ceiling Radius Transition 20 satin white epoxy coated aluminium shadowline trim between same level gypsum flush plastered ceiling and exposed tee suspended ceiling. Ceiling transition to be suspended from RC slab at 1,200m centres by means of 25 x 25 x 0,6mm GMS angle fixed with 6 x 40mm express nails and M6 washers to slab and 4,2 x 13mm wafer-tek screws to ceiling transition.	m	68
27	SIGMA Plaster Trim 20, satin white epoxy coated aluminium plaster trim measuring 20 x 20mm shadow reveal with 5/6/36 wall anchors at 450mm centres or flush plastered ceilings, plugged	m	4 987
28	SIGMA Radiused Plaster Trim 20 satin white epoxy measuring 20 x 20mm shadow line fixed to the Flexi shadowground with 15mm ST. panhead screws at 100-300mm centres (depending on radius) to create 20 x 20mm shadow line. Flush plaster up to downstand of radiused plaster trim..	m	253
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring JVNC Capital (Pty) Ltd			

Brought Forward			R
	<p><u>White Epoxy coated "SIGMA" or equal approved recessed light channels etc. to suspended ceilings</u></p>		
29	<p>SIGMA satin white epoxy coated recessed light trough 30mm into plasterboard galvanised concealed tee system fitting galvanised T38/35G main tees and cross tees onto the flange of recessed light trough and secure with thin head 4,2 x 13mm S.D. wafer-tek screws. Fit 12mm plasterboard to underside of the grid and flange of light trough with 25mm drywall screws. Flush plaster ceiling 3-4mm thick with skimming plaster up to downstand of light trough and using same as screed. Align recessed light through with 150 x 30 x 3mm alignment plates securing with 2 No. 6mm cap screws to ensure alignment. Fit clip in "U" shaped opaque diffuser flush with ceiling into recessed light trough.</p>	m	428
	<p><u>INSULATION</u></p>		
	<p><u>Non-combustible lightweight fibreglass insulation blanket:</u></p>		
30	<p>135mm thick flexible, non-combustible, lightweight Aerolite insulation material between the roof trusses and over branding/purlins in a completed roof and ceiling system to be installed in accordance with the manufacturers detail and specification.</p>	m2	481
	<p><u>DRYWALL PARTITIONS</u></p>		
	<p><u>SUPPLEMENTARY PREAMBLES</u></p>		
	<p>Partitions consisting of 92mm galvanised steel studs at 610mm centres as vertical support secured in matching galvanised steel floor and ceiling channels, clad on one or both sides as described, including additional studs as necessary at abutments, ends, etc. Board cladding shall be fixed and jointed in strict accordance with the manufacturer's instructions</p> <p>Unless otherwise described, prices for partitions shall be deemed to include for standard flat section aluminium skirting on boarded sides</p>		
	Carried Forward		R
	<p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p>		
	<p>JVNC Capital (Pty) Ltd</p>		

Brought Forward			R
<p><u>"Vitrex" or equal approved modular toilet cubicles consisting of 20mm thick partitions, doors and stiles of laminated construction with outer skins of vitreous enamelled steel sheets bonded to wood particle board, all framed in natural anodised aluminium channel section beading, top rails and fixing components and fitted with complete Vitrex standard ironmongery comprising of indicator bolts and keeps, coat hooks, door stops, toilet roll holders and rubber buffers. The cubicle to be set up complete in position, 150mm above finished floor level, strictly in accordance with the manufacturers instructions</u></p>			
40	Partition 1800 x 1950mm high	No	33
41	Door 900 x 1800mm high	No	31
42	Full stile 540 x 1800mm high	No	34
43	End stile 150 x 1850mm high	No	34
44	Extra over partition board for custom made vitraflex board overall size 3763 x 400mm high ,cut in strict accordance to Architect's detail drawing (Ablution Details)	No	2
<p><u>ACCESS FLOORING</u></p>			
<p><u>Raised Access flooring</u></p>			
45	600 x 600mm Modular and interchangeable steel panel access flooring including pedestals and panels finished with factory bonded high pressure laminate. (access flooring to finish 600mm above the concrete sub-floor)	m2	50
<p><u>Sundries</u></p>			
46	Vacuum cleaning the floor void after installation of services	m2	50
<p>Carried Forward to Summary of Section No. 2</p>			R
<p>Section No. 2 Section 2 - Main Building Bill No. 9 Ceilings, Partitions And Access Flooring</p>			
<p>JVNC Capital (Pty) Ltd</p>			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 10 FLOOR COVERINGS, WALL LININGS, ETC</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Cleaning</u></p> <p>Rates for floor covering shall include for stripping and proper cleaning on completion</p> <p><u>Fixing</u></p> <p>Floor coverings, wall linings, etc shall, where applicable, be fixed with adhesive as recommended by the manufacturers of the flooring, linings, etc</p> <p><u>FLOOR COVERINGS</u></p>			
	Carried Forward			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 10 Floor Coverings, Wall Linings, Etc</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
1	<p><u>500 x 500 x 9mm thick, Desso Essence range turfed structured loop pile carpet tiles with Probase backing made from Solution-Dyed BCF Polyamide 6, (Fully bonded with FloorworX No 62 Acrylic Adhesive // Semi Bonded with Mapei UltraBond Eco Tack pressure-sensitive adhesive, or a PSA that is equal or better), all installed by an approved installer according to EN 1307. Installed in patterned layout. Colour: TBC (Type P)</u></p> <p>On floors</p>	m2	1 636
2	<p><u>Duraturf Oval country club tufted polyethylene floor covering yarn ±11mm thick artificial grass (or similar approved astro turf), colour Summer Green, manufactured in accordance with SANS 1415:2005 with a 5 Year manufacturing guarantee and a 6 Year UV warranty. Seam of grass rolls to be applied in the middle of the seam tape. Adhesive to be spread in the middle of the adhesive carrier about 15-20cm wide with adhesive comb with synthetic grass pressed in the adhesive to ensure good contact. All laid on 50-75mm compacted hardcore or crushed stone subgrade and installed by approved installer. (Type L)</u></p> <p>On floors</p>	m2	1 951
3	<p><u>Genesis entrance matting 18mm reversible superior insert walk-off matt install in accordance with manufacture's specifications. (Type M)</u></p> <p>On floors</p>	m2	6
<u>WALL LININGS</u>			
4	<p><u>Merino Deco Surface high-pressure laminate (Code & colour TBC) on 16mm MDF substrate scored and fitted to curved walls complete as per architect specification</u></p> <p>On walls</p>	m2	340
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 10 Floor Coverings, Wall Linings, Etc</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
5	<p><u>"Belgotex" or equal approved coloured grass secured with durabond adhesive on smooth plasters wall in accordance with manufacturer's recommendations</u></p> <p>On walls</p>	m2	34
6	<p><u>Solid Arch Wood Plastic Composite Deck Boards, Size 5800mm x 135mm x 20mm, comprising of 55% reclaimed wood fibres and 45% recycled HDPE with natural looking wood-grain finish in light grey, 15-year limited warranty in accordance with manufacturer's recommendations</u></p> <p>To seating and sides of stairs at amphitheatre</p>	m2	140
7	<p><u>"Living Green Walls" or equal approved (PC amount of R3900/m2) or equal approved high tensile steel trellis system fixed to walls to create an internal green planted wall or 'Green Facade' including planting beds, etc all in strict accordance with manufacturer's specification and instructions.</u></p> <p>On walls</p>	m2	126
8	<p><u>100 x 50mm composite timber slats at 100mm centres fixed to 38 x 38mm galvanised steel tubing subframe at 1300 x 800mm spacing fixed on 18mm galvanised threaded rod chemically anchored at not less than 150mm deep into concrete walls where applicable fixed complete in strict accordance with manufacturer's instructions</u></p> <p>On wall</p>	m2	147
9	<p><u>"Ecophon" or equal approved acoustic wall system formed of 2700 x 600mm panels cut to shape on concealed grid with bevelled edges to create a narrow groove between each panel installed in strict accordance with manufacturer's recommendations colour to architect's approval</u></p> <p>On walls</p>	m2	215
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 10 Floor Coverings, Wall Linings, Etc</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
<u>SKIRTINGS, NOSINGS, ETC</u>			
<u>Brushed aluminium straight edge protector</u>			
10	100mm Brushed aluminium skirting secured with adhesive and sealed with white silicone (no surface fixing). On curved surfaces the skirting should be scored	m	789
<u>Epoxy Coved Skirting as per manufacturers specification</u>			
11	Supply and lay Epoxy cove skirting	m	344
Carried Forward to Summary of Section No. 2			R
Section No. 2 Section 2 - Main Building Bill No. 10 Floor Coverings, Wall Linings, Etc			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 11 IRONMONGERY</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Finishes to ironmongery</u></p> <p>Where applicable finishes to ironmongery are indicated by suffixes in accordance with the following list</p> <p>BS Satin bronze lacquered CP Chromium plated SC Satin chromium plated SE Silver enamelled GE Grey enamelled AS Anodised silver AB Anodised bronze AG Anodised gold ABL Anodised black PB Polished brass PL Polished and lacquered PT Epoxy coated SD Sanded</p>			
	Carried Forward			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
<u>Fixing</u>			
Descriptions of wall mounted and floor standing ironmongery items shall be deemed to include for fixing in position and all fixing accessories			
Descriptions of proprietary items shall be deemed to include fixing in position and all fixing accessories as specified by the manufacturer			
<u>HINGES, BOLTS, ETC</u>			
<u>"Dormakaba" or equal approved</u>			
1	Dust proof strike (Code:DPS-SS-032)	No	82
2	102mm x 50mm Rectangular flush Bolt (Code:DFP-SS-026)	No	12
3	305mm Manual flush bolt (Code:DFB-SC-181)	No	20
4	Standard universal double action top centre with needle bearing (Code:8062)	No	6
5	Double action bottom strap for aluminium doors (Code:7422)	No	6
6	Pivot with thrust roller bearing for doors up to 300kg (Code:7475AX)	No	6
7	Heavy duty barrel bolt 150 x 32mm (Code: BHD150)	No	6
8	Heavy duty necked bolt 150 x 32mm (Code: NBHD150)	No	6
<u>LOCKS</u>			
<u>"Dormakaba" or equal approved</u>			
The following locks are to be suitable for master key operation			
9	50mm Grand master keyed padlock	No	2
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery			
JVNC Capital (Pty) Ltd			

Brought Forward			R
10	Narrow Stile Heavy Duty Swivel Sash Lock with case dimensions 174H x 50D mm including 290H x 22W mm forend and 35mm backset 35mm at 85mm centres (Code:D07635 SS)	No	10
11	Narrow stile roller swivel deadlock size 174H x 41D with Forend 238H x 22W including 35mm backset (Code:D07935SS)	No	5
12	66mm five pin Euro-profile Knob Cylinder Grand Master Keyed (Code:DKC106601GMK)	No	217
13	43mm five pin Euro-profile Single Cylinder Grand Master Keyed (Code:DSC104301GMK)	No	54
14	Stainless steel cylinder sash lock case size 116.5H x 78D with forend size 168H x 22W including 57mm backset at 61mm centres (Code: D036S SS)	No	74
15	Stainless steel cylinder dead lock case size 116.5H x 78D with forend size 168H x 22W including 57mm backset (Code: D037DS SS)	No	53
16	Rebate conversion kit Euro-profile locks (Code:D038R NP)	No	10
17	Bathroom sash lock case size 102H x 78D with forend size 155H x 22W including 57mm backset at 57mm centres (Code: D035S SS)	Sets	3.0
18	Bathroom Deadlock size 102H x 78D, with forend size 155H x 22W including 57mm backset fixed to door (Code:D032DSS)	No	8
19	Bathroom WC indicator and turnknob (Code:DWC:005)	Sets	31.0
20	Disabled WC indicator (Red & White) and turn knob for physically impaired (Code:DWC:006)	Sets	3.0
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery JVNC Capital (Pty) Ltd			

Brought Forward			R
21	Round cylinder escutcheon set (Code:DCE-002 SS)	Sets	31.0
22	Narrow stile cylinder escutcheon set (Code:DCE-105 SS)	Sets	8.0
23	Three Point locking panic bar - double door - door leave 1000mm wide x 2270mm high (Code:PHA3 S DD)	Sets	24.0
<u>CATCHES, CABIN HOOKS, ETC</u>			
<u>"Union" or equal approved</u>			
24	250mm cabin hook and eye (Code: B2384SC)	No	18
<u>HANDLES</u>			
<u>"Dormakaba" or equal approved</u>			
25	Lever handle on rose with narrow stile Cylinder escutcheons (Code:TH120 NS CylS.S)	Sets	20.0
26	Lever handle on rose with bathroom/WC furniture (Code:TH120 WCS.S)	Sets	4.0
27	Exterior access lock with lever handle (Cylinder not include) (Code:PHT3901)	No	24
28	Pull Handle BT (DPH301C) fixed on a 150 x 300 x 1.2mm thick Grade 430 stainless steel plate with no cylinder cutout (Code:DHP-430-BL-SF 150 x 300)	No	43
29	D Shaped Offset Tabular pull handle 382 x 32mm (Code:DPH215 BTB)	Pairs	256.0
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery JVNC Capital (Pty) Ltd			

Brought Forward				R
30	400 x 30mm offset tubular heavy dutypull handle BTB (Code:DPH206BTB)	Pairs	48.0	
31	62 x 44mm ring flush pull handle (Code:DRP-SS-023)	No	32	
32	102 x 50mm rectangular flush pull handle(Code:DFP-SS-026)	No	1	
<u>PUSH PLATES AND KICKING PLATES</u>				
<u>"Dormakaba" or equal approved</u>				
33	150 x 300 x 1,2mm blank push plate fixed to door (Code:DPP-430-BL-SF 150 x 300)	No	30	
34	964 x 200mm high x 1.2mm thick kick plate stainless steel fixed to door (as indicated on schedule) (Code:DKP-430-SF200)	No	180	
35	1200 x 200mm high x 1.2mm thick kick plate stainless steel fixed to door (as indicated on schedule) (Code:DKP-430-SF200)	No	8	
<u>DOOR CLOSERS</u>				
<u>"Dormakaba" or equal approved</u>				
36	BTS75 Adjustable size EN 1-4 HOLD OPEN, Certified to EN1154, with double action accessories, for 120kg door leaf weight with adjustable closing and latching speeds, backcheck.Components - [Mech/Spindle/7510SS/7422/8062] (Code:BTS75 DAA- NHO)	Sets	128.0	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery JVNC Capital (Pty) Ltd				

Brought Forward			R
37	NON HOLD OPEN Cam action slide channel door closer. for max door width 950mm. Closing force of EN 3, with hydraulic speed control including push-side transom ,compliance with EN 1154, door closer is fire approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240 installed complete (Code:TS91B-SL)	Sets	66.0
38	NON HOLD OPEN Co-ordinated door closer system for rebated doors between 1500-2200mm with closing force EN 2-4. Adjustable strength.Hydraulic speed controlfor max door width of 1100mm per leaf. Door closer to compliant with EN 1154, door co-ordinators tested to EN 1158, door closer to be fire approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240 installed complete (Code:TS92G- G-SR BG + Angle bracket)	Sets	24.0
39	NON HOLD OPEN Co-ordinated door closer system for rebated doors between 1350-1900mm with closing force EN 3 and hydraulic speed controlfor max door width of 950mm per leaf. Door closer to comply comply with EN 1154, door co-ordinators tested to EN 1158, door closer to be fire approved (Certificate No. CF 119) for door types ITT 120, MM/IMM 240 installed complete (Code:TS91B- G-SR)	Sets	21.0
40	EN2-4 Parallel Arm DELAYED ACTION Door Closer including push side fixing (Silver) parallel arm bracket Included (Code:TS73V PA DC - PAB - SL)	Sets	6.0
<u>LETTERS, NAMEPLATES, ETC</u>			
<u>"Union" or equal approved</u>			
41	150 x 150mm Female Indicator sign (Code:DSS-131-F)	No	8
42	150 x 150mm male Indicator sign (Code:DSS-130-M)	No	8
43	150 x 150mm changing / family Indicator sign (Code:tbc	No	3
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery JVNC Capital (Pty) Ltd			

Brought Forward				R
44	150 x 150mm Disabled Persons Indicator sign (Code:DSS-133 P)	No	4	
<u>ROLL-UP, RETRACTABLE SCREENS AND BLINDS</u>				
Supply and install complete with colour co-ordinated ladder lace, cord, head and bottom rails, filters, cord locks and installation brackets				
<u>"Windovert" or equal approved aluminium venetian blinds with 50mm slats of 0.21mm thickness to fit opening size as specified on architectural drawing, including all components and operating systems, head and bottom rails installed complete in strict accordance with manufacturer's instruction on:</u>				
45	Rectangular windows	m2	89	
<u>BATHROOM FITTINGS</u>				
<u>"Excel" or equal approved stainless steel</u>				
46	Sensor operated soap dispenser (Code:SD/86SS)	No	96	
<u>"Franke" or equal approved stainless steel</u>				
47	Rodan Double Toilet Roll Holder Double Satin Stainless Steel (Code:RODX672)	No	84	
48	Stainless steel hands free hand dryer overall size 290 x 313 x 170mm with a maximum capacity quick drying time of 10-15 seconds, automatic resetting circuit and infrared optical sensor, touch-free operation, etc all in accordance with manufacturer's specification			
	200 x 207 x 245 mm 200 x 207 x 245 mm	No	23	
49	Paper towel dispenser and waste bin combination for recessed mounting (Code:EXOS602EX)	No	44	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery				
JVNC Capital (Pty) Ltd				

Brought Forward			R
50	20Litre rust resistant, S/S Satin finish surface mounted sanitary bin overall size 355 x 460 x 186mm as per architect's specification (Code:N-SBIN-20-SS)	No	39
51	40ml Safe seat sanitizer dispenser (Code:PHTIC23)	No	84
52	Stainless steel single robe hook 54 x 60 x 54mm (Code:2120188)	No	3
53	Stainless steel single arm soap rack 110 x 114mm (Code: S/S 110 x 114)	No	3
<u>"Bobrick" or equal approved</u>			
54	SureFlo battery powered automatic lavatory mount liquid soap dispenser (Code:B-824)	No	30
<u>"Chairman Industries" or equal approved</u>			
55	32mm Type CNTX 750 back grab rail 750mm long plugged and screwed to wall	No	6
56	32mm Type DL2 side grab rail 604 x 604 x 106mm plugged and screwed to wall	No	6
<u>Duravit or equal approved</u>			
57	Luximo Square 1000x1000 Skirted Shower Tray & CrystalTech St. Marco Chrome Corner Entry Shower Enclosure	No	2
<u>STEEL LOCKERS</u>			
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery JVNC Capital (Pty) Ltd			

Brought Forward			R
<p><u>Steel lockers manufactured using 8mm Compact High Pressure Laminate, product code CSL/CHPL/304/3 with 3 doors , Carrcass manufactured using 8mm CHPL in white, doors in 12mm CHPL (colour, to architect's specification) including fixing to wall. Ironmongery to include auto return hinge(Code:CSSH/E112) and D shaped keep (Code: CSIJ/LK/3) for individuals own padlocks (no locking mechanism included), lock cover plate and handle (Code: CSIJ/LH/9). Lockers to be individually numbered</u></p>			
58	300 x 450 x 1800mm mm high steel lockers	No	18
<p><u>SUNDRIES</u></p> <p><u>"Dormakaba" or equal approved</u></p>			
59	Floor mounted door stop installed (Code:DDS-NP-018)	No	284
60	Floor mounted door stop installed (Code:DDS-SS-017)	No	101
61	Hat and coat hook with rubber buffer installed (Code:DHC-SS-031B)	No	2
<p>Carried Forward to Summary of Section No. 2</p> <p>Section No. 2 Section 2 - Main Building Bill No. 11 Ironmongery</p> <p>JVNC Capital (Pty) Ltd</p>			R

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 12 STRUCTURAL STEELWORK</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Descriptions</u></p> <p>Descriptions of bolts shall be deemed to include nuts and washers</p> <p>Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete. Where anchor bolts are described as embedded in sides or soffits of concrete it shall be deemed to include holes through formwork.</p> <p>Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete.</p> <p>Rates for structural steel work shall include for all required pre and post painting</p> <p>Tenderers are referred to Engineer's Structural Steelwork Drawings Numbered 131-004;131-006;131-005;131-S-500-02;131-S-500-01 accompanying these Bills of Quantities for tender purposes.</p> <p><u>GALVANISED STEEL COLUMNS AND BEAMS</u></p> <p><u>Welded columns & beams in single lengths with flat base, cap, bearer and connection plates, bolted to concrete</u></p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 12 Structural Steelwork</p> <p>JVNC Capital (Pty) Ltd</p>			R

Brought Forward				R
<u>Universal Column sections including all fixing to concrete complete</u>				
1	254 x 254 x 89 UC	t	4.30	
2	254 x 254 x 73 UC	t	4.80	
3	305 x 305 x 97 UC	t	3.95	
4	203 x 203 x 46 UC	t	4.70	
5	152 x 152 x 23 UC	t	10.05	
<u>Universal Beam sections including all fixing to concrete complete</u>				
6	406 x 178 x 54 UB	t	10.65	
7	406 x 178 x 39 UB	t	10.26	
8	305 x 165 x 40 UB	t	1.59	
9	254 x 146 x 37 UB	t	13.99	
10	254 x 146 x 31 UB	t	6.74	
11	203 x 133 x 30 UB	t	1.80	
12	203 x 133 x 25 UB	t	2.43	
<u>Flat plates to bases including openings for bolts etc.</u>				
13	Stringer plates, flat plates etc.	t	2.60	
<u>STEEL ROOF STRUCTURE ETC</u>				
<u>The following in Welded roof trusses of angle rafters, tie beams, rails, struts, braces, cleats, etc. and flat bearer, gusset and connection plates, bolted to steel</u>				
14	Various sizes of steel members	t	3.90	
<u>GALVANISED STEEL FLOORS, STAIRS, ETC</u>				
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 12 Structural Steelwork				
JVNC Capital (Pty) Ltd				

Brought Forward			R
<u>Welded and bolted suspended floor and stairs to mezzanine, hall stage frame, amphitheatre and stairs including all connection plates, bolts, etc complete</u>			
15	IPE 100	t	0.09
16	IPE 180	t	1.08
17	IPE 200	t	2.23
18	260 x 90 PFC	t	0.80
19	200 x 75 PFC	t	0.41
20	260 x 90 PFC	t	0.70
21	200 x 100 x 20 x 2.5 CFCL	t	2.17
22	200 x 75 x 20 x 3 CFLP	t	4.50
23	125 x 50 x 20 x 2.5 CFLC	t	0.87
24	60 x 60 x 6 L	t	1.49
<u>Galvanised "Mentis" rectagrid RS80 (non-slip dimples) expanded metal walkway mesh fixed to steel/concrete beams with standard fixing clips</u>			
25	Floor rectagrids in 1400 widths and suitable lengths	m2	32
<u>BOLTS, FASTENERS, ETC</u>			
<u>Galvanised bolts, anchors, etc:</u>			
26	Contractor to provide for all bolts , nuts washers, etc required for the connections of the entire structural steel members as per detail drawings provided		Item
27	M20mm Diameter HD bolts (Grade 8.8)	No	40
28	M16mm Diameter HD bolts (Grade 8.8)	No	12
29	M12mm Diameter HD bolts	No	176
<u>NON SHRINK GROUT</u>			
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 12 Structural Steelwork JVNC Capital (Pty) Ltd			

Brought Forward			R
	<u>Non-Shrink grout as per Engineer specification under bases</u>		
30	Non shrink grout	m3	0.4
	<u>BUDGETARY ALLOWANCES</u>		
	<u>The following budgetary allowances are for work to be carried out by the Main Contractor and remeasured on completion. For payment purposes all scheduled items with rates in the Bills of Quantities will be applicable and take preference over any negotiated rates if not available and so required</u>		
31	Allow a budgetary allowance of R120,000.00 (One Hundred and Twenty Thousand Rand) for 2,1m high Safety padding around 24 Steel Columns with material to be specified by the Architect's and as directed by the Principal Agent and omitted if not so used	Item	120 000.00
	<u>PAINTING</u>		
	<u>Supply and apply primer, one coat with two top coats enamel paint to architect specification</u>		
32	On structural steel (various size members)	t	95.35
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Section 2 - Main Building			
Bill No. 12			
Structural Steelwork			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 13 METALWORK</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Descriptions</u></p> <p>Descriptions of bolts shall be deemed to include nuts and washers</p> <p>Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork of concrete</p> <p>Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described</p> <p><u>GALVANIZED STEEL HANDRAILS, BALUSTRADES, ETC</u></p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork</p> <p>JVNC Capital (Pty) Ltd</p>			<p style="text-align: right;">R</p>

Brought Forward			R
<u>Welded balustrades to walkways and stairs</u>			
1	Balustrading 1000mm high formed of 50mm diameter continuous top rail, 16mm diameter horizontal round tube continuous bottom and intermediate rails at 115mm centres fixed in between posts and 38mm diameter posts at approximately 1000mm centres each with 80mm diameter x 1,6mm thick stainless steel washer fixed to concrete all in accordance to Architect's specifications (B01)	m	734
2	Balustrading 1000mm high formed of 50mm diameter continuous top rail, 16mm diameter horizontal round tube continuous bottom and intermediate rails at 115mm centres fixed in between posts and 38mm diameter posts at approximately 1000mm centres each with 80mm diameter x 1,6mm thick stainless steel washer fixed to concrete all in accordance to Architect's specifications (B02)	m	459
3	Balustrading 1000mm high formed of 50mm diameter continuous top rail, 16mm diameter horizontal round tube continuous bottom and intermediate rails at 115mm centres fixed in between posts and 38mm diameter posts at approximately 1000mm centres each with 80mm diameter x 1,6mm thick stainless steel washer fixed to concrete all in accordance to Architect's specifications (B03)	m	39
<u>GALVANISED PRESSED STEEL DOOR FRAMES</u>			
Tenderers are referred to Architect's Window and Door Schedule Drawings 700-706 accompanying these Bills of Quantities for tender purposes.			
<u>1.6mm Rebated single frames suitable for one brick walls with one coat red oxide as supplied by manufacturer with two hinges 100mm, rubber buffers to lock jamb and chrome plated adjustable striking plate, per door leaf.</u>			
4	Frame for double door 760 x 2135mm high	No	4
5	Frame for double door 815 x 2135mm high	No	2
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork			
JVNC Capital (Pty) Ltd			

Brought Forward			R
6	Frame for single door 865 x 2030mm high	No	5
7	Frame for single door 1000 x 2030mm high	No	28
8	Frame for double door 1300 x 2100mm high	No	15
<u>1.6mm Rebated double frames suitable for one brick walls with one coat red oxide as supplied by manufacturer with two hinges 100mm, rubber buffers to lock jamb</u>			
9	Frame for single door 760 x 2030mm high	No	15
10	Frame for single door 1000 x 2135mm high	No	21
11	Frame for double door 1800 x 2400mm high	No	11
<u>STEEL ROLLER SHUTTERS ETC</u>			
<u>Note: The contractor is to check on site measurements before placing of order.</u>			
<u>Automated Aluminium Roller shutter door with frame fixed to brickwork or concrete complete including motor and locking mechanism as per architect specification</u>			
12	Automated slatted roller shutter for 6000 x 2380mm high opening complete with motor for automation fixed strictly to manufacturer's recommendations.	No	1
<u>ALUMINIUM WINDOWS, DOORS, ETC</u>			
<u>Aluminium sections</u>			
Flimsy sections which are easily bent or damaged in normal use will not be acceptable and the window units must be capable of withstanding public use for the life of the building. Window frames shall be unequal leg allowing for plastered finish on the inside			
Aluminium alloy for powder coating is to be produced to British Standard Specification 1470, 1471 or 1474			
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork			
JVNC Capital (Pty) Ltd			

<p style="text-align: center;">Brought Forward</p> <p>Corners, joints and glazing beads should be accurately mitred or notched and there must be no sharp edges or unsightly gaps when viewed from a distance of 3 metres</p> <p>Window frames are to be prepared for glazing from the outside and fixed with extruded snap-on type aluminium glazing beads which are to be powder coated to the same colour and specification as the window frames themselves</p> <p>The frames to be formed perfectly flat, truly square and properly jointed at angles and intersections. Opening sections must fit perfectly on all faces and must open and close freely without binding at any point. Windows are to be fitted with felt inserts to provide a perfect seal when closed</p> <p>All necessary fittings are to be attached to the frames and sashes in the strongest possible manner and they shall retain the sashes rigidly in the open or closed position</p> <p>The manufacturers' own methods of construction may be used throughout provided that all joints are the strongest of their kind and are neatly formed to give the best possible appearance. All windows are to be left in perfect working order on completion of the project</p> <p><u>Powder coating</u></p> <p>The powder coating to be applied to all doors and window is to be colour Burgundy and is to be finished with a gloss finish</p> <p>All powder coating is to be subject to a 15 year guarantee which is to be provided by the applicator in writing</p> <p>The thickness of the powder coating is to be a minimum 60 microns</p> <p>The work is to be undertaken in accordance with British Standard 6496 or SABS 1578. The powder coating shall also be applied by an approved applicator who is able to comply with the requirements of the required standards and who must be registered by the manufacturers of the guaranteed products</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork</p> <p>JVNC Capital (Pty) Ltd</p>		R	

<p style="text-align: center;">Brought Forward</p> <p><u>Waterproofing</u></p> <p>Window frames generally are to be waterproof and this shall also apply when they are installed and closed</p> <p>Because the windows are being built into facebrick walls, they are to be sealed using a clear silicone on the two reveal sides as well as the cill</p> <p><u>Protection</u></p> <p>All windows are to be protected against damage during handling, transport to site, building in and final completion. This will require that they are fully wrapped or taped to protect the powder coating throughout the construction process. Protective wrapping is to be fully removed on completion</p> <p>It is recommended that the Contractor liaise with the Supplier regarding protection of windows and glass from the time that they have been installed until completion of the project</p> <p><u>Fixing</u></p> <p>The frames shall be fitted with the manufacturer's standard type of fixing lug which is to be no less than 19 x 3 x 150mm long which is to be screwed to the frame. These are to be placed one near to each corner and intermediately not more than 450mm apart to sides, top and bottom</p> <p><u>Sample</u></p> <p>Once the order has been placed for the windows, the Contractor will be required to provide a full size example of a window incorporating an opening section with burglar bars. This will be subject to scrutiny by the Architects who will check the window for compliance with the specifications. Various amendments could be called for but in any event, the approved sample is to be left on site as an example of the requirements for all windows to be provided as part of this project. Any windows brought to site which do not comply with the sample will be required to be removed and replaced</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward		R
<u>Drawings</u>		
Tenderers are referred to Architect's Window and Door Schedule accompanying these Bills of Quantities for tender purposes.		
Abutments between window, door frames and surrounding faced or plastered brickwork shall be pointed internally and externally with an approved silicone sealer. Rates of aluminium windows shall be deemed to include for silicone pointing.		
Opening sashes to be provided with standard casement hinges, pegs and stays as supplied by window manufacturer.		
All glazed sections to be fixed with internal clip-on glazing beads and neoprene seals.		
<u>ALUMINIUM VENTILATION GRILLES, LOUVRES, ETC</u>		
<u>"Powder Coated Aluminium" fixed ventilation louvre units screwed into timber doors</u>		
13	Purpose made louvre unit for 450 x 450mm high opening (Opening elsewhere) (Door Type S & U)	No 16
<u>Powder coated "Dark Grey" Grade AA20 aluminium fixed louvre unit complete with frames in brick or concrete openings</u>		
14	649 x 3520mm louvre unit to ducts	No 2
<u>ALUMINIUM SECURITY WINDOWS</u>		
Carried Forward		R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork		
JVNC Capital (Pty) Ltd		

Brought Forward				R
	<p><u>"SA Bullet" or equal approved security windows with long bullet resistant glass with speaker system mouted on glass suitable for 230mm walls, fixed to brickwork or concrete</u></p>			
15	Shopfront window consisting of two window sections 1400mm high with single door in between with overall top size 3115 x 915mm high in panels complete in accordance with architect's shopfront schedule 720 (Type SF63)	No	1	
16	Shopfront window consisting of two window sections with one section sloping 3120 x 1420mm high in panels complete in accordance with architect's shopfront schedule 720 (Type SF64)	No	1	
17	Shopfront window consisting of two equal window sections overall 3000 x 1420mm high in panels complete in accordance with architect's shopfront schedule 720 (Type SF65)	No	1	
<p><u>ALUMINIUM CURTAIN WALLS</u></p> <p>Tenderers are referred to Architect's Window and Door Schedule Drawing Numbered 708 - 713 accompanying these Bills of Quantities for tender purposes.</p>				
Carried Forward				R
<p>Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork</p> <p>JVNC Capital (Pty) Ltd</p>				

Brought Forward			R
<p><u>Supply and install Powder coated Aluminium curtain wall with double glazed laminated safety glass (colour to later specification) by specialist and in accordance to manufacturer's recommendations, including glazing certificates complete.</u></p> <p><u>Note: All description sizes to be confirmed on drawing by tenderer</u></p>			
18	Purpose made curtain wall approx 22800 x 3120mm high & approx. 7100 x 13390mm high combined into single curtain wall unit (Type CW01 - L shape with rounded edges)	No	1
19	Purpose made curtain wall 5720 x 3120mm high including stacking doors as part of section (Type CW02)	No	1
20	Purpose made curtain wall 4755 x 3120mm high including stacking doors as part of section (Type CW03)	No	1
21	Purpose made curtain wall 1735 x 3120mm high (Type CW04.1)	No	1
22	Purpose made curtain wall 5525 x 3120mm high (Type CW04.2)	No	1
23	Purpose made curtain wall 5400 x 3120mm high (Type CW04.3)	No	1
24	Purpose made curtain wall 4320 x 3120mm high (Type CW04.4)	No	1
25	Purpose made curtain wall with one sloping panel on edge 5100 x 2400mm high (Type CW05)	No	1
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
26	Purpose made curtain wall 19310 x 3120mm high (Type CW06)	No	1
27	Purpose made curtain wall 1280 x 3120mm high (Type CW07)	No	1
28	Purpose made curtain wall 30295 x 4820mm high with one side sloping for cut-out to wall (Type CW08)	No	1
29	Purpose made curtain wall 11740 x 3240mm high with 2 edge panels cut diagonally to form sloping end (Type CW10)	No	1
30	Purpose made curtain wall 9110 x 3120mm high (Type CW12)	No	1
31	Purpose made curtain wall 5040 x 3120mm high (Type CW14)	No	1
32	Purpose made curtain wall 3285 x 2400mm high including single door 1000m wide (Type CW15)	No	1
33	Purpose made curtain wall 3750 x 2400mm high with sloping side panel (Type CW16)	No	1
34	Purpose made curtain wall 3170 x 3120mm high including double door 1800mm wide (Type CW17)	No	1
35	Purpose made curtain wall 4115 x 2400mm high (Type CW18)	No	1
36	Purpose made curtain wall 3315 x 2400mm high including double door 1800mm wide (Type CW19)	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd			

Brought Forward							
37	Purpose made curtain wall 4115 x 2400mm high (Type CW20)	No	1				
38	Purpose made curtain wall 3165 x 2400mm high including double door 1800mm wide (Type CW21)	No	1				
39	Purpose made curtain wall 3615 x 2400mm high (Type CW22)	No	1				
40	Purpose made curtain wall 4315 x 2400mm high (Type CW23)	No	1				
41	Purpose made curtain wall 8015 x 2400mm high including opening windows and double door 2030mm wide (Type CW25)	No	1				
42	Purpose made curtain wall 32800 x 2400mm high including opening windows and 3nr double doors 1800mm wide (Type CW24)	No	1				
43	Purpose made curtain wall 35010 x 2400mm high including 6nr single doors 1000mm wide (Type CW29)	No	1				
44	Purpose made curtain wall 12655 x 2400mm high including 4Nr windows and 2Nr double doors 1800mm wide (Type CW28.1)	No	1				
45	Purpose made curtain wall 4630 x 2400mm high including 1Nr window and 1Nr door 1000mm wide (Type CW28.2)	No	1				
46	Purpose made curtain wall 9685 x 2400mm high with 4Nr windows (Type CW26)	No	1				
Carried Forward							
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd							R

Brought Forward			R
47	Purpose made curtain wall 6885 x 2400mm high including 2Nr windows and 1Nr double door 1800mm wide (Type CW27)	No	1
48	Purpose made curtain wall 14100 x 2400mm high including 5Nr windows and 1Nr double door 1800mm wide (Type CW30&31)	No	1
49	Purpose made curtain wall 8300 x 2400mm high (Type CW36)	No	1
50	Purpose made curtain wall 21805 x 2400mm high including 3Nr windows and 3Nr single doors 1000mm wide (Type CW46)	No	1
51	Purpose made curtain wall 370 x 2400mm high (Type CW33)	No	1
52	Purpose made curtain wall 370 x 2400mm high (Type CW34)	No	1
53	Purpose made curtain wall 370 x 2400mm high (Type CW35)	No	1
54	Purpose made curtain wall 14240 x 2400mm high including 4Nr windows and 3Nr single doors 1000mm wide (Type CW45)	No	1
55	Purpose made curtain wall 10700 x 2400mm high including 3Nr windows and 2Nr single doors 1000mm wide (Type CW37.1)	No	1
56	Purpose made curtain wall 4900 x 2400mm high including 2Nr windows and 1Nr single door 1000mm wide (Type CW37.1)	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd			

Brought Forward				R
57	Purpose made curtain wall 7900 x 2400mm high including 2Nr windows and 1Nr double door 1800mm wide (Type CW40)	No	1	
58	Purpose made curtain wall 11445 x 2400mm high (Type CW42)	No	1	
59	Purpose made curtain wall 7815 x 2400mm high including 3Nr windows and 1Nr double door 1800mm wide (Type CW38)	No	1	
60	Purpose made curtain wall 7630 x 2400mm high including 3Nr windows (Type CW39)	No	1	
61	Purpose made curtain wall 24775 x 2400mm high including 10Nr windows and 1Nr single door 1000mm wide (Type CW41)	No	1	
62	Purpose made curtain wall 2210 x 2400mm high including single door 1000mm wide (Type CW43)	No	1	
63	Purpose made curtain wall 14800 x 2400mm high including 4Nr windows and 23Nr single doors 1000mm wide (Type CW44)	No	1	
	<u>Supply and install Powder coated Aluminium curtain wall with double glazed laminated safety glass (colour to later specification) by specialist and in accordance to manufacturer's recommendations, including glazing certificates complete.</u>			
64	Purpose made curtain wall circular on plan 6285 x 3170mm high (Type CW09)	m	1	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd				

Brought Forward		R
65	Purpose made curtain wall circular on plan 12765 x 3120mm high including double door 1800mm wide (Type CW11)	1
	No	
66	Purpose made curtain wall circular on plan 6640 x 3120mm high (Type CW13)	1
	No	
<u>ALUMINIUM SHOPFRONTS</u>		
<u>Supply and install Powder coated Aluminium shopfronts with single glazed laminated safety glass (colour to later specification) by specialist and in accordance to manufacturer's recommendations, including glazing certificates complete. All doors to include for hinges, handle, locks complete as per architect specification.</u>		
67	Purpose made shopfront, 2540 x 2400mm high (Type SF01)	1
	No	
68	Purpose made shopfront, 10100 x 2400mm high with 1Nr double door 1800 x 2400mm high (Type SF01)	1
	No	
69	Purpose made shopfront, 2540 x 2400mm high with 1Nr double door 1600 x 2400mm high (Type SF03)	1
	No	
70	Purpose made shopfront, 2135 x 2400mm high with one double door 1800 x 2400mm high (Type SF04)	1
	No	
71	Purpose made shopfront, 3975 x 2400mm high (Type SF05)	1
	No	
72	Purpose made shopfront, 4055 x 2400mm high (Type SF07)	1
	No	
73	Purpose made shopfront, 5100 x 2400mm high with one double door 1800 x 2400mm high (Type SF08)	1
	No	
Carried Forward		R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd		

Brought Forward		R
74	Purpose made shopfront, 4565 x 2400mm high (Type SF62)	No 1
75	Purpose made shopfronts in sections, overall 4490 x 2400mm high with two double door 1130 x 2400mm high (Type SF10)	No 1
76	Purpose made shopfronts in sections, overall 10255 x 2400mm high with two double door 1800 x 2400mm high (Type SF09)	No 1
77	Purpose made shopfront in sections, overall 16225 x 2400mm high with 3Nr single doors 1000 x 2400mm high (Type SF012)	No 1
78	Purpose made shopfront, 7410 x 2400mm high with one double door 1800 x 2400mm high (Type SF13)	No 1
79	Purpose made shopfront, 3400 x 2400mm high with one single door 1000 x 2400mm high (Type SF14)	No 1
80	Purpose made shopfront, 2380 x 2400mm high with one single door 1000 x 2400mm high (Type SF15)	No 1
81	Purpose made shopfront, 5315 x 2400mm high with one double door 1800 x 2400mm high (Type SF16)	No 1
82	Purpose made shopfront, 5330 x 2400mm high with two double door 1800 x 2400mm high (Type SF18)	No 1
83	Purpose made shopfront, 4120 x 2400mm high with one double door 1800 x 2400mm high (Type SF19)	No 1
Carried Forward		R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd		

Brought Forward				R
84	Purpose made shopfront, 33485 x 2400mm high with 7Nr single doors 1000 x 2400mm high (Type SF20)	No	1	
85	Purpose made shopfront, 3300 x 2400mm high with one double door 1800 x 2400mm high (Type SF21)	No	1	
86	Purpose made shopfront, 5785 x 2400mm high with one double door 1800 x 2400mm high (Type SF22)	No	1	
87	Purpose made shopfront, 9600 x 2400mm high (Type SF24)	No	1	
88	Purpose made shopfront, 4500 x 2400mm high with (Type SF25)	No	1	
89	Purpose made shopfront, 6170 x 2400mm high with two single door 1000 x 2400mm high (Type SF26)	No	1	
90	Purpose made shopfront, 850 x 2400mm high (Type SF27)	No	1	
91	Purpose made shopfront, 3890 x 2400mm high (Type SF28)	No	1	
92	Purpose made shopfront, 780 x 2400mm high (Type SF29)	No	1	
93	Purpose made shopfront, 1600 x 2400mm high with one single door 1000 x 2400mm high (Type SF01)	No	1	
94	Purpose made shopfront, 12975 x 2400mm high with one double door 1800 x 2400mm high (Type SF30)	No	1	
Carried Forward				R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd				

Brought Forward							
95	Purpose made shopfront, 1800 x 2400mm high with one double door 1800 x 2400mm high (Type SF32)	No	1				
96	Purpose made shopfront, 1110 x 2400mm high (Type SF33)	No	1				
97	Purpose made shopfront, 2045 x 2400mm high with one single door 1200 x 2400mm high (Type SF34)	No	1				
98	Purpose made shopfront, 1800 x 2400mm high with one double door 1800 x 2400mm high (Type SF35)	No	1				
99	Purpose made shopfront, 1800 x 2400mm high with one double door 1800 x 2400mm high (Type SF36)	No	1				
100	Purpose made shopfront, 3200 x 2400mm high with one single door 1065 x 2400mm high (Type SF37)	No	1				
101	Purpose made shopfront, 1900 x 2400mm high (Type SF38)	No	1				
102	Purpose made shopfront, 1800 x 2400mm high with one double door 1800 x 2400mm high (Type SF42)	No	1				
103	Purpose made shopfront in two sections, overall 10265 x 2400mm high with two single doors 1000 x 2400mm high (Type SF43)	No	1				
104	Purpose made shopfront, 12695 x 2400mm high with three single door 1000 x 2400mm high (Type SF44)	No	1				
105	Purpose made shopfront, 24555 x 2400mm high with two double doors 1800 x 2400mm high and two single doors 1000 x 2400mm high (Type SF41)	No	1				
Carried Forward							
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd							R

Brought Forward			R
106	Purpose made shopfront, 1600 x 2400mm high with one double door 1600 x 2400mm high (Type SF39)	No	1
107	Purpose made shopfront, 1765 x 2400mm high with one single door 1165 x 2400mm high (Type SF57)	No	1
108	Purpose made shopfront, 2985 x 2400mm high with one double door 1800 x 2400mm high (Type SF58)	No	1
109	Purpose made shopfront, 6900 x 2400mm high with two single door 1000 x 2400mm high (Type SF59)	No	1
110	Purpose made shopfront in sections, overall 15265 x 2400mm high with three single door 1000 x 2400mm high (Type SF61)	No	1
111	Purpose made shopfront, 825 x 2400mm high (Type SF46)	No	1
112	Purpose made shopfront, 760 x 2400mm high (Type SF48)	No	1
113	Purpose made shopfront, 825 x 2400mm high (Type SF49)	No	1
114	Purpose made shopfront, 715 x 2400mm high (Type SF51)	No	1
115	Purpose made shopfront, 1530 x 2400mm high (Type SF52)	No	1
116	Purpose made shopfront, 5410 x 2400mm high with two single door 1000 x 2400mm high (Type SF54)	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd			

Brought Forward			R
117	Purpose made shopfront, 8435 x 2400mm high with two single door 1000 x 2400mm high (Type SF55)	No	1
118	Purpose made shopfront, 10490 x 2400mm high with two single door 1000 x 2400mm high (Type SF56)	No	1
119	Purpose made shopfront, 9945 x 2400mm high with two single door 1000 x 2400mm high (Type SF53)	No	1
120	Purpose made insulated Spandrel panel back painted glazing, 1060 x 1000mm high (Type SF63.1)	No	1
121	Purpose made insulated Spandrel panel back painted glazing, trapesium shaped unit with average width 750 x 1000mm high (Type SF63.2)	No	1
122	Purpose made insulated Spandrel panel back painted glazing, section sloping to one side and circular on other top section with average width 3750 x 1755mm high (Type SF63.3)	No	1
123	Purpose made insulated Spandrel panel back painted glazing, section sloping to one side and circular on other top section with average width 3750 x 1755mm high (Type SF64.1)	No	1
124	Purpose made insulated Spandrel panel back painted glazing, section sloping to one side with average width 2650 x 980mm high (Type SF64.2)	No	1
125	Purpose made insulated Spandrel panel back painted glazing, 3000 x 1755mm high (Type SF65.1)	No	1
126	Purpose made insulated Spandrel panel back painted glazing, 3000 x 980mm high (Type SF65.2)	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd			

Brought Forward				R
<p><u>Supply and install Powder coated Aluminium shopfronts with single glazed laminated safety glass (colour to later specification) by specialist and in accordance to manufacturer's recommendations, including glazing certificates complete. All doors to include for hinges, handles and locks complete as per architect specification</u></p>				
127	Purpose made shopfront circular on plan 11400 x 2400mm high with 4Nr single door 1000 x 2400mm high (Type SF45)	No	1	
128	Purpose made shopfront circular on plan 3830 x 2400mm high (Type SF47)	No	1	
129	Purpose made shopfront circular on plan 4000 x 2400mm high (Type SF50)	No	1	
<p><u>SUNDRY METALWORK</u></p>				
<p><u>Supply, erect and install purpose made Sundry Metalwork by specialist as per architect drawings including 76 x 50mm Clearview fence panels cut to size and coated to the colours specified on architects drawings (Dove Grey and Anthracite Grey), fixed to diagonal pattern 140 x 60mm Galvanised C channel, painted complete as per engineer specification. Sundry metalwork to include all materials, erection, fixing to the main building structure, bolts, painting etc.</u></p>				
<p><u>Note: Refer to architect drawing number 740 - 743</u></p>				
130	Purpose made sundry metalwork approx 37400 x 9495mm high in L shape with sloping sides including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM01)	No	1	
Carried Forward				R
<p>Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork</p>				
<p>JVNC Capital (Pty) Ltd</p>				

Brought Forward			R
131	Purpose made sundry metalwork approx 6500 x 10020mm high curved with Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM02)	No	1
132	Purpose made sundry metalwork approx 20840 x 10470mm high in L shape with sloping soffit including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM03)	No	1
133	Purpose made sundry metalwork approx 5905 x 10470mm high including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM04)	No	1
134	Purpose made sundry metalwork approx 40350 x 13210mm overall height in L shape with sloping soffit including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM05-1)	No	1
135	Purpose made sundry metalwork approx 39275 x 11200mm maximum height in special shape with sloping soffits, circular edges including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM05-2)	No	1
136	Purpose made sundry metalwork approx 48515 x 7524mm maximum height in special shape with sloping top, circular edges including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM08)	No	1
137	Purpose made sundry metalwork approx 10480 x 3820mm maximum height including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM06)	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 13 Metalwork JVNC Capital (Pty) Ltd			

	Brought Forward				R
138	Purpose made sundry metalwork approx 6000 x 3820mm high curved with Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM02.1)	No	1		
139	"Multilight Facade" to various colours as indicated on drawing 742 with purpose made sundry metalwork approx 6230 x 4970mm high curved with Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM09A). Including colour glazing by specialist (Rainbowlight or similar approved)	No	1		
140	"Multilight Facade" to various colours to portion as indicated on drawing 743 with purpose made sundry metalwork approx 18300 x 5045mm high S-shape with sloping sides and Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM09B) Including colour glazing by specialist (Rainbowlight or similar approved)	No	1		
141	Purpose made sundry metalwork approx 19636 x 3785mm maximum height including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM09C)	No	1		
142	Purpose made sundry metalwork approx 8260 x 11600mm max height inspecial rounded shape including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM12)	No	1		
143	Purpose made sundry metalwork approx 14375 x 3825mm with higher bellmouth shape side (6930mm) including Clearview fence panels fixed to 140 x 60mm C channels complete including painting (SM11)	No	1		
Carried Forward to Summary of Section No. 2					R
Section No. 2					
Section 2 - Main Building					
Bill No. 13					
Metalwork					
JVNC Capital (Pty) Ltd					

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 14 PLASTERING</u>			
	<u>PREAMBLES</u>			
	Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Proprietary products in descriptions</u>			
	Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent			
	<u>SCREEDS</u>			
1	30mm Thick on floors	m2	10 123	
2	100mm Average thick to falls and currents on flat roofs, including finishing off to a non-slip finish	m2	828	
	<u>SELF LEVELLING SCREEDS</u>			
	<u>Screeds wood floated on concrete</u>			
3	Average 3mm thick on floors	m2	1 636	
	<u>GRANOLITHIC</u>			
	<u>Untinted Granolithic on concrete</u>			
4	40mm Thick on floors to falls	m2	846	
	<u>INTERNAL PLASTER</u>			
	Carried Forward			R
	Section No. 2 Section 2 - Main Building Bill No. 14 Plastering			
	JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Cement plaster on brickwork</u>			
5	On walls	m2	18 996
6	On narrow widths and sloping tops of sills	m2	697
<u>EXTERNAL PLASTER</u>			
<u>Cement plaster on brickwork</u>			
7	On walls	m2	2 959
8	On narrow widths	m2	486
<u>Cement plaster wood floated, on concrete</u>			
9	On projecting and isolated beams	m2	457
<u>Cement/sand bagwash on brickwork</u>			
10	On walls	m2	843
<u>CORNER PROTECTORS, DIVIDING STRIPS, ETC</u>			
11	30 x 3mm Flat section brass dividing strips between differing floor finishes	m	108
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Section 2 - Main Building			
Bill No. 14			
Plastering			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 15 TILING</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>Prime cost amounts shall include for ordering of materials from drawings and delivery of materials to site. The areas measured are the net area of tiling laid and the contractor shall include in his rate for all waste of materials, approved adhesive , jointing compound, labour to complete and mark-up.</p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>Fixing</u></p> <p>Descriptions Unless described as "fixed with adhesive to plaster (plaster elsewhere)" descriptions of tiling on brick or concrete walls, columns, etc shall be deemed to include 1:4 cement plaster backing and descriptions of tiling on concrete floors etc. shall be deemed to include 1:3 plaster bedding</p> <p><u>WALL TILING</u></p>			
	Carried Forward			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 15 Tiling</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward				R
	<p><u>Midnight 6mm Black Sparkle glass splashback wall tiles fixed with waterproof adhesive to plaster (plaster elsewhere) and finished with clear silicone seal as per architect specification (Code: 6mm COH53 Sparkle Extra White Glass)</u></p>			
1	On walls	m2	101	
	<p><u>Evalam Metal Blacksplash wall tiles fixed with waterproof adhesive to plaster (plaster elsewhere) and finished with clear silicone seal as per architect specification</u></p>			
2	On walls	m2	10	
	<p><u>Interbau Blink 240 x 115 x 100mm Dark Grey Coarse Chamotte Granular [V, R11) tiles</u></p>			
3	On walls	m2	249	
	<p><u>1200 x 600mm Glazed Porcelain Matt wall tiles (Code: GR1ISP200EA) Supplied by Pazio Gris Ecotech or Equally aproved fixed with TAL tile adhesive to plaster (plaster elsewhere) mixed with TAL Bond in lieu of water with joints continuous in both directions and grouted with TAL tile grout (Colour: Charcoal).</u></p>			
4	On walls	m2	754	
5	On narrow widths	m2	74	
	<p><u>100 x 100mm "Piccolo Gloss Yellow, Orange, Blue & Purple" ceramic wall tile fixed to plaster (plaster elsewhere) with TAL tile adhesive with 3mm joints continuous in both directions, jointed and flush pointed with Tal professional tile grout installed in strict accordance with the manufacturer's instructions on:</u></p>			
6	On walls	m2	22	
7	On narrow widths	m2	3	
Carried Forward				R
<p>Section No. 2 Section 2 - Main Building Bill No. 15 Tiling</p> <p>JVNC Capital (Pty) Ltd</p>				

Brought Forward			R
	<p><u>300 x 75mm Feature Glazed Porcelain tiles fixed to plaster (plaster elsewhere) with TAL tile adhesive with 3mm joints continuous in both directions, jointed and flush pointed with Tal professional tile grout (Colour: Charcoal) installed in strict accordance with the manufacturer's instructions on:</u></p>		
8	On walls	m2	6
9	On narrow widths	m2	5
	<u>FLOOR TILING</u>		
	<p><u>1200 x 600mm 'Glazed Porcelain Matt' floor tile (Code: GR1ISP200EA) Supplied by Spazio Gris Ecotech or equally approved fixed with Tal tile adhesive to screed (elsewhere specified) with 3mm joints continuous in both directions, jointed and flush pointed with Tal Professional tile grout (Colour: Charcoal). All installed by approved installer in accordance with SANS 10186:2010. (Type A)</u></p>		
10	On floors and landings	m2	4 343
	<p><u>1200 x 600mm 'Non-slip Porcelain Matt' floor tile (Code: GR1ISP200EA) Supplied by Spazio Gris Ecotech fixed with Tal tile adhesive to screed (elsewhere specified) with 3mm joints continuous in both directions, jointed and flush pointed with Tal Professional tile grout (Colour: Charcoal). All installed by approved installer in accordance with SANS 10186:2010, (type B)</u></p>		
11	On floors and landings	m2	633
12	Skirting 100mm high cut tile skirting size 1200 x 600mm	m	1 546
	Carried Forward		R
	<p>Section No. 2 Section 2 - Main Building Bill No. 15 Tiling</p>		
	JVNC Capital (Pty) Ltd		

Brought Forward			R
13	<p><u>1200 x 200mm "Timber Look" floor tiles (Code: GR1ILEA30R22A LEGNO ASH A/S) Supplied by Spazio Gris Ecotech fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with 3mm joints continuous in both directions, jointed and flush pointed with Tal Professional tile grout (Colour: Charcoal). All installed by approved installer in accordance with SANS 10186:2010. (Type C)</u></p> <p>On floors and landings</p>	m2	569
14	<p><u>1200 x 200mm Non-slip "Timber Look" floor tiles (Code: GR1ILEA30R22A LEGNO ASH A/S) Supplied by Spazio Gris Ecotech fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with 3mm joints continuous in both directions, jointed and flush pointed with Tal Professional tile grout (Colour: Charcoal). All installed by approved installer in accordance with SANS 10186:2010. (Type C)</u></p> <p>On floors and landings</p>	m2	452
15	<p><u>100 x 300mm BOSTON LAVAGNA Tile In-Lay floor tiles (Code: tbc) fixed to internal floor screed with TAL tile adhesive (elsewhere specified) with 3mm joints continuous in both directions, jointed and flush pointed with Tal Professional tile grout (Colour: Charcoal). All installed by approved installer in accordance with SANS 10186:2010. (Type J)</u></p> <p>On floors</p>	m2	26
16	<p><u>100 x 100mm "Piccolo Gloss Yellow, Orange, Blue & Purple" fixed to internal floor screed (screed elsewhere) with TAL tile adhesive with 3mm joints continuous in both directions, jointed and flush pointed with Tal professional tile grout installed in strict accordance with the manufacturer's instructions on:</u></p> <p>On floors and landings</p>	m2	15
<u>SUNDRIES</u>			
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 15 Tiling</p> <p>JVNC Capital (Pty) Ltd</p>			

	Brought Forward			R
	<u>Edge Trims:</u>			
17	M-Trim Aluminium Square edge of wall tiles (Code: ASQE080)	m	592	
18	"Kirk Marketing" or similar approved Aluminium straight edge trim (Code: ASE120)	m	493	
19	Aluminium tile-in ramp	m	53	
Carried Forward to Summary of Section No. 2				R
Section No. 2				
Section 2 - Main Building				
Bill No. 15				
Tiling				
JVNC Capital (Pty) Ltd				

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 16 PLUMBING AND DRAINAGE (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>G7 Natural gravel in layers not exceeding 150 mm with a CBR of less than 15 and a maximum particle size of 100 mm, compacted to 95% Modified AASHTO density at optimum moisture content</p> <p><u>Fixing</u></p> <p>Descriptions of wall mounted, floor standing, drop-in, etc type sanitary fittings shall be deemed to include fixing in position and all fixing accessories</p> <p>Descriptions of proprietary items shall include fixing in position and all fixing accessories as specified by the manufacturer</p> <p><u>Chasing</u></p> <p>Chasing pipes into new walls shall be regarded as "building in" and is not measured separately. The cost of chasing and making good shall be included in the rates for pipes</p> <p><u>Stainless steel sanitary fittings</u></p> <p>Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Section 2 - Main Building Bill No. 16 Plumbing And Drainage</p> <p>JVNC Capital (Pty) Ltd</p>			<p style="text-align: right;">R</p>

Brought Forward			R
<u>Waste unions</u>			
Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings			
<u>RAINWATER DISPOSAL</u>			
<u>3mm thick Galvanised sheet gutters and rainwater pipes</u>			
1	200 x 200 x 3mm thick square profile galvanised roof gutters	m	34
2	Extra over gutter for stopped end	No	2
3	Extra over eaves gutter for outlet for 100 x 100mm pipe	No	2
4	100 x 100mm rainwater pipes in continuous lengths	m	18
5	Extra over rainwater pipe for shoe	No	2
<u>"Fullbore" cast iron outlets</u>			
6	160mm 180 Degree vertical outlet	No	18
7	160mm 45° Side outlet	No	12
<u>uPVC pipes</u>			
8	100mm diameter connected to fullbore	m	45
<u>SOIL DRAINAGE</u>			
<u>Cast iron gulleys</u>			
9	450 x 450mm Dished gulley with grating cover not exceeding 500mm deep	No	4
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 16 Plumbing And Drainage			
JVNC Capital (Pty) Ltd			

Brought Forward		R
<p><u>SANITARY FITTINGS</u></p> <p><u>NOTE:</u></p> <p>All fittings butting up against wall or floor finishes or fitting into preformed openings in timber tops are to be sealed with an approved all purpose silicone sealant</p> <p>Prices for sinks described as drop in are to include for preparing the worktop to receive the fitting and securely fixing sinks to worktops using clips provided. The contractor is to provide worktop manufacturers with details of cut outs to ensure that the cut openings are sufficiently accurate to provide proper engagement for these clips</p> <p><u>"Franke" or equal approved stainless steel</u></p> <p><u>NOTE:</u></p> <p>All Stainless steel fittings are to be grade 304 (18/10)</p> <p>Catering sinks as described below are to include for 50mm turndown with beaded edge to sides not having splashbacks, the underside of all units are to be sprayed with vermin proof bitumastic sound deadening and supported on 30 x 30 x 3mm painted mild steel angle framework with galvanised mild steel backing sheet. All sinks are to be holed once at each bowl to receive mixers.</p> <p>The Tenderer is referred to the relevant 'Franke' documents, brochures, specifications, installation instructions and handbooks, etc which refer in detail to the fittings as described</p>		
10	<p>1800 x 535mm Trendline double end bowl drop-on sink (Code:103.0168.037</p> <p style="text-align: right;">No</p>	8
Carried Forward		R
<p>Section No. 2 Section 2 - Main Building Bill No. 16 Plumbing And Drainage</p> <p>JVNC Capital (Pty) Ltd</p>		

Brought Forward			R
11	Drip sink 535 x 454 x 25mm deep, manufactured from Grade 304 (18/10) Stainless Steel hinged bucket grid with 100mm integral splashback to back. Unit fitted with 40 x 40mm square Stainless Steel wall brackets and provision for 90mm waste outlet (90mm basket waste fitting included). Unit to be fitted 600mm from finished floor level (Code:350950)	No	2
<u>Duravit or equal approved wash hand basins and pedestals:</u>			
12	525 x 325mm D-Code under counter vanity basin with overflow, without tap platform, fixing for installation in wooden consoles included (Code: 033849)	No	1
13	305 x 295 x 565mm white D-code concealed inlet urinal rimless for 1/2" connection, including jet nozzle, inlet-set, waste, wall mounted (flush valve elsewhere measured) (Code:DUR-0829300000)	No	39
14	525 x 325mm D-Code under counter vanity basin suitable for paraplegic with overflow, without tap platform, fixing for installation in wooden consoles included (Code: 033849)	No	6
<u>Geberit or equal approved WC, etc:</u>			
15	Smyle square rimfree wall hung pan with opening for wall mounting including standard toilet seat with overlapping lid (Code: GEB-500.200.01.1)	No	78
16	Selnova Rimfree paraplegic wall-hung large projection pan white (Code:GEB-500-262-01.1) including toilet seat ring only with metal bar hinge (Code:GEB-500.340.0.1)	No	6
17	432 x 754mm high Urinal glass partition white (Code:GEB-115-211.TD.1)	No	39
18	1800 x750 x410mm Bath Lena Built-In with handles & end drain (Product Code: DAD-SRB015)	No	1
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 16 Plumbing And Drainage			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>WASTE UNIONS ETC</u>			
<u>"Cobra Watertech" or equal approved</u>			
19	40mm 310 CP bath or sink waste union	No	39
<u>TRAPS, ETC</u>			
Note: All traps are to include for connectors and fitting to waste outlet at one end and to waste pipe at other end			
<u>"Geberit" or equal approved</u>			
20	40mm 370 CP P-trap	No	8
21	Geo plumbing solid plate shower channel 250mm (Code:GIO-A1017-250)	No	3
<u>"Geberit" or equal approved</u>			
22	32mm DIP tube bottle trap, waste outlet plug and chain (Code: GEB-151-034.21.1)	No	72
<u>TAPS, VALVES, ETC</u>			
<u>"Geberit" or equal approved</u>			
23	"Sigma" concealed type toilet cistern 12cm 6/3L (GEB-109.310.00.5) with WC flush control with electronic flush actuation mains operation dual flush act plate Sigma 10 automatic/touches/manual stainless steel (GEB-115.890.SN.5) installed complete in strict accordance wit manufacturer's instructions.	No	78
24	Duofix concealed type urinal Installation set universal with flushpipe (Code: 116.300.00.1), urinal flush control including stainless steel electronic flush actuation, mains operation, cover plate type 10 (Code: SKU: 116.025.KH.1) installed complete in strict accordance with manufacturer's instructions.	No	39
Carried Forward			R
Section No. 2 Section 2 - Main Building Bill No. 16 Plumbing And Drainage			
JVNC Capital (Pty) Ltd			

	Brought Forward			R
25	Kombifix sigma concealed wall hung type WC cistern size 420 x 80 x 770mm high (Code: 110.798.00.1) including matt chrome plated remote flush actuation type 01 pneumatic for single flush concealed actuator (Code: G116.041.46.1) installed in strict accordance to manufacturer's instructions.	No	6	
	<u>"Hansgrohe" or Equal approved</u>			
26	Franke highrise swivel sink mixer (Code:115.0193.183	No	8	
27	Nile exposed bath mixer (no hand shower) single lever with diverter 2 x G1/2" female inlet, G1/2" male outlet chrome (Product Code: COB-FBHEW2NI-0GT0426)	No	1	
28	Crometta 160 jet overhead shower white/chrome 178 x 178 x 65mm	No	3	
29	389 x 80 x 80mm Shower arm DN15 chrome plated (Code: DN15)	No	3	
30	15mm 232/350 FCP angle regulating valve and flexible connection pipe	No	163	
31	Metis shower mixer concealed F-set 74 x 150 x 150mm (Code:HG31686000)	No	3	
32	Electronic Decor basin mixer chrome plated with 230V mains connection including filter angle valves (Code:HG-31173223)	No	30	
	<u>"Cobra Watertech" or equal approved</u>			
33	15mm Hose bib tap with 3/4" BSP hose union outlet and 1/2" male inlet	No	2	
34	Tap Star Import Bib 1/2 Pair	No	2	
	Carried Forward to Summary of Section No. 2			R
	Section No. 2 Section 2 - Main Building Bill No. 16 Plumbing And Drainage			
	JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 17 GLAZING</u>			
	<u>PREAMBLES</u>			
	Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Proprietary products in descriptions</u>			
	Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent			
	<u>SPECIALIST GLAZING</u>			
	<u>Specialist Glazing by Rainbow light or similar approved</u>			
1	Multilight seamless Glazing by Rainbow Skylight or (similar approved) circular in panels to overall size 4490mm x 4970mm high as per architect colour scheme. Installed in accordance with the architect's specifications Type SM09A (Refer to drawing 742)	No	1	
2	Multilight seamless Glazing by Rainbow Skylight or (similar approved) circular in panels to overall size 4490mm x 4970mm high as per architect colour scheme. Installed in accordance with the architect's specifications as part of Type SM09B (Refer to drawing 743)	No	1	
	<u>TOPS, SHELVES, DOORS, MIRRORS, ETC</u>			
	Carried Forward			R
	Section No. 2 Section 2 - Main Building Bill No. 17 Glazing			
	JVNC Capital (Pty) Ltd			

Brought Forward			R
<p><u>6mm Silvered float glass copper mirrors with curved sides and polished edges holed for and fixed to 22mm thick backing board with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork or concrete</u></p>			
3	Mirror as per specialist specifications & installation to various heights fixed to walls as per architect specification	m2	39
4	Mirror 400 x 600mm high fixed on backing board	No	4
5	Mirror 1667 x 1150mm high fixed on backing board	No	2
6	Mirror 1815 x 1250mm high fixed on backing board	No	1
7	Mirror 2450 x 1200mm high fixed on backing board	No	2
8	Mirror 3448 x 1150mm high fixed on backing board	No	3
9	Mirror 3425 x 1250mm high fixed on backing board	No	2
10	Mirror 1687 x 1150mm high fixed on backing board	No	1
11	Mirror 1651x 1150mm high fixed on backing board	No	3
<p><u>SUNDRIES</u></p>			
<p><u>Vinyl Decals, Sandblasting and Films to glazing</u></p>			
12	Central Fade Fine Dot Gradient PVC Film with Matt translucent dual fading gradient in small dot design pattern, to be applied to interior glass and exterior facing glass with pressure sensitive adhesive and applied using same tools and technique for window films (Various windows as per shopfront schedule)	m2	29
13	Clear Vinyl Decals, specific design to architects later spec, to be applied to interior glass and exterior facing glass with pressure sensitive adhesive and applied using same tools and technique for window films (Various windows as per shopfront schedule)	m2	65
Carried Forward			R
<p>Section No. 2 Section 2 - Main Building Bill No. 17 Glazing</p>			
<p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
14	Resurface - Central Fade fine dots gradient pvc film with a white matte translucent dual fading gradient in a small dot design pattern. To be applied to interior facing glass. With, pressure-sensitive adhesive and applied using the same tools and technique for window films.	m2	27
15	Resurface - Clear Vinyl Decals, specific design to architect's later specification to be applied to interior glass, single or double pane and exterior facing glass. With, pressure-sensitive adhesive and applied using the same tools and technique for window film	m2	65
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Section 2 - Main Building			
Bill No. 17			
Glazing			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 18 PAINTWORK</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary products in descriptions</u></p> <p>Proprietary products shall be used as specified. Substitute products of similar quality and specification may only be used with prior approval by the Principal Agent</p> <p><u>PAINTWORK, ETC TO NEW WORK</u></p> <p><u>ON FLOATED PLASTER & SCREEDS</u></p> <p><u>Prepare walls and fill cracks and inconsistencies using approved crack filler , sand down to a smooth surface, apply one coat alkali resistant universal plaster primer and two coats "Acrylic PVA " emulsion paint (colour tbc) Dulux or equal approved) on:</u></p>			
1	On internal walls	m2	22 586	
	<p><u>Prepare walls and fill cracks and inconsistencies using approved crack filler , sand down to a smooth surface, apply one coat alkali resistant universal plaster primer and two coats superior quality acrylic emulsion paint (colour tbc) Dulux (or equal approved) on:</u></p>			
2	On external walls	m2	697	
	Carried Forward			R
	<p>Section No. 2 Section 2 - Main Building Bill No. 18 Paintwork</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
	<u>Prepare floor to be clean and dust free and apply 2 coats Epoxy paint to architects colours as per manufacturers specifications on:</u>		
3	Screeded floors	m2	846
	<u>ON PLASTERBOARD SURFACES</u>		
	<u>One coat alkali resistant primer and two coats PVA emulsion paint for interior use</u>		
4	Partition walls	m2	285
5	Ceilings and cornices	m2	7 886
	<u>ON GALVANISED IRON</u>		
	<u>Scrub down with "Spick & Span Galvanised Iron Cleaner (GIC)", one coat "Zinc Chromate Metal Primer", one coat Merit Universal Undercoat (UC1)" and two coats "Enamel" paint on:</u>		
6	On door frames	m2	287
7	Balustrades (both sides)	m2	2
	<u>Scrub down with "Spick & Span Galvanised Iron Cleaner (GIC)", one coat "Zinc-Chromate", one coat Merit Universal Undercoat (UC1)" and two coats "Gloss Enamel" paint on:</u>		
8	On bench frames	m2	55
	<u>ON WOOD</u>		
	<u>Spot fill holes with woodfiller , stop and sanddown wood surfaces and apply 3 coats of clear "Matt" polyurethane varnish:</u>		
9	On benches	m2	245
	<u>Spot fill holes with woodfiller , stop and sanddown wood surfaces and apply one coat undercoat and apply 2 coats of "Eggshell" enamel paint on:</u>		
10	On doors	m2	611
	Carried Forward		R
	Section No. 2 Section 2 - Main Building Bill No. 18 Paintwork		
	JVNC Capital (Pty) Ltd		

Brought Forward			R
<u>ON CONCRETE SURFACES</u>			
<u>Prepare walls and fill cracks and inconsistencies using approved crack filler , sand down to a smooth surface, apply one coat alkali resistant universal plaster primer and two coats "Acrylic PVA " emulsion paint (colour tbc) Dulux (or similar approved) on:</u>			
11	On columns and beams	m2	1 746
12	On concrete walls	m2	3 758
<u>Prepare and apply 2 coats 'Rhinolite' plaster skim to provide a smooth and level soffit, 1 coat waterbased undercoat and 2 coats 'Washable Matt finish' paint all in accordance with the manufacturer's instructions.</u>			
13	On slab soffits	m2	3 574
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Section 2 - Main Building			
Bill No. 18			
Paintwork			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 19 PAPERHANGING</u>			
	<u>PAPERHANGING</u>			
	Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section			
	<u>PAPERHANGING TO NEW WORK</u>			
	<u>Vinyl frosting (PC R350/m2) to aluminium partitions including preparatory work all in accordance to manufacturer's recommendations</u>			
1	On aluminium partitions including narrow widths	m2	65	
	<u>Paintable wall paper including one coat preparatory emulsion paint</u>			
2	On walls	m2	114	
	Carried Forward to Summary of Section No. 2			R
	Section No. 2 Section 2 - Main Building Bill No. 19 Paperhanging			
	JVNC Capital (Pty) Ltd			

Bill No		Page No		Amount
	Section No. 2			
	Section 2 - Main Building			
	<u>SECTION SUMMARY - Section 2 - Main Building</u>			
1	Demolitions	42		
2	Earthworks	46		
3	Piling	51		
4	Concrete, Formwork & Reinforcement	59		
5	Masonry	62		
6	Waterproofing	65		
7	Roof Coverings, Etc	67		
8	Carpentry And Joinery	79		
9	Ceilings, Partitions And Access Flooring	90		
10	Floor Coverings, Wall Linings, Etc	94		
11	Ironmongery	103		
12	Structural Steelwork	107		
13	Metalwork	128		
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17	Glazing	144		
18	Paintwork	147		
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	Carried to Final Summary			R
	Section No. 2			
	Section 2 - Main Building			
	JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 3</u>			
	<u>BILL NO. 1 BULK EXCAVATION, FILLING, ETC. (PROVISIONAL)</u>			
	<u>PREAMBLES</u>			
	Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>NOTE:</u>			
	Where items in this Bill are identical to those in the previous Bills, the descriptions have been shortened, and the full descriptions in the Trades concerned are to be referred to for the full meaning and intent of each item			
	<u>SITE CLEARANCE, ETC</u>			
	<u>Site clearance</u>			
1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc	m2	10 146	
2	Stripping average 200mm thick layer of top soil and stockpiling on site	m2	3 876	
	<u>REMOVAL OF TREES ETC</u>			
	<u>Cutting down and removing, grubbing up roots, filling in holes and compacting to 93% Mod AASHTO density</u>			
3	Tree with trunk not exceeding 1000mm grith	No	9	
	Carried Forward			R
	Section No. 3 Section 3 - External Works Bill No. 1 Bulk Earthworks			
	JVNC Capital (Pty) Ltd			

Brought Forward			R
4	Tree with trunk exceeding 1000m girth and not exceeding 1500mm girth	No	7
<u>EXCAVATION, ETC</u>			
<u>Open face excavation in earth over sloping site</u>			
5	Open face excavation for basement	m3	11 338
<u>Extra over excavation in earth for excavation in</u>			
6	Hard rock	m3	567
<u>Extra over all excavations for carting away</u>			
7	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	4 883
<u>Keeping excavations free of water</u>			
8	Allow for keeping excavations free of water		Item
<u>EARTH FILLING, ETC.</u>			
<u>Earth filling obtained from the excavations and/or prescribed stock piles on site compacted to 95% Mod AASHTO density</u>			
9	Rip and recompact the insitu layer to a depth of 150 mm and compact to 93% Modified AASTO density at optimum moisture content	m3	732
<u>Earth filling supplied by the contractor</u>			
10	Imported filling (G5) supplied by the contractor, compacted to form platforms in layers not exceeding 150 mm thick to 95% Modified AASHTO density at optimum moisture content	m3	1 465
11	Imported filling (G7) supplied by the contractor, compacted to form platforms in layers not exceeding 150 mm thick to 93% Modified AASHTO density at optimum moisture content	m3	732
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 1 Bulk Earthworks			
JVNC Capital (Pty) Ltd			

Brought Forward			R
12	Imported filling (G7) supplied by the contractor, compacted to form platforms in layers not exceeding 150 mm thick to 90% Modified AASHTO density at optimum moisture content	m3	732
<u>Prescribed density tests on filling</u>			
13	"Field Density" test including "Optimum Moisture Content" (four readings per test) on layer work	No	28
Carried Forward to Summary of Section No. 3			R
Section No. 3			
Section 3 - External Works			
Bill No. 1			
Bulk Earthworks			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 3</u></p> <p><u>BILL NO. 2 ROADWORKS ,WALKWAYS AND PAVING (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>NOTE:</u></p> <p>Where items in this Bill are identical to those in the previous Bills, the descriptions have been shortened, and the full descriptions in the Trades concerned are to be referred to for the full meaning and intent of each item</p> <p><u>Testing of material and filling</u></p> <p>Descriptions of earth filling, compaction, etc shall be deemed to include for all necessary testing required in accordance with the SABS 1200 series</p> <p><u>Precast concrete block road surfacing</u></p> <p>Paving shall be laid in accordance with SABS 1200 MJ, SANS 1058 and the Concrete Masonry Association's specifications</p> <p>Clean sand shall be swept into joints between roadstones at completion where specified by the architect or engineer</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 3 Section 3 - External Works Bill No. 2 Road Works ,Walkways and Ramps</p> <p>JVNC Capital (Pty) Ltd</p>			<p style="text-align: right;">R</p>

Brought Forward			R
<u>Road & Parking bed preparation</u>			
1	Rip and recompact the insitu layer to a depth of 150 mm and compact to 93% Modified AASTO density at optimum moisture content	m2	2 666
<u>Earth filling supplied by the contractor under parking areas, roadways, etc</u>			
2	Lower base course of G7 material, compacted to 93% Mod AASHTO density	m3	400
3	Upper Sub-base course of G7 material, compacted to 93% Mod AASHTO density	m3	400
4	Subbase course of C4 stabilised material, compacted to 95% Mod AASHTO density	m3	400
<u>PAVING TO PARKING, WALKWAYS, COURTYARD ETC</u>			
<u>300 x 120 x 80mm Thick "Bosun Linneo Paver" (Colour: Grey) blocks laid in herringbone pattern to falls on and including 20mm thick sand layer with joints filled in with sand, compacted with a vibration compactor</u>			
5	Paving to walkways etc to falls	m2	720
<u>300 x 120 x 80mm Thick "Bosun Linneo Paver" (Colour: Colourfast Grey) blocks laid in pattern to falls on and including 20mm thick sand layer with joints filled in with sand, compacted with a vibration compactor</u>			
6	To roads and driveway	m2	1 946
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 2 Road Works ,Walkways and Ramps			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Precast concrete finished smooth on exposed surfaces, including bedding, jointing and pointing</u>			
7	150 x 300mm High kerbs (SANS Fig. 3) with 150 x 150 x 300mm unreinforced concrete haunching at back of each joint, including excavation, backfilling, etc	m	315
8	Kerbs (SANS Fig. 6) with 150 x 150 x 300mm unreinforced concrete haunching at back of each joint, circular on plan exceeding 4m radius, formed with straight kerbs, including excavation, backfilling, etc	m	120
<u>"Hyvar X" Weedkiller (or similar approved) mixed with water and applied at a rate of 100grams/m - Provisional</u>			
9	Under paving etc	m2	2 666
<u>Road signs</u>			
10	Standard "STOP" or similar signs with 50mm diameter galvanised mild steel post bedded in and including unreinforced concrete base, including any necessary excavation, paint finish, etc	No	14
<u>PAINTWORK</u>			
<u>Prepare and apply one coat white reflective road marking paint on bituminous road surfacing, precast concrete paving blocks, etc</u>			
11	100mm Wide line	m	969
<u>BOOM GATES</u>			
<u>Access Control Boom Gates and Turnstiles</u>			
12	"Turnstar Velocity Raptor" with spikes or similar approved vehicle barrier with stainless steel pedestal complete as per manufacturer specification.	No	2
13	"Turnstar Traffic Master" similar approved vehicle barrier complete as per manufacturer specification.	No	2
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 2 Road Works ,Walkways and Ramps			
JVNC Capital (Pty) Ltd			

	Brought Forward				
				R	
14	"Turnstar Titan" Full height industrial turnstile fixed to and including concrete base complete	No	2		
15	Disabled parking marking not exceeding 300mm wide	No	4		
Carried Forward to Summary of Section No. 3					R
Section No. 3					
Section 3 - External Works					
Bill No. 2					
Road Works ,Walkways and Ramps					
JVNC Capital (Pty) Ltd					

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 3</u></p> <p><u>BILL NO. 3 WATER SUPPLIES (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>NOTE:</u></p> <p>Where items in this Bill are identical to those in the previous Bills, the descriptions have been shortened, and the full descriptions in the Trades concerned are to be referred to for the full meaning and intent of each item</p> <p>Tenderers are to refer to the Model Preambles for Trades (Latest Edition) and Supplementary Preambles for further description and amplification of work in this section</p>			
	Carried Forward		R	
	<p>Section No. 3 Section 3 - External Works Bill No. 3 Water supplies</p> <p>JVNC Capital (Pty) Ltd</p>			

Brought Forward			R
<u>Laying, backfilling, bedding, etc of pipes</u>			
Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturer's instructions			
Where no manufacturer's instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200			
L : Medium-pressure pipelines			
LD : Sewers			
LE : Stormwater drainage			
Pipe trenches, etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB: Earthworks (Pipe trenches)			
Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB: Bedding (Pipes)			
Unless otherwise described bedding of rigid pipes shall be class C bedding			
Tenderers are referred to Engineer's Drawings accompanying these Bills of Quantities for tender purposes.			
<u>GALVANISED MILD STEEL WATER SUPPLY PIPES</u>			
1	32mm Galvanised mild steel pipe and fixing to tanks	m	142
<u>Extra over galvanised mild steel water supply pipes for fittings</u>			
2	32mm Bends	No	8
3	32mm Tee	No	4
4	32mm Straight connector	No	6
5	32 to 20mm Reducer	No	2
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 3 Water supplies			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>HDPE PIPES AND FITTINGS</u>			
Pipes for water supply shall be of the class stated			
Pipes of 40mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings			
Pipes of 50mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints			
<u>HDPE water pipes in class C bedding</u>			
6	50mm Pipes laid in and including trenches not exceeding 1 m deep including selected granular material bedding cradle, selected side fill, backfilling with selected material from excavations, excavation in earth and carting away surplus excavated material	m	159
7	63mm Pipes laid in and including trenches not exceeding 1 m deep including selected granular material bedding cradle, selected side fill, backfilling with selected material from excavations, excavation in earth and carting away surplus excavated material	m	64
8	75mm Pipes laid in and including trenches not exceeding 1 m deep including selected granular material bedding cradle, selected side fill, backfilling with selected material from excavations, excavation in earth and carting away surplus excavated material	m	14
9	110mm Pipes laid in and including trenches not exceeding 1 m deep including selected granular material bedding cradle, selected side fill, backfilling with selected material from excavations, excavation in earth and carting away surplus excavated material	m	20
<u>Extra over HDPE pipes for fittings</u>			
10	50mm Tee	No	3
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 3 Water supplies			
JVNC Capital (Pty) Ltd			

Brought Forward			R
11	50mm Bend	No	4
12	63mm Bend	No	2
13	75mm Bend	No	2
<u>Brass Fittings</u>			
14	40mm Stopcock	No	30
15	50mm Non-return valve	No	4
<u>"Cobra Watertech" or equal approved</u>			
16	Standard brass bibtap 108LK-15 with lockshield loose key wingnut fixed to brick wall	No	6
<u>Valve box chambers, etc.</u>			
17	Valve Chamber size 700 x 700 mm not exceeding 1 m deep internally formed of half brick sides of extra hard burnt bricks in 1:3 cement mortar on and including 100 mm thick mass concrete (Grade 20/19) bottom projecting 50 mm beyond external face, rendered internally in 1:3 cement plaster with mass concrete benching (Grade 20/19) finished smooth with 25 mm thick 1:3 cement screed, 150 mm thick mass concrete (Grade 20/19) kerb on top with inner edge rebated for and fitted with and including cast iron double seal cover and frame type 8A in accordance with SABS 558, bedded in 1:3 cement mortar and sealed in tallow including finishing all exposed surfaces of kerb with 1:2 cement plaster trowelled smooth, including excavation in earth, backfilling and compacting, formwork, holes through sides for pipes, etc.	No	11
<u>Water Storage Tanks and Stands</u>			
Note: Rainwater tanks shall be without welded seams and of one piece moulded construction.			
18	5 000 Litre Polypropolene rotomoulded JOJO rainwater tank (or similar approved) complete with 15mm Brass tap with handle suitable for padlocking	No	2
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 3 Water supplies			
JVNC Capital (Pty) Ltd			

Brought Forward			R
19	"ABECO" or equal approved galvanised steel portable water square tank overall size 7320 x 7320 x 2440mm (100m3 capacity) high including 305 x 102 x 25mm I-Section steel beams fixed to concrete floor beams (concrete elsewhere) complete in strict accordance with manufacturer's instruction and Engineers detail. (as per Engineer's Drawing 2000140-C-W-161)	No	1
<u>All Trades - Tank bases</u>			
20	Excavate in earth not exceeding 2 m deep including trimming sides, levelling and consolidating bottom, small part return, fill in and ram, remainder deposit on site where directed	m3	6
21	Rip and recompact material to 90% MOD AASHTO 150mm deep	m2	32
22	2000 x 2000 x 150mm deep 25MPa/19mm stone concrete base including 350 x 300mm deep thickening to footings etc.	No	4
23	Formwork to edge of base not exceeding 150mm high	m	24
24	Mesh ref 193 reinforcement	m2	32
25	Steel rod reinforcement of varying diameters to bottom, walls and slab	t	0.55
26	Power flot finish to top of tank bases	m2	32
27	150 mm Diameter PVC pipe laid under and jojo tank bases	m	34
28	Hole through top of tank lid for 100 mm diameter pipe.	No	2
29	Supply and install booster pump to provide 4 Bar pressure at flow of 40 L/min and the motor power equals to 0.375kW all as per engineer specification	No	2
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 3 Water supplies JVNC Capital (Pty) Ltd			

Brought Forward		R
<u>Valve box chambers, etc.</u>		
30	Valve Chamber size 700 x 700 mm not exceeding 1000mm deep internally formed of half brick sides of extra hard burnt bricks in 1:3 cement mortar on and including 100 mm thick mass concrete (Grade 20/19) bottom projecting 50 mm beyond external face, rendered internally in 1:3 cement plaster with mass concrete benching (Grade 20/19) finished smooth with 25 mm thick 1:3 cement screed, 150 mm thick mass concrete (Grade 20/19) kerb on top with inner edge rebated for and fitted with and including cast iron double seal cover and frame type 8A in accordance with SABS 558, bedded in 1:3 cement mortar and sealed in tallow including finishing all exposed surfaces of kerb with 1:2 cement plaster trowelled smooth, including excavation in earth, backfilling and compacting, formwork, holes through sides for pipes, etc (as per Engineer's drawing 2000140-PD-C-W-110)	No 6
<u>Connection</u>		
31	Allow the sum of R10,000.00 (Ten Thousand Rand) net for connection to the municipal water line to be executed by the municipality authority	Item
<u>Testing</u>		
32	Allow for testing water and fire supplies system	Item
<u>AS-BUILT DRAWINGS</u>		
33	Provision of as-built drawings	Item
Carried Forward to Summary of Section No. 3		R
Section No. 3 Section 3 - External Works Bill No. 3 Water supplies		
JVNC Capital (Pty) Ltd		

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 3</u></p> <p><u>BILL NO. 4 STORMWATER DRAINAGE (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>uPVC pipes and fittings:</u></p> <p>Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings. Soil, waste and vent pipes and fittings shall be solvent weld jointed or sealed with butyl rubber rings.</p> <p><u>uPVC pressure pipes and fittings:</u></p> <p>Pipes of 50mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings. Pipes of 63mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints.</p> <p><u>Reducing fittings:</u></p> <p>Where fittings have reducing ends or branches they are described as 'reducing' and only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained.</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 3 Section 3 - External Works Bill No. 4 Stormwater Drainage</p> <p>JVNC Capital (Pty) Ltd</p>			<p style="text-align: right;">R</p>

<p style="text-align: center;">Brought Forward</p> <p><u>Fixing of pipes:</u></p> <p>Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls, etc, casting in, building in or suspending not exceeding 1m below suspension level.</p> <p><u>Disinfection of water pipework:</u></p> <p>Water pipework is to be disinfected at completion in accordance with SABS 1200L (provision for disinfection elsewhere).</p> <p><u>Laying, backfilling, bedding, etc., of pipes:</u></p> <p>Pipes shall be laid and bedded in accordance with manufacturers' instructions and trenches shall be carefully backfilled.</p> <p>Where no manufacturers' instructions exist, pipes shall be laid in accordance with Clauses 5.1 and 5.2 of each of the following: SABS 1200L : Medium-pressure pipelines SABS 1200 LD : Sewers SABS 1200 LE : Stormwater drainage Pipe trenches, etc shall be backfilled in accordance with Clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB : Earthworks (Pipe trenches)Pipes shall be bedded in accordance with Clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200LB : Bedding (Pipes)Unless otherwise described bedding of rigid pipes shall be Class B bedding</p> <p><u>General:</u></p> <p>Descriptions of pipes laid in and including trenches and of inspection chambers, catchpits, etc shall be deemed to include excavation, bedding, backfilling, compaction to a minimum of 98% Mod AASHTO density and disposal of surplus material on site.</p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 3 Section 3 - External Works Bill No. 4 Stormwater Drainage</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward			R
<u>As-built drawings:</u>			
Where required, the contractor shall prepare an updated set of as-built drawings. At completion of the contract the contractor shall hand these drawings to the principal agent for reproducing onto the originals for handing over to the employer (provision for allowance of as-built drawings elsewhere).			
<u>STORMWATER CHANNELS</u>			
Tenderers are referred to Engineer's Drawings for all stormwater details accompanying these Bills of Quantities for tender purposes.			
<u>EARTHWORKS</u>			
<u>Excavation in earth not exceeding 2m deep for</u>			
1	Excavate for stormwater pipe trench	m3	756
<u>Extra over all excavations for carting away</u>			
2	Cart away surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	411
<u>Earth filling obtained from the excavations and/or prescribed stock piles on site compacted to 93% Mod AASHTO density</u>			
3	Backfilling to trenches with material from excavations	m3	324
<u>Supply, lay and bed pipes complete non-pressure pipes with couplings:</u>			
4	110mm Diameter PVC pipes	m	278
<u>CONCRETE PIPES</u>			
<u>Class 100D concrete pipes with spigot and socket joints with rubber rings</u>			
5	450mm Pipes laid in trenches	m	246
<u>MANHOLES</u>			
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 4 Stormwater Drainage			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Supply and install manholes, catchpits, grid inlets, etc.:</u>			
6	Grid Inlet size 850 x 1275 mm exceeding 1m and not exceeding 2m deep internally formed of one brick sides of extra hard burnt bricks in 1:3 cement mortar on and including 100 mm thick Reinforced concrete (Grade 25/20) bottom projecting 150 mm beyond external face, rendered internally in 1:3 cement plaster with mass concrete benching (Grade 25/20) finished smooth with 25 mm thick 1:3 cement screed, 150 mm thick mass concrete slab(Grade 25/20) and kerb on top with inner edge rebated for and fitted with cover (elsewhere measured), including finishing all exposed surfaces of kerb with 1:2 cement plaster trowelled smooth, including excavation in earth, backfilling and compacting, formwork, holes through sides for pipes, etc all as per Engineering Drawing 1700037-08-81-C-3-322-REV-A & 1700037-08-81-C-3-310-RA	No	16
<u>Gratings, covers and frames:</u>			
7	600 x 1275mm x 10,3kg Heavy duty cast iron grid inlet cover and frame.	No	16
<u>Sumps, catchpits, inspection chambers, etc including concrete kerbs or precast concrete cover slabs (gratings and covers elsewhere)</u>			
8	Sump pit as per engineers detail	No	1
<u>SURFACE DRAINAGE</u>			
<u>Precast concrete channels:</u>			
9	570 x 200mm deep halfround Pre-cast concrete surface water channel purpose made by "LG Green" (or similar approved) on suitable 150mm subbase material compacted to 93% Mod A.A.S.H.T.O. density, including all necessary excavations, compaction, grading, carting away, etc.	m	311
<u>SUBSOIL DRAINAGE</u>			
10	110mm perforated pipe laid to falls in stone layer works (elsewhere) as per engineer specification	m	655
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 4 Stormwater Drainage			
JVNC Capital (Pty) Ltd			

Brought Forward			R
11	160mm perforated pipe laid to falls in stone layer works (elsewhere) as per engineer specification	m	488
12	19mm Crushed stone encasing to pipes	m3	349
13	Bidum U14 geofabric filter blanket wrapped around 300 x 300mm stone encasing with 100mm side and 100mm end laps, including stitching	m2	2 597
14	Bidum U24 geofabric filter blanket wrapped around 600 x 610mm stone encasing with 100mm side and 100mm end laps, including stitching	m2	3 487
15	Extra over subsoil pipes for endcap	No	4
<u>SUNDRIES</u>			
<u>Concrete Encasements</u>			
16	Concrete encasing to 110mm horizontal pipes	m	24
<u>Testing:</u>			
17	Allow for testing of stormwater drainage system.		Item
<u>AS-BUILT DRAWINGS</u>			
18	Provision of as-built drawings		Item
Carried Forward to Summary of Section No. 3			R
Section No. 3			
Section 3 - External Works			
Bill No. 4			
Stormwater Drainage			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 3</u></p> <p><u>BILL NO. 5 SOIL DRAINAGE (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>Where items in this Bill are identical to those in the previous Bills, the descriptions have been shortened, and the full descriptions in the Trades concerned are to be referred to for the full meaning and intent of each item</p> <p><u>Laying, backfilling, bedding, etc. of pipes</u></p> <p>Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions</p> <p>Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L : Medium-pressure pipelines LD : Sewers LE : Stormwater drainage Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB : Earthworks (Pipe trenches) Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes). Unless otherwise described bedding of rigid pipes shall be class B bedding</p> <p style="text-align: right;">Carried Forward</p> <p>Section No. 3 Section 3 - External Works Bill No. 5 Soil Drainage</p> <p>JVNC Capital (Pty) Ltd</p>			<p style="text-align: right;">R</p>

Brought Forward			R
<u>General:</u>			
Descriptions of pipes laid in and including trenches and of inspection chambers, catchpits, etc shall be deemed to include excavation, bedding, backfilling, compaction to a minimum of 98% Mod AASHTO density and disposal of surplus material on site.			
<u>As-built drawings:</u>			
Where required, the contractor shall prepare an updated set of as-built drawings. At completion of the contract the contractor shall hand these drawings to the principal agent for reproducing onto the originals for handing over to the employer (provision for allowance of as-built drawings elsewhere).			
<u>UPVC Pipes:</u>			
1	160 mm Pipe and excavations not exceeding 1m deep	m	248
2	160 mm Pipe and excavations exceeding 1m not exceeding 2m deep	m	38
<u>Extra over for UPVC Pipe fittings:</u>			
3	160 mm Bend	No	3
4	160 mm Junction with inspection eye and lid	No	4
<u>MANHOLES</u>			
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 5 Soil Drainage			
JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Supply and install Manholes, catchpits, inspection chambers, grid inlets, etc complete</u>			
5	Brick manhole size 900 x 1040 mm not exceeding 1 m deep internally formed of one brick sides of extra hard burnt semi-facebrick bricks in 1:3 cement mortar on and including 100 mm thick Reinforced concrete (Grade 25/20) bottom, rendered internally in 1:3 cement plaster with mass concrete benching (Grade 25/20) finished smooth with 25 mm thick 1:3 cement screed, 150 mm thick mass concrete slab (Grade 25/20) and kerb on top with inner edge rebated for and fitted with cover (elsewhere measured), including finishing all exposed surfaces of kerb with 1:2 cement plaster trowelled smooth, including excavation in earth, backfilling and compacting, formwork, holes through sides for pipes, etc.	No	11
6	Brick manhole size 900 x 1040 mm exceeding 1m but not exceeding 2 m deep internally formed of one brick sides of extra hard burnt semi-facebrick bricks in 1:3 cement mortar on and including 100 mm thick Reinforced concrete (Grade 25/20) bottom, rendered internally in 1:3 cement plaster with mass concrete benching (Grade 25/20) finished smooth with 25 mm thick 1:3 cement screed, 150 mm thick mass concrete slab (Grade 25/20) and kerb on top with inner edge rebated for and fitted with cover (elsewhere measured), including finishing all exposed surfaces of kerb with 1:2 cement plaster trowelled smooth, including excavation in earth, backfilling and compacting, formwork, holes through sides for pipes, etc.	No	3
<u>Gratings, covers and frames:</u>			
7	450 x 600mm heavy duty cast iron double seal manhole cover and frame	No	11
<u>SUNDRIES</u>			
<u>Sundries</u>			
8	Encase 110 mm vertical PVC bend in concrete (Class 15 MPa)	No	2
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 5 Soil Drainage			
JVNC Capital (Pty) Ltd			

Brought Forward		R
<p>Testing</p> <p>9 Allow for testing all soil drainage to the satisfaction of the Engineer. All defective work is to be taken out and replaced at the Contractor's expense</p>	<p>Item</p>	
<p>Carried Forward to Summary of Section No. 3</p> <p>Section No. 3 Section 3 - External Works Bill No. 5 Soil Drainage</p> <p>JVNC Capital (Pty) Ltd</p>		<p>R</p>

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 3</u>			
	<u>BILL NO. 6 FENCING (PROVISIONAL)</u>			
	<u>PREAMBLES</u>			
	Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	1. Flatwrap wire and clips to be "Aluzink" coated			
	<u>Clearing of site:</u>			
1	Allow for clearing site for the width of 1,000 mm where fencing runs are to be erected including removing trees, shrubs etc. not exceeding 200mm girth, grubbing up roots and roughly levelling (provisional)	m	34	
	<u>Security fencing</u>			
2	"ClearVu" or equal approved pressed high density anti-climbing and anti-cut pressed mesh panel fence 2.4m high with spikes to top of fence, powder coated anthracite grey, 85-45mm taper locking posts 2.4m high including recess mechanism at 3382mm centres sealed end caps and 30 x 3mm x 250mm long angle section base anchors with posts bedded in concrete bases including all excavations, concrete etc, all as per manufacturer's requirements	m	34	
	<u>Gates</u>			
3	Single gate size 1000 x 2100mm high the gate fitted with hinges, catch, stops, etc complete as per manufacturers specifications	No	1	
4	Vehicle gate size 7500 x 2400mm high sliding gate complete with steel rail fixed into concrete, fixtures, fittings and closing mechanism to enable locking	No	1	
	Carried Forward			R
	Section No. 3 Section 3 - External Works Bill No. 6 Fencing & Boundary Wall			
	JVNC Capital (Pty) Ltd			

Brought Forward			R
5	50mm Galvanised steel locking chain 500mm long welded to gate frame (provisional)	No	2
6	"Union 3122" heavy duty padlock	No	2
7	7000 x 500 x 500mm Deep 20MPa mass concrete ground beam with steel rail (elsewhere) casted into concrete for gate, including all necessary excavation, formwork, etc	No	2
<u>SCREEN WALL AND BOUNDARY WALL (PROVISIONAL)</u>			
<u>Excavation in earth not exceeding 2m deep</u>			
8	Trenches	m3	1 967
<u>Extra over all excavations for carting away</u>			
9	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	87
<u>Risk of collapse of excavations</u>			
10	Sides of trench and hole excavations not exceeding 1,5m deep	m2	468
<u>Keeping excavations free of water:</u>			
11	Allow for keeping excavations free of all water other than subterranean water.		Item
<u>Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted to 93% Mod AASHTO density</u>			
12	Backfilling to trenches, holes, etc	m3	77
<u>25MPa/19mm unreinforced strength concrete cast against excavated surfaces</u>			
13	Strip footings	m3	590
Carried Forward			R
Section No. 3 Section 3 - External Works Bill No. 6 Fencing & Boundary Wall JVNC Capital (Pty) Ltd			

Brought Forward			R
<u>Brickwork of NFX bricks in class II mortar</u>			
14	One brick wall in foundations	m2	1 967
<u>Joint forming material in movement joints</u>			
15	12mm Bitumen impregnated fibre board built in vertically through brick walls	m2	2
<u>Brickwork reinforcement</u>			
16	150mm Wide reinforcement built in horizontally	m	3 959
<u>BRICKWORK</u>			
<u>Corobrick Platinum Satin or similar approved face brick in stretcher bond pointed with recessed horizontal and vertical joints</u>			
17	One brick walls pointed on both sides	m2	535
<u>Brick-on-edge header course copings, sills, etc pointed with square recessed joints on all exposed faces</u>			
18	Coping on top of one brick wall	m	1 449
<u>PLASTERING</u>			
19	On walls	m2	580
20	Coping to shape on top of one brick wall as per architect specification	m2	67
<u>PAINTWORK</u>			
21	On walls and copings	m2	647
Carried Forward to Summary of Section No. 3			R
Section No. 3			
Section 3 - External Works			
Bill No. 6			
Fencing & Boundary Wall			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 3</u></p> <p><u>BILL NO. 7 LANDSCAPING (PROVISIONAL)</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>LANDSCAPING</u></p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>Refer to Architect specifications for all landscaping queries and soil preparations methods.</p> <p><u>Topsoil obtained from prescribed stock piles on site including chicken littered based Compost mixed into topsoil under new grass (elsewhere) areas including spreading and levelling</u></p>			
1	In plant beds, grassed areas and holes for trees, shrubs, etc	m3	124	
	<p><u>Topsoil supplied by the contractor, including chicken littered based Compost mixed into topsoil under new grass (elsewhere) areas including spreading and levelling</u></p>			
2	In plant beds, grassed areas and holes for trees, shrubs, etc	m3	48	
	<p><u>Grassing, ground covers, etc</u></p>			
3	"Berea Green" grassing in carpets	m2	86	
	<p>Carried Forward to Summary of Section No. 3</p> <p>Section No. 3 Section 3 - External Works Bill No. 7 Landscaping</p> <p>JVNC Capital (Pty) Ltd</p>			R

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 4</u></p> <p><u>BILL NO. 1 PROVISIONAL SUMS</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Attendance upon Selected Sub-contractors</u></p> <p>The item "Allow for attendance" following each provisional sum is for costs incurred by the Contractor in providing free of charge to the Sub-contractor the following :</p> <ol style="list-style-type: none"> 1. Services as set out in clause B10 of the preliminaries 2. Hoisting of Selected Sub-contractor's material where required 3. Casing and protection of the Selected Sub-contractor's work after completion thereof 4. Making good in all trades and final cleaning down on completion only 5. Every facility to enable the Selected Sub-contractor to carry out his work in a workmanlike manner in proper order and sequence 6. Reasonable site security measures 7. Programming and co-ordination of the works including obtaining all necessary particulars of Selected Sub-contractor's work timeously 			
	Carried Forward		R	
	<p>Section No. 4 Section 4 - Provisional Sums Bill No. 1 Provisional sums</p> <p>JVNC Capital (Pty) Ltd</p>			

<p style="text-align: center;">Brought Forward</p> <p>Unless a specific percentage mark up for attendance is indicated in the rate column, the amounts priced by the contractor for attendance against each Provisional Sum shall be deemed to be Lump Sum and shall not be adjusted unless the scope of the sub-contract varies significantly.</p> <p>Loss of profit:</p> <p>Should any of the specialist items listed in this Bill be substantially reduced or omitted, no claim for "loss of profit" on any of the specialists listed, will be considered</p> <p><u>Special attendance on nominated/selected subcontractors</u></p> <p>Where "special attendance" such as unloading, storing, placing in position, providing special power supplies, specific hoisting, crane and scaffolding requirements, provision of temporary casing and/or other specific protection of the works, special security and clearing away rubbish is required, a separate item describing the specific requirements in detail is to be provided for the pricing of such requirements</p> <p><u>Number of Selected Sub-contracts</u></p> <p>The Contractor's attention is drawn to the fact that the indicated individual provisional sums may consist of a number of Selected Sub-contracts, all of which will be executed by separate Selected Sub-contractors. The Contractor must therefore allow in his tender for any cost implication this may bring about, as no claims in this regard will be entertained</p> <p><u>NET PROVISIONAL SUMS FOR WORKS TO BE EXECUTED BY SELECTED SUB-CONTRACTORS</u></p>		R	
<p style="text-align: center;">Carried Forward</p> <p>Section No. 4 Section 4 - Provisional Sums Bill No. 1 Provisional sums</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward			R	
<u>ARTWORK</u>				
1	Provide the sum of R250,000.00 (Two Hundred and Fifty Thousand Rand) for provision of Artwork to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		250 000.00
2	Profit on above item.		%	
3	Attendance on ditto.		%	
<u>SIGNAGE</u>				
4	Provide the sum of R200,000.00 (Two Hundred Thousand Rand) for provision of signage to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		200 000.00
5	Profit on above item.		%	
6	Attendance on ditto.		%	
<u>LIBRARY JOINERY AND SEATING</u>				
7	Provide the sum of R100,000.00 (One Hundred Thousand Rand) for supply and install of timber joinery and seating be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		100 000.00
8	Profit on above item.		%	
9	Attendance on ditto.		%	
<u>DRIP IRRIGATION</u>				
10	Provide the sum of R200,000.00 (Two Hundred Thousand Rand) for provision of drip irrigation to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		200 000.00
11	Profit on above item.		%	
Carried Forward			R	
Section No. 4 Section 4 - Provisional Sums Bill No. 1 Provisional sums JVNC Capital (Pty) Ltd				

Brought Forward			R	
12	Attendance on ditto.		%	
<u>COMMUNITY LIASON OFFICER (CLO)</u>				
13	Provide the amount of R140 000.00 (Two Hundred Thousand Rands) or not less than R9 500 per month after all statutory deductions, for employment of a Community Liason Officer (CLO) for the duration of the project, all to the discretion of the Principal Agent.	Item		140 000.00
14	Profit on above item.		%	
15	Attendance on ditto.		%	
<u>LOOSE FURNITURE</u>				
16	Provide the sum of R10,600,000.00 (Ten Million Six Hundred Thousand Rand) for supply of loose furniture be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		10 600 000.00
17	Profit on above item.		%	
18	Attendance on ditto.		%	
<u>PLAYGROUND EQUIPMENT</u>				
19	Provide the sum of R250,000.00 (Two Hundred Thousand Rand) for provision of playground equipment to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		250 000.00
20	Profit on above item.		%	
21	Attendance on ditto.		%	
<u>LANDSCAPING</u>				
22	Provide the sum of R600,000.00 (Six Hundred Thousand Rand) for provision of landscaping to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		600 000.00
Carried Forward			R	
Section No. 4 Section 4 - Provisional Sums Bill No. 1 Provisional sums				
JVNC Capital (Pty) Ltd				

Brought Forward			R	
23	Profit on above item.		%	
24	Attendance on ditto.		%	
<u>RELOCATION OF CRICKET NETS</u>				
25	Provide the sum of R300,000.00 (Seven Hundred Thousand Rand) for provision of relocating the cricket nets to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		300 000.00
26	Profit on above item.		%	
27	Attendance on ditto.		%	
<u>RELOCATION OF EXISTING SERVICES</u>				
28	Provide the sum of R500,000.00 (Five Hundred Thousand Rand) for provision of relocating existing services to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		500 000.00
29	Profit on above item.		%	
30	Attendance on ditto.		%	
<u>HALL FURNITURE SEATING</u>				
31	Provide the sum of R1,200,000.00 (One Million Two Hundred Thousand Rand) for provision of hall furniture to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		1 200 000.00
32	Profit on above item.		%	
33	Attendance on ditto.		%	
Carried Forward			R	
Section No. 4 Section 4 - Provisional Sums Bill No. 1 Provisional sums JVNC Capital (Pty) Ltd				

Brought Forward			R	
<u>OPTIMISATION OF TRAFFIC SIGNALS & ASSOCIATED WORKS</u>				
34	Provide the sum of R400,000.00 (Four Hundred Thousand Rand) for provision of optimising the traffic signals to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		400 000.00
35	Profit on above item.		%	
36	Attendance on ditto.		%	
<u>PROVISION FOR GREEN BUILDING ALTERATIONS</u>				
37	Provide the sum of R3,500,000.00 (Three Million Five Hundred Thousand Rand) for provision of green building alterations to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		3 500 000.00
38	Profit on above item.		%	
39	Attendance on ditto.		%	
<u>GREEN HOUSES</u>				
40	Provide the sum of R350,000.00 (Three Hundred and Fifty Thousand Rand) for provision of re-erecting removed greenhouses or new to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		350 000.00
41	Profit on above item.		%	
42	Attendance on ditto.		%	
<u>TRAINING</u>				
43	Provide the sum of R1,000,00,000.00 (One Million Rand) for provision of training to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		
Carried Forward			R	
Section No. 4 Section 4 - Provisional Sums Bill No. 1 Provisional sums JVNC Capital (Pty) Ltd				

	Brought Forward		R	
44	Profit on above item.		%	
45	Attendance on ditto.		%	
	<u>BULK SERVICES CONTRIBUTIONS</u>			
46	Provide the sum of R6,550,00,000.00 (Six Million Five Hundred and Fifty Thousand Rand) for provision of bulk service contributions to be expended as directed by the Principal Agent in whole or part and omitted if not used.	Item		6 550 000.00
47	Profit on above item.		%	
48	Attendance on ditto.		%	
	Carried to Final Summary		R	
	Section No. 4			
	Section 4 - Provisional Sums			
	Bill No. 1			
	Provisional sums			
	JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 5</u></p> <p><u>BILL NO. 1 ELECTRICAL AND ELECTRONIC INSTALLATION</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Descriptions and Preambles</u></p> <p>Refer to the attached Electrical Bills of Quantities and specifications attached as <i>Annexure A</i></p> <p><u>WORK MEASURED BY ELECTRICAL ENGINEER</u></p> <p>1 Electrical & Electronic Installation amount as per Electrical Engineer Bill of Quantities accompanying this Bill of Quantities. Tenderers are to carry forward the total electrical amount as per the Electrical & Electronic Bill of Quantities final summary to this item (Annexure A)</p> <p><u>BUILDER'S WORK IN CONNECTION WITH ELECTRICAL WORK</u></p> <p><u>Core drilling hole not exceeding 50mm diameter including scanning for reinforcement</u></p> <p>2 Through concrete slab, beam, wall, etc exceeding 200mm and not exceeding 350mm thick</p>	<p>Item</p> <p>No</p> <p>50</p>		
	<p style="text-align: right;">Carried Forward</p> <p>Section No. 5 Section 5- Electrical Installation Bill No. 1 Electrical Installation</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward			R
	<u>Core drilling hole exceeding 50mm and not exceeding 100mm diameter including scanning for reinforcement</u>		
3	Through concrete slab, beam, wall, etc exceeding 200mm and not exceeding 350mm thick	No	50
	<u>Core drilling hole exceeding 100mm and not exceeding 150mm diameter including scanning for reinforcement</u>		
4	Through concrete slab, beam, wall, etc exceeding 200mm and not exceeding 350mm thick	No	50
Carried to Final Summary			R
Section No. 5 Section 5- Electrical Installation Bill No. 1 Electrical Installation			
JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 6</u></p> <p><u>BILL NO. 1 MECHANICAL INSTALLATION</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Descriptions and Preambles</u></p> <p>Refer to the attached Mechanical Bills of Quantities and specifications attached as <i>Annexure B</i></p> <p><u>WORK MEASURED BY MECHANICAL ENGINEER</u></p> <p>1 HVAC,Wet Services, Lift & Kitchen Equipment Installation amount as per Mechanical Engineer Bill of Quantities accompanying these Bill of Quantities.Tenderers are to carry forward the total amount as per the Mechanical Bill of Quantities final summary to this item (Annexure B)</p> <p><u>BUILDER'S WORK IN CONNECTION WITH MECHANICAL INSTALLATION WORK</u></p> <p><u>Core drilling hole not exceeding 50mm diameter including scanning for reinforcement and making good</u></p> <p>2 Through concrete slab, beam, wall, etc exceeding 200mm and not exceeding 350mm thick</p>	<p>Item</p> <p>No</p> <p>50</p>		
	<p style="text-align: right;">Carried Forward</p> <p>Section No. 6 Section 6 - Mechanical Installation Bill No. 1 Mechanical Installation</p> <p>JVNC Capital (Pty) Ltd</p>		R	

Brought Forward			R
	<u>Core drilling hole exceeding 50mm and not exceeding 100mm diameter including scanning for reinforcement making good</u>		
3	Through concrete slab, beam, wall, etc exceeding 200mm and not exceeding 350mm thick	No	50
	<u>Core drilling hole exceeding 100mm and not exceeding 150mm diameter including scanning for reinforcement making good</u>		
4	Through concrete slab, beam, wall, etc exceeding 200mm and not exceeding 350mm thick	No	50
Carried to Final Summary			R
Section No. 6 Section 6 - Mechanical Installation Bill No. 1 Mechanical Installation JVNC Capital (Pty) Ltd			

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 7</u></p> <p><u>BILL NO. 1 FIRE PROTECTION INSTALLATION</u></p> <p><u>PREAMBLES</u></p> <p>Tenderers are referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as published by the Association of South African Quantity Surveyors and Supplementary Preambles for further description and amplification of work in this section</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Descriptions and Preambles</u></p> <p>Refer to the attached Fire Protection Bills of Quantities and specifications attached as <i>Annexure C</i></p> <p><u>WORK MEASURED BY FIRE ENGINEER</u></p> <p>1 Fire Protection Installation amount as per Fire Engineer Bill of Quantities accompanying this Bill of Quantities. Tenderers are to carry forward the total electrical amount as per the Fire Protection Installation Bill of Quantities final summary to this item (Annexure C)</p> <p><u>BUDGETARY ALLOWANCES</u></p> <p><u>The following budgetary allowances are for work to be carried out by the Main Contractor and remeasured on completion. For payment purposes all scheduled items with rates in the Bills of Quantities will be applicable and take preference over any negotiated rates if not available and so required</u></p> <p>2 Allow a budgetary allowance of R450,000.00 (Four Hundred and Fifty Thousand Rand) for builders work associated with fire curtain walls to a later detail to be expended as directed by the Principal Agent and measured and valued at schedule rates and omitted if not so used</p> <p style="text-align: right;">Carried to Final Summary</p> <p>Section No. 7 Section 7 - Fire Protection Installation Bill No. 1 Fire Protection Installation</p> <p>JVNC Capital (Pty) Ltd</p>	Item		450 000.00
			R	

Section No	<u>FINAL SUMMARY</u>	Page No		Amount
1	Section 1- Preliminaries and General	32		
2	Section 2 - Main Building	149		
3	Section 3 - External Works	176		
4	Section 4 - Provisional Sums	183		
5	Section 5- Electrical Installation	185		
6	Section 6 - Mechanical Installation	187		
7	Section 7 - Fire Protection Installation	188		
	Sub Total		R	
	<u>MAIN CONTRACTOR'S PROFIT & ATTENDANCE ON SMME WORK</u>			
	Allow (.....%) for Main Contractor's Profit & Attendance on SMME packages (30% of the full scope of work to be allocated to the SMME's)	%		
	Sub Total		R	
	ADD Value Added Tax (15%)		R	
	Carried to Form of Offer		R	
	JVNC Capital (Pty) Ltd			

ANNEXURE A

BILL OF QUANTITIES - ELECTRICAL

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL BOQ

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 1: SITE RETICULATION & GENERAL INSTALLATIONS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
1.1	DISTRIBUTION BOARDS Supply and Installation of distribution boards as per drawing and specifications with labels, legends, danger signs, and green locks with master keys.				
1.1.1	DB-B (Floor mounted, lockable doors)	no.	1		
1.1.2	DB-SH1,2,3,4 (Flush mounted, lockable doors)	no.	4		
1.1.3	DB-G (Floor mounted, lockable doors)	no.	1		
1.1.4	DB-G-HVAC (Surface mounted, lockable doors)	no.	1		
1.1.5	450x450mm Telkom DB (Flush mounted with lockable	no.	1		
1.1.6	DB-G1 (Flush mounted, lockable doors)	no.	1		
1.1.7	DB-G1-HVAC (Flush mounted, lockable doors)	no.	1		
1.1.8	DB-BAK (Surface mounted, lockable doors)	no.	1		
1.1.9	DB-BAK-HVAC (Flush mounted, lockable doors)	no.	1		
1.1.10	DB-C (Flush mounted, lockable doors)	no.	1		
1.1.11	DB-F (Floor mounted, lockable doors)	no.	1		
1.1.12	DB-F-HVAC (Surface mounted, lockable doors)	no.	1		
1.1.13	DB-F1 (Flush mounted, lockable doors)	no.	1		
1.1.14	DB-F1-HVAC (Flush mounted, lockable doors)	no.	1		
1.1.15	DB-S (Floor mounted, lockable doors)	no.	1		
1.1.16	DB-S-HVAC (Surface mounted, lockable doors)	no.	1		
1.1.17	DB-S1 (Flush mounted, lockable doors)	no.	1		
1.1.18	DB-S1-HVAC (Flush mounted, lockable doors)	no.	1		
1.1.19	DB-FIRE PUMPS (Surface mounted, lockable doors)	no.	1		
1.1.20	DB-LIFT (Flush mounted, lockable doors)	no.	2		
	CARRIED FORWARD				

BILL No. 1: SITE RETICULATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
1.2	LV DISTRIBUTION CABLES				
	Supply and installation of 600/1000V PVC/SWA/PVC/PVC copper cables installed in ground, ducts, cable trays, and voids				
1.2.1	300mm ² x 4 core copper cable	m	250		
1.2.2	150mm ² bare copper earth wire (BCEW)	m	250		
1.2.3	185mm ² x 4 core copper cable	m	150		
1.2.4	95mm ² bare copper earth wire (BCEW)	m	150		
1.2.5	35mm ² x 4 core copper cable	m	300		
1.2.6	25mm ² bare copper earth wire (BCEW)	m	300		
1.2.7	16mm ² x 4 core copper cable	m	100		
1.2.8	10mm ² bare copper earth wire (BCEW)	m	100		
1.2.9	10mm ² x 4 core copper cable	m	600		
1.2.10	6mm ² bare copper earth wire (BCEW)	m	600		
1.2.11	6mm ² x 4 core copper cable	m	500		
1.2.12	4mm ² bare copper earth wire (BCEW)	m	500		
1.2.13	4mm ² x 4 core copper cable	m	165		
1.2.14	2,5mm ² bare copper earth wire (BCEW)	m	165		
1.2.15	2,5mm ² x 4 core copper cable	m	90		
1.2.16	2,5mm ² bare copper earth wire (BCEW)	m	90		
1.2.17	10mm ² x 3 core copper cable	m	300		
1.2.18	6mm ² bare copper earth wire (BCEW)	m	300		
	CARRIED FORWARD				

BILL No. 1: SITE RETICULATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
1.3	CABLE TERMINATIONS				
	Supply and installation of 600/1000V PVC/SWA/PVC/PVC copper cable terminations complete with lugs and required and specified				
1.3.1	300mm ² x 4 core copper cable	no.	6		
1.3.2	150mm ² bare copper earth wire (BCEW)	no.	6		
1.3.3	185mm ² x 4 core copper cable	no.	2		
1.3.4	95mm ² bare copper earth wire (BCEW)	no.	2		
1.3.5	35mm ² x 4 core copper cable	no.	16		
1.3.6	25mm ² bare copper earth wire (BCEW)	no.	16		
1.3.7	16mm ² x 4 core copper cable	no.	8		
1.3.8	10mm ² bare copper earth wire (BCEW)	no.	8		
1.3.9	10mm ² x 4 core copper cable	no.	18		
1.3.10	6mm ² bare copper earth wire (BCEW)	no.	18		
1.3.11	6mm ² x 4 core copper cable	no.	108		
1.3.12	4mm ² bare copper earth wire (BCEW)	no.	108		
1.3.13	4mm ² x 4 core copper cable	no.	22		
1.3.14	2,5mm ² bare copper earth wire (BCEW)	no.	22		
1.3.15	2,5mm ² x 4 core copper cable	no.	8		
1.3.16	2,5mm ² bare copper earth wire (BCEW)	no.	8		
1.3.17	10mm ² x 3 core copper cable	no.	16		
1.3.18	6mm ² bare copper earth wire (BCEW)	no.	16		
	CARRIED FORWARD				

BILL No. 1: SITE RETICULATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
1.5	MANHOLES AND CABLE SLEEVES Supply and install cable sleeves and manholes as indicated on drawings				
1.5.1	110mmØ KabelFlex HDPE sleeves.	m	344		
1.5.2	75mmØ KabelFlex HDPE sleeves.	m	1		
1.5.3	50mmØ KabelFlex HDPE sleeves.	m	200		
1.5.4	50mmØ KabelFlex HDPE slow bend	no.	8		
1.5.5	75mmØ KabelFlex HDPE slow bend	no.	1		
1.5.6	110mmØ KabelFlex HDPE slow bend	no.	12		
1.5.7	1000x1000x600 mm manholes with heavy duty cast iron	no.	2		
1.5.8	800x800x600mm manholes with heavy duty cast iron cover	no.	2		
1.6	TRENCHING AND BACK FILLING All prices below includes the excavation of trenches and separating of stones and soil, rocks etc, levelling of trench beds, refill compacting and reparation of all surfaces to the original finish (600mm deep x 300mm wide)				
1.6.1	Excavating in Earth	m3	124		
1.6.2	Excavating in Soft Rock	m3	12		
1.6.3	Excavating in Hard Rock	m3	3		
1.7	CABLE MARKERS AND DANGER WARNING TAPE Supply and installation of cable markers and danger tape as specified				
1.7.1	Low voltage concrete cable route markers	no.	30		
1.7.2	Low voltage danger warning tape	m	200		
	CARRIED FORWARD				

BILL No. 1: SITE RETICULATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
1.8	EARTHING AND LIGHTNING PROTECTION				
1.8.1	Ø8mm Diameter Aluminum Roof and Down Conductor	m	1128		
1.8.2	50mm ² KWENA cable bare ground conductor	m	2712		
1.8.3	1500mm long, 16mm ² , A grade copper earth spikes	no.	28		
1.8.4	500mm long Aluminum Air termination Rod Ø16mm	no.	28		
1.8.5	Accessories such as ferrules, clamps, brackets, test boxes to make installation complete	sum	1		
1.8.6	Testing and certification of the earthing and lighting system including all test equipment required as well as the issuing of an earthing certification by a qualified person	sum	1		
1.9	PERIMETER LIGHTING				
	Supply, delivery, installation and comissioning of the external light fittings, complete with poles, luminaires, lamp internal switchgear and control gear as per drawings and specifications				
1.9.1	55W LED decorative post top light fitting complete with a 3600mm long fibre glass pole complete with lamps, control mounting accessories, drivers etc - Beka Zela or similar approved. Type P	no.	31		
1.9.2	6mm ² x 4 core copper cable	m	763		
1.9.3	4mm ² bare copper earth wire (BCEW)	m	763		
1.9.4	30W LED bollard light fitting complete with lamps, control mounting accessories, drivers etc - Beka Brite or similar approved. Type BO	no.	23		
1.10	GRID TIED SOLAR SYSTEM				
1.10.1	Supply and install a 80kWp hybrid solar system, roof top mounted, with an 8 hour lithiumion battery back up system. Price shall include, PV solar modules, inverters, chargers, lithium ion batteries, battery cabinets, roof mounting high-quality solar PV cables, connectors, combiner boxes with lightning protection devices, export limitation system system, testing, commissioning, manuals, as built drawings all the required components to make the installation for the Multi-Purpose Centre	sum	1		
	CARRIED FORWARD				

BILL No. 1: SITE RETICULATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
1.11	UPS				
1.11.1	up maintenance card alarm, bypass active, Load on battery, and load on bypass. Note: UPS must be able to work in parallel.	no.	2		
1.11.2	Supply and install UPS paralleling kit/panel to parallel the 2x(2 x 30kVA UPS) above.	sum	1		
1.11.3	Supply operating & maintenance manuals, test & results	copie	6		
1.11.4	Supply maintenance and warranty for 12 months	sum	2		
1.12	TESTING AND COMISSIONING				
1.12.1	Testing and comissioning of the entire low voltage network area lighting including the provision of all test equipment and issuing of a certificate of compliance for the installation.	sum	1		
1.12.2	Provide as built drawings for the whole electrical installation to the engineer	set	3		
	TOTAL CARRIED FORWARD TO SUMMARY				

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 2: ALARM AND PUBLIC ADDRESS SYSTEM INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
2.0	ALARM INSTALLATION Supply, install, and install a complete alarm intruder detection system as per drawings and specifications				
2.0.1	panel complete with battery back up	no.	2		
2.0.2	Supply and install alarm system key pads	no.	4		
2.0.3	Supply and install Passive Infrared (PIR) alarm motion sensor	no.	90		
2.0.4	Supply and install alarm system door contacts	no.	18		
2.0.5	Supply and install alarm bell indoor	no.	8		
2.0.6	Supply and install 4 core communications cabling	m	1176		
2.0.7	Supply and install 2 core communications cabling	m	4640		
2.1	PUBLIC ADDRESS SYSTEM Supply, install, and commission a complete public address system as indicated on drawings and as per attached specifications				
2.1.1	Public address system mixer amplifier with USB/SD inputs rack mountable. (200W, 220V)	no.	1		
2.1.2	CD/DVD player with FM/AM tuner 1U rack mountable for public address system	no.	1		
2.1.3	with cable and jack plug.	no.	1		
2.1.4	Wall mounted indoor 16W speakers to be fed from the PA system complete with wall mounting accessories, brackets	no.	2		
2.1.5	Ceiling mounted indoor 16W speakers to be fed from the PA system complete with wall mounting accessories, brackets etc.	no.	28		
2.1.6	Cable flex 0.5mm ripcord	m	1596		
	CARRIED FORWARD				



BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 3: LIGHTING AND POWER INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
3.0	CONDUITS AND ACCESSORIES Supply and install new PVC conduit chased in walls, installed into ceiling voids, cast into concrete as specified complete with accessories.				
3.0.1	20mm diameter PVC conduits complete with accessories	m	3100		
3.0.2	25mm diameter PVC conduits complete with accessories	m	8900		
3.0.3	32mm diameter PVC conduits complete with accessories	m	1240		
3.0.4	32mm diameter bosal conduits complete with accessories	m	800		
3.0.5	150x150x50mm draw box flush mounted	no.	2		
3.0.6	Electrical slab box (210x130x150mm) complete with cover	no.	10		
3.1	CONDUCTORS Supply and installation of the following PVC insulated conductors with colours as specified, into trunking and conduit including terminations on both ends, to specification				
3.1.1	2,5mm ²	m	9300		
3.1.2	4mm ²	m	17800		
3.1.3	6mm ²	m	3200		
3.1.4	10mm ²	m	800		
3.1.5	2,5mm ² bare copper earth wire	m	13550		
3.1.6	4mm ² bare copper earth wire	m	1600		
3.1.7	6mm ² bare copper earth wire	m	400		
3.2	LIGHT SWITCHES Supply and install the following flush mounted light switches complete with wall boxes as specified and indicated on drawings				
3.2.1	1 Lever, 1 Way Light Switch	no.	15		
3.2.2	1 Lever, 2 Way Light Switch	no.	28		
3.2.3	Photocell, 10A, 240V.	no.	8		

	CARRIED FORWARD				
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BILL No. 3: LIGHTING AND POWER INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
3.2.4	Dual technology occupancy sensor, 10A, 240V, 50Hz.	no.	335		
3.3	POWER SKIRTING. TRUNKING CABLE TRAY & Supply and install the following wire ways complete with mounting accessories, tees, bends, end caps etc				
3.3.1	230mm wide perforated galvanised steel cable tray mounting and suspending accessories, medium duty	m	262		
3.3.2	230mm galvanised steel cable wire mesh basket with mounting, splicing and suspending accessories	m	792		
3.3.3	P2000 trunking complete with mounting and accessories, tees, end caps, bends etc	m	50		
3.3.4	2 cover, three compartment, galvanised steel, powder power skirting with mounting accessories, end caps, elbows, etc. Color: White	m	555		
3.3.5	500mm wide cable ladder complete with mounting and suspending accessories, medium duty	m	162		
3.4	SOCKET OUTLETS AND ISOLATORS Supply and install the following socket outlets and isolators as specified and as indicated on drawings.				
3.4.1	Combination switched socket with 1 normal 16A outlet + 1 Euro 3 pin socket outlets wall/power skirting	no.	443		
3.4.2	Double, normal, switched socket outlet wall mounted	no.	10		
3.4.3	Dedicated, red single switched socket outlet mounted on power skirting	no.	131		
3.4.4	20A double pole isolator in ceiling or wall mounted	no.	111		
3.4.5	20A double pole isolator in weather proof box for AC	no.	5		
3.4.6	60A double pole isolator in weather proof box for AC	no.	5		
3.4.7	60A double pole isolator for geysers	no.	4		
	CARRIED FORWARD				

BILL No. 3: LIGHTING AND POWER INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
3.4.8	60A triple pole isolators	no.	25		
3.4.9	100A triple pole isolator	no.	11		
3.4.10	5A unswitched socket outlets for light fittings	no.	1275		
3.4.11	60A double pole cooker isolator c/w neon indicator	no.	6		
3.4.12	32A, 3P+N+E, Caravan Plug/ Industrial Socket Outlet	no.	4		
3.4.13	Double, normal, switched socket outlet wall mounted	no.	10		
3.4.14	Floor Boxes with 2x Dedicated SSO, 2x Normal SSO 2x Data, 2xTelephone	no.	133		
3.5	DATA AND TELEPHONE				
	Supply and installtion of data and telephone points on skirting or wall mounted as specified and as indicated drawings				
3.5.1	RJ45 Data points	no.	393		
3.5.2	RJ45 Telephone points	no.	102		
3.6	LIGHTING INSTALLATION				
	Supply and installation of the following light fittings, with lamps and electronic control gear, mounting as specified and as indicated on attached drawings.				
3.6.1	2x35W Open channel fluorescent light fitting -TYPE A	no.	16		
3.6.2	22W LED decorative down light fitting- Beka Rondo by Beka or similar approved - TYPE B	no.	651		
3.6.3	22W LED decorative, rectangular bulkhead light fitting- Series 50 by Beka or similar approved - TYPE D	no.	82		
3.6.4	32W LED recessed panel light fitting, 600x600mm Beka Dari or similar approved - TYPE I	no.	624		
3.6.5	Same as above with 1 hour emergency battery back-up TYPE IE	no.	70		
3.6.6	55W LED batten - By Lascon or similar approved - TYPE HO	no.	53		
	CARRIED FORWARD				

BILL No. 3: LIGHTING AND POWER INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
3.6.7	100W LED Highbay - Type HB	no.	6		
3.6.8	15W LED downlight, surface mounted - Lightnet DLH 15W or similar approved - TYPE DL	no.	127		
3.6.9	14,4W/m LED strip light fitting , 4000k - Flex Strip, by Lightnet or similar approved - TYPE STR	m	1200		
3.6.10	40W LED Linear light fitting, 1124mm(L), 50mm(W), 83mm(D) Lascon H Pro or similar approved- Type	no.	18		
3.6.11	20W LED Linear light fitting, 2000mm(L), 50mm(W), 83mm(D), IP67, Opal Cover, Lascon P Pro70 or similar approved- Type L	no.	27		
3.6.12	25W LED pendant, Ø800mm, 4000k, c/w driver, suspending gear vista by Regent or similar approved - Type PE1	no.	4		
3.6.13	38W LED pendant, Ø1200mm, 4000k, c/w driver, suspending gear vista by Regent or similar approved - Type PE2	no.	4		
3.6.14	48W LED pendant, Ø1500mm, 4000k, c/w driver, suspending gear vista by Regent or similar approved - Type PE3	no.	4		
3.6.15	22W LED decorative down light fitting with 1 hour battery back-up - Beka Rondo byBeka or similar TYPE BE	no.	65		
3.6.16	32W LED surface mounted panel light fitting, Beka Dari or similar approved - TYPE I1	no.	60		
3.6.17	Decorative ceiling light fitting, 2xE27- TYPE G complete with 2x15W LED lamps	no.	1		
3.6.18	Decorative bathroom light fitting, 1xE27- TYPE H complete with 1x9W LED lamps	no.	8		
3.6.19	11W LED downlight fitting, tiltable - Lascon Futura 3 or similar approved - Type T	no.	9		
	CARRIED FORWARD				

BILL No. 3: LIGHTING AND POWER INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
3.7	SCANNING OF SERVICES				
3.7.1	Provide scanning for underground services on all the routes and allow for exposing by hand such services producing a report	sum	1		
3.8	REMOVAL OF EXISTING INSTALLATION				
3.8.1	Allow for making safe, removal and carting off site electrical installation components and safe disposal of fluorescent lamp tubes.	sum	1		
3.9	INTERFACING WITH FIRE DETECTION				
3.8.2	Allow for interfacing of signals from the fire detection installation with contactors in distribution boards. Fire signal shall trip the contactors in DBs during a fire down the whole HVAC system	sum	1		
TOTAL CARRIED FORWARD TO SUMMARY					

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 4: ICT INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
4.0	ICT INSTALLATION				
4.0.1	Supply and install a free standing 48U server rack with fan and glass lid in server room	no.	4		
4.0.2	Supply and install CISCO switch Catalyst 9200-48P full Po	no.	8		
4.0.3	Supply and install CISCO switch Catalyst 9200-24P full Po	no.	8		
4.0.4	Supply and install Cisco 800 Series Router range that runs 3g/4g	no.	1		
4.0.5	Supply and install CPE in server room	no.	1		
4.0.6	Supply and install network port for UPS in server room	no.	2		
4.0.7	Supply and install a 48 port Cat 6 patch panel, rack mounted	no.	4		
4.0.8	Wireless Access Points ceiling mounted - Cisco	no.	16		
4.0.9	Supply and install CAT 6 Cable	m	12890		
4.0.10	Supply and install RJ45 Data points	no.	400		
4.0.11	Supply and install 3m flyleads (CAT 6 Cable)	no.	400		
4.0.12	Marking, testing and documentation of entire data network	sum	1		
4.0.13	Testing and Commissioning the Whole ICT installation	sum	1		
4.0.14	1U Blank Panel	no.	4		
4.0.15	1U Brush Panel	no.	4		
4.1	VOIP				
4.1.1	NEC DT700 Series ITL-6DE-IP (BK) TEL Handsets	no.	1		
4.2	FIBRE CABLING				
4.2.1	27U 800 Deep Cabinet plus 5-way 5m power extensions	no.	2		
4.2.2	Patch Panel 12way LC c/w Brush & Blank, FOM Kit & Gla	no.	2		
	CARRIED FORWARD				

BILL No. 4: ICT INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
4.2.3	Patch Leads LC-LC 3m Duplex Multi Mode	no.	4		
4.2.4	Cable trunking 100x100	m	12		
4.2.5	Fibre Cable 4c Heavy Duty Duct 50/125µ Multi Mode	m	100		
4.2.6	50x50mm Collar	no.	160		
4.2.7	RJ45-KJ.STD 25X50 PVC MODULE	no.	160		
4.2.8	CAT6 KEYSTONE JACK	no.	120		
4.2.9	CAT6 PATCH PANEL-24-PORT	no.	15		
4.2.10	As-built drawings (3 x Hard copies & 1 x CD & 1x USB)	sum	1		
4.2.11	Testing and Commissioning	sum	1		
4.3	RADIO LINK - RADWIN ANTENNA (Imax)				
4.3.1	FTP Screen p.m Cat5e Shielded	m	100		
4.3.2	Wire Speed Lead Cat6 3m - Yellow	no.	2		
4.3.3	Wire Speed Lead Cat6 1m - Yellow	no.	2		
4.3.4	RJ 45 Connector Boots	no.	8		
4.3.5	RJ 45 Connectors Unshielded	no.	8		
4.3.6	3 Point Plug Red	no.	1		
4.3.7	4 Way Multiplug	no.	1		
4.3.8	1.5 mm Cabtyre Black (3 Core cable)	m	5		
4.3.9	Earth Spike 1.2m M16	no.	1		
4.3.10	Earth Clamp	no.	1		
4.3.11	Lugs 6 x 8mm	no.	8		
	CARRIED FORWARD				

BILL No. 4: ICT INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
4.3.12	Line Tap 30mm	no.	1		
4.3.13	2000mm Long, 50mm Diameter Steel Pole	no.	2		
4.3.14	Chemical Mortar	no.	1		
4.3.15	Chemical Nozzle	no.	2		
4.3.16	Chemical Studs M10 x 130mm Stainless Steel	no.	8		
4.3.17	Cable Ties (T50L)	no.	2		
4.3.18	Insulation Tape	no.	1		
4.3.19	Butyl Tape	no.	2		
4.3.20	Hilti Nails 6 x 40mm	no.	16		
4.3.21	25mm conduit box 8 knock out	no.	8		
4.3.22	Bosal Pipe - Steel - 25mm	m	5		
4.3.23	Bosal Pipe - 90Deg Bend - 25mm	no.	3		
4.3.24	Bosal Pipe - Coupler - 25mm	no.	3		
4.3.25	Radwin D+ PTP 750Mbps	no.	2		
4.3.26	30dBi Dual Pole Antenna	no.	2		
4.3.27	48V DC PoE injector	no.	2		
4.3.28	Ubiquiti LPU (Lightning Protection Unit)	no.	4		
4.3.29	1m UTP Cat5 Flylead	no.	4		
4.4	COMPLETION				
4.4.1	Training of personnel	sum	1		
4.4.2	As-built drawings (3 x Hard copies & 1 x CD)	sum	1		
	CARRIED FORWARD				

BILL No. 4: ICT INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
4.4.3	5 Years (60 Months) On site support, Maintenance service and Warranty / Guarantee	sum	1		
4.4.4	Testing and Commissioning	sum	1		
TOTAL CARRIED FORWARD TO SUMMARY					

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 5: CCTV & ACCESS CONTROL INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
5.0	CCTV INSTALLATION Supply, install, and install a complete CCTV installation as indicated on drawings and as per attached specifications (Avigilon system or similar approved)				
5.0.1	2.0 MP (1080p) WDR LightCatcher, 3.3-9mm f/1.3 P-iris lens, Integrated IR+ Junction box for the H4A HD Bullet	no.	168		
5.0.2	2.0 MP WDR, LightCatcher, Day/Night, Outdoor Dome, 2.8mm f/1.2, IR + in-Ceiling Mount Adapter	no.	13		
5.0.3	16.0 MP (1080p) WDR, LightCatcher, 16mm - 35mm f/2.8 lens, Next-Generation Analytics + Camera Housing	no.	1		Rate Only
5.0.4	4.0 MP WDR, LightCatcher, 3.3-9mm f/1.3 P-iris lens, Integrated IR, Next-Generation Analytics + Junction box for the H4A HD Bullet + Junction box for the H4A HD Bullet	no.	1		
5.0.5	8.0 MP, H5A Fisheye Dome Camera, LightCatcher, Day/Night, WDR, 1.41mm f/2.0, Next-Generation Analytics, Integrated IR	no.	1		
5.0.6	3x 4 MP; WDR; LightCatcher; 2.8mm; Pendant mount adapter with Wall Arm	no.	1		
5.0.7	3x 3 MP; WDR; LightCatcher; 2.8mm; Pendant mount adapter with Wall Arm	no.	1		
5.0.8	AI NVR Value, 12TB, NA ; 1U Rack Mount; Linux Operating System with Analytics kit and Duel redundant PSU	no.	2		
5.0.9	AI NVR Value, 6TB, NA ; 1U Rack Mount; Linux Operating System with Analytics kit and Duel redundant PSU	no.	1		
5.0.10	ACC 7 Enterprise Edition camera license	no.	55		
	CARRIED FORWARD				

BILL No. 5: CCTV & ACCESS CONTROL INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
5.0.11	ACC7 Video Analytics channel	no.	15		
5.0.12	Gallagher (Formerly Cardax) Integration Module for a site. Enables bi-directional event and video integration	no.	1		
5.0.13	Remote Monitoring Workstation; 2 monitors; NA	no.	4		
5.0.14	230mm galvanised steel cable wire mesh basket complete with mounting, splicing and suspending accessories	m	50		
5.0.15	Testing and commissioning of the CCTV system	sum	1		
5.0.16	Training of user personnel	sum	1		
5.0.17	Operating and maintenance manuals	copies	3		
5.0.18	As built drawings for the CCTV system	copies	3		
5.0.19	Wiring and cabling for all the cameras	Lot	1		
5.0.19	Poles and mounting accessories	Lot	1		
	ACCESS CONTROL INSTALLATION				
5.0.20	Supply and install proximity card readers	no.	33		
5.0.21	Supply and install access control software complete with desk top PC in server room	sum	2		
5.0.22	Supply and install IR sensor no touch exit button	no.	21		
5.0.23	Supply and install Mylar screened twisted pair cable for access control applications	m	520		
5.0.24	Supply and install 300kg magnetic door locks complete with mounting brackets	no.	18		
5.0.25	Supply and install door controllers	no.	18		
5.0.26	Supply and install power supply units for the whole				

	access control installation	sum	1		
	CARRIED FORWARD				

BILL No. 5: CCTV & ACCESS CONTROL INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
5.0.27	Testing and commissioning of the entire access control installation system	sum	1		
5.0.28	HID Lumidign Biometric Finger Print Reader	no.	4		
5.0.29	Operating and maintenance manuals	copies	3		
5.0.30	Training of user personnel	sum	1		
5.0.31	Produce as built drawings for the whole access control installation	copies	3		
5.0.32	Emergency Green Breakglass Unit/Call Point re-settable type	no.	10		
5.0.33	Supply, install, test and commission a vandal resistant and weather proof 2 way intercom system complete with wiring, mounting accessories to make installation complete.	no.	1		
5.0.34	Panic Buttons mounted to wall	no.	2		
5.0.34	SOFTWARE & LICENCING COMMAND CENTRE 16 DOORS - VMS Integration License	no.	1		
5.0.35	Door License	no.	3		
5.0.36	VIDEO VIEWER SDK (Avigilon Integration)	no.	1		
5.0.37	PHOTO ID & ENCODING (Card Encoding License)	no.	1		
	CARD & CREDENTIALS				
5.0.38	MOBILE CONNECT CREDENTIAL (Blue Tooth Credentials)	no.	100		
5.0.39	MIFARE DESFIRE ISO CARD 2K EV2	no.	100		
	CABLING				
5.0.40	Twisted Pair cable - Stranded (14/0.2mm) - 21AWG, brown and green sheath to match standard HBus wire colours	m	562		
5.0.41	Power Conductors - Stranded (24/0.2mm) - 18AWG	m	562		

	TOTAL CARRIED FORWARD TO SUMMARY				

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 6:THERMAL IMAGING INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
6.0	THERMAL IMAGING INSTALLATION Supply, install, and install a complete thermal imaging installation as indicated on drawings and as per attached specifications				
6.0.1	Thermal Imaging camera with 160x120 resolution (DS-2TP21B6AVF by Hikivision or similar approved)	no.	1		
6.0.2	Cat5 Network cable	m	100		
6.0.3	4 Port, 100Mbps, PoE Switch	no.	1		
6.0.4	16 channel NVR (Network Video Recoder), with 2TB, 3,5 SATA recording space.	no.	1		
6.0.5	24" full HD monitor (16:9), HDMI wall mounted	no.	1		
6.0.6	9U swing frame wall box	no.	1		
6.0.7	1.2kVA UPS	no.	1		
6.0.8	Testing and commsioning of the thermal imging system	sum	1		
6.0.9	Training of user personnel	sum	1		
6.0.10	Operating and maintenace manuals	copies	3		
6.0.11	As built drawings for the thermal imaging system	copies	3		
TOTAL CARRIED FORWARD TO SUMMARY					

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 7: WALK THROUGH METAL DETECTOR & X-RAY MACHINE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
7.0	WALK THROUGH METAL DETECTOR Supply, install, and commissioning of a complete walk through metal detector on positions indicated on drawings and as per attached specifications				
7.0.1	Multizone walk through metal detector measuring 880mm(W) x 2210mm(H) x 670mm(D), Supply 240V, 50Hz; Sensitivity - 500 grades; 24 hour battery back-up	no.	1		
7.0.2	Testing and commisioning of the walk through metal detector	sum	1		
7.0.3	Training of user personnel	sum	1		
7.0.4	Operating and maintenace manuals	copies	3		
7.0.5	As built drawings	copies	3		
7.1	X-RAY MACHINE Supply, install, and commissioning of a complete x-ray machine for buggage screening on positions indicated on drawings and as per attached				
7.1.1	Multi-energy X-Ray machine for baggage screening and security inspection, 1350mm(L) x 877mm(W) x 1224mm(H); Supply-240V,50Hz; Penetration-35mm steel typical; Bi-directional scanning; Generator Voltage-140kV	no.	1		
7.1.2	Testing and commisioning of the walk through metal detector	sum	1		
7.1.3	Training of user personnel	sum	1		
7.1.4	Operating and maintenace manuals	copies	3		

7.1.5	As built drawings	copies	3		
TOTAL CARRIED FORWARD TO SUMMARY					

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 8: BULK ELECTRICAL CONNECTION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
8.0	ELECTRICITY CONNECTION				
8.0.1	New Bulk electrical connection fees for a 1000kVA, 400V	sum	1	1 779 680,00	R 1 779 680,00
8.0.2	Profit and attendance on item 1.0.1 above	%	___%		
8.0.3	Temporary electrical connection	sum	1		
8.0.4	Supply and Install (City Power) CP8 metering kiosk	no.	1		
8.0.5	Supply and install a 1600A, 400V, 20kA, 3 Pole Circuit	no.	1		
8.0.6	Allow for trip testing of above breaker at City Power	sum	1		
8.1	TESTING AND COMISSIONING				
8.1.1	Testing and comissioning of the entire low voltage network area lighting including the provision of all test equipment required and issuing of a certificate of compliance for the installation.	sum	1		
8.1.2	Provide as built drawings for the whole electrical to the engineer	set	3		
8.2	DIESEL GENERATOR				
8.2.1	Supply, delivery, installation, testing and comissioning of a 240kVA standby diesel generator set, complete with an on diesel tank able to run generator set for 12 hours at full load,and generator control panel. The generator engine must be from a reputable supplier. The generator set shall be with an electric pump to transfer fuel from the bulk tank mounted next to generator set.	set	1		
8.2.2	Supply, delivery, installation, testing and comissioning of a 240kVA automatic change over switch inside generator canopy.	no.	1		
8.2.3	Supply and install a sound attenuated, weather proof, generator canopy to house the above mentined generator. Noise Rating of 70dB at 7m	no.	1		
	CARRIED FORWARD				

BILL No. 5: CCTV & ACCESS CONTROL INSTALLATION					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
8.2.4	Supply and install a concrete plinth for the generator as manufactures recomendations on positions indicated on drawings	no.	1		
8.2.5	Supply operating & maintenance manuals, test & and as built drawings for the generator set.	copie	3		
8.2.6	Supply and Install full tank of diesel after commisioning	sum	1		
8.2.7	Supply maintenance and warranty for 12 months	sum	1		
8.2.8	Supply and install a 900 litre bulk diesel tank	no.	1		
TOTAL CARRIED FORWARD TO SUMMARY					

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL No. 9: ELECTRIC FENCE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
9.0	ELECTRIC FENCE Supply, install, and commissioning of a complete electric fence				
9.1	Fence Pole - 8Line Square Tube	no.	205		
9.2	Energizer -Merlin M28S	no.	1		
9.3	Double Pole Lightning Protection System	no.	1		
9.4	Sliding Gate Contact	no.	1		
9.5	Screw 12x40 Hex Tex/100	no.	1		
9.6	Danger Warning Sign	no.	40		
9.7	Wire-stainless 1.2mm	m	3600		
9.8	Ferrules-6mm (100 pack)	no.	4		
9.9	Spring Hook Stainless Large tail/50	no.	5		
9.10	Tensioner Compression Spring Hybrid 1 Silver	no.	300		
9.11	Stay Sleeve-750mm Black	no.	20		
9.12	Stay -750mm with Lug	no.	20		
9.13	Stay Lug - 6x35mm	no.	20		
9.14	W Screw - M6 Hex Nuts	no.	20		
9.15	W Screw - M6*30 M/S Bolt	no.	20		
9.16	HT Cable -3 core 100m black	no.	1		
9.17	Enclosure for Energizer	no.	1		
9.18	Keypad - Merlin 2 zone	no.	1		
9.19	Sherlo Tx 11 Button code	no.	3		
	CARRIED FORWARD				

BILL No. 9: ELECTRIC FENCE

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				R	R
	BROUGHT FORWARD				
9.20	Sherlo Rx 1 chl Button code	no.	1		
9.21	Securi-Prod Compact Siren	no.	1		
9.22	Electric Fence High Volt Timed Light	no.	3		
9.23	Earth Spike 1200mm long	no.	10		
9.24	Conduit PVC 1 way Box	no.	10		
9.25	Conduit PVC 20mm - SABS approved	no.	100		
9.26	Conduit PVC - 20mm coupling	no.	80		
TOTAL CARRIED FORWARD TO SUMMARY					

SUMMARY

BETRAMS MULTI-PURPOSE CENTRE

ELECTRICAL INSTALLATION

1	Bill no. 1: Site Reticulation & General Installations	_____
2	Bill no. 2: Alarm & Public Address System	_____
3	Bill no. 3: Lighting & Power Installation	_____
4	Bill no. 4: ICT Installation	_____
5	Bill no. 5: CCTV & Access Control System	_____
6	Bill no. 6: Thermal Imaging System	_____
7	Bill no. 7: Walk Through Metal Detector & X-Ray Machine	_____
8	Bill no. 8: Bulk Electrical Connection	_____
9	Bill no. 9: Electric Fence	_____
	TOTAL CARRIED TO TENDER SUMMARY (EX VAT)	=====

ANNEXURE B

BILL OF QUANTITIES - MECHANICAL

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BERTRAMS MECHANICAL SERVICES

SCHEDULE OF QUANTITIES

SCHEDULE NO 1: AIR CONDITIONING AND VENTILATION SYSTEM

PAYMENT REFERS TO	ITEM NO		UNIT	QUAN-TITY	RATE	AMOUNT
	1.00	<u>AIR CONDITIONING SYSTEM</u> <u>Tendered rates for the following items to be inclusive of all external connections to drainage, water piping, building works.</u>				
	1.01	.01 Supply, install and commission a VRV (variable refrigerant volume) system that complies with approved standard specification complete with all accessories required to make the installation complete, including all associated building works, rigging and making good. The 3 VRV systems shall comprise of the following:				
		.01 Condensing unit (heat recovery, 3-pipe system) with cooling capacity of 67,2 kW. The unit shall have a minimum Coefficient of Performance of 4,23 and Energy Efficiency Ratio of 3.86	No	4		
		.02 Condensing unit (heat recovery, 3-pipe system) with cooling capacity of 61,6 kW. The unit shall have a minimum Coefficient of Performance of 4,35 and Energy Efficiency Ratio of 3.92	No	2		
		.03 Condensing unit (heat recovery, 3-pipe system) with cooling capacity of 39,2 kW. The unit shall have a minimum Coefficient of Performance of 4,82 and Energy Efficiency Ratio of 4,52	No	1		
		.04 Condensing unit (heat recovery, 3-pipe system) with cooling capacity of 33,6 kW. The unit shall have a minimum Coefficient of Performance of 4,91 and Energy Efficiency Ratio of 4,43	No	1		
		.05 36000 Btu (10,6kW) ceiling cassette indoor unit	No.	10		
		.06 30000 Btu (8,2kW) ceiling cassette indoor unit	No.	10		
		.07 24000 Btu (7.1kW) ceiling cassette indoor unit	No.	11		
		.08 18000 Btu (5,3kW) ceiling cassette indoor unit	No.	14		
		.09 18000 Btu (5.3 kW) midwall split indoor unit	No.	19		
		.10 12000 Btu (3.6kW) midwall split indoor unit	No.	8		
		.11 9000 Btu (2.6kW) midwall split indoor unit	No.	14		
	CARRIED FORWARD					

SCHEDULE OF QUANTITIES

SCHEDULE NO 1: AIR CONDITIONING AND VENTILATION SYSTEM

PAYMENT REFERS TO	ITEM NO		UNIT	QUAN-TITY	RATE	AMOUNT
	BROUGHT FORWARD					
	.02	Supply and install refrigerant piping of the following sizes for the above VRV system: The rate shall be inclusive of all connection wiring, trunking, insulation, supports and all accessories required to make the installation complete The refrigerant piping shall be suitable for R410A gas.				
	.01	6.4mm diameter	m	670		
	.02	9.5mm diameter	m	430		
	.03	12.7mm diameter	m	780		
	.04	15.9mm diameter	m	290		
	.05	19.1mm diameter	m	240		
	.06	22.2mm diameter	m	130		
	.07	28.6mm diameter	m	240		
	.08	31.8 mm diameter	m	36		
	.09	34.9mm diameter	m	110		
	.10	38.1 mm diameter	m	9		
	.11	53,9mm diameter	m	12		
	0.3	Supply and recharge VRV systems with additional R410A refrigerant charge	kg	110		
	0.4	Supply and install wall mounted remote controllers for indoor units	No	23		
	0.5	Supply and install branch selector units for indoor piping	sum	1		
	0.6	Supply and install multi connection piping kits for all outdoor units	sum	1		
	0.7	Supply and install VRV refnet branch piping kits	sum	1		
	0.8	Supply and install control wiring interconnecting outdoor units to indoor units	sum	1		
	1.02	Individual Units				
	.01	Supply and installation of new 5,3 kW midwall split inverter type heating and cooling air-conditioning unit. Rate to be inclusive of all required building work, pipework and making good. (For Server Room)	No.	0		
	CARRIED FORWARD					

SCHEDULE OF QUANTITIES

SCHEDULE NO 1: AIR CONDITIONING AND VENTILATION SYSTEM

PAYMENT REFERS TO	ITEM NO		UNIT	QUAN-TITY	RATE	AMOUNT
	BROUGHT FORWARD					
	1.03	.02 Supply and installation of new 7,1 kW midwall split inverter type heating and cooling air-conditioning unit. Rate to be inclusive of all required building work, pipework and making good. (For Server)	No.	2		
		Commissioning and Training				
	0.1	Test and commissioning entire VRV heat recovery system & independent units & handover to client	Sum	1		
	0.2	Issuing of manuals and training of staff about the VRV air conditioning system and packaged units and handover to client.	Sum	1		
	1.04	<u>VENTILATION SYSTEM</u>				
	0.1	Supply and install 400mm diameter in-line axial fresh air supply fan supplying 1100 litres per second at 50 Pa complete with 2 sound attenuators, filter box and accessories.	No.	2		
	0.2	Supply and install 315mm diameter in-line axial fresh air supply fan supplying 720 litres per second at 90 Pa complete with 2 sound attenuators, filter box and accessories.	No.	1		
	0.3	Supply and install 315mm diameter in-line axial fresh air supply fan supplying 540 litres per second at 70 Pa complete with 2 sound attenuators, filter box and accessories.	No.	2		
	0.4	Supply and install 315mm diameter in-line axial fresh air supply fan supplying 480 litres per second at 55 Pa complete with 2 sound attenuators, filter box and accessories.	No.	1		
	0.5	Supply and install 315mm diameter in-line axial fresh air supply fan supplying 380 litres per second at 60 Pa complete with 2 sound attenuators, filter box and accessories.	No.	2		
	0.6	Supply and install 315mm diameter in-line axial fresh air supply fan supplying 330 litres per second at 55 Pa complete with 2 sound attenuators, filter box and accessories.	No.	2		
	0.7	Supply and install 315mm diameter in-line axial fresh air supply fan supplying 240 litres per second at 30 Pa complete with 2 sound attenuators, filter box and accessories.	No.	1		
	0.8	Supply and install 300mm diameter axial wall fresh air supply fan supplying 810 litres per second at 75 Pa complete with all accessories.	No.	2		
	CARRIED FORWARD					

SCHEDULE OF QUANTITIES

SCHEDULE NO 1: AIR CONDITIONING AND VENTILATION SYSTEM

PAYMENT REFERS TO	ITEM NO		UNIT	QUAN-TITY	RATE	AMOUNT	
		BROUGHT FORWARD					
	0.9	Supply and install 315 mm diameter in-line axial extraction air fan extracting 280 litres per second at 80 Pa complete with 1 sound attenuator and accessories.	No.	8			
	0.10	Supply and install 315 mm diameter in-line axial extraction air fan extracting 180 litres per second at 90 Pa complete with 1 sound attenuator and accessories.	No.	3			
	0.11	Supply and install 315 mm diameter in-line axial extraction air fan extracting 140 litres per second at 40 Pa complete with 1 sound attenuator and accessories.	No.	1			
	0.12	Supply and install 315 mm diameter in-line axial extraction air fan extracting 100 litres per second at 40 Pa complete with 1 sound attenuator and accessories.	No.	1			
	0.13	Supply and install 225 mm wall extraction fan extracting air at 50 litres/sec	No.	2			
	0.14	Supply and install externally insulated galvanized 600 mm diameter spiral ducting, rate to be complete with all required spigots and mounting accessories.	m	0			
	0.15	Supply and install externally insulated galvanized 500 x 250 mm spiral ducting, rate to be complete with all required spigots and mounting accessories.	m	50			
	0.16	Supply and install externally insulated galvanized 400 x 250 mm ducting, rate to be complete with all required spigots and mounting accessories.	m	50			
	0.17	Supply and install externally insulated galvanized 350 x 250 mm spiral ducting, rate to be complete with all required spigots and mounting accessories.	m	230			
	0.18	Supply and install uninsulated galvanized 400mm diameter spiral ducting, rate to be complete with all required spigots and mounting accessories.	m	0			
	0.19	Supply and install externally insulated galvanized 200mm spiral ducting, rate to be complete with all required spigots and mounting accessories	m	0			
	0.20	Supply and install 300 x 250mm externally insulated galvanized ducting c/w supports and transition pieces	m	100			
	0.21	Supply and install 250 x 250mm externally insulated galvanized ducting c/w supports and transition pieces	m	220			
	0.22	Supply and install 250 x 200mm externally insulated galvanized ducting c/w supports and transition pieces	m	30			
		CARRIED FORWARD					

SCHEDULE OF QUANTITIES

SCHEDULE NO 1: AIR CONDITIONING AND VENTILATION SYSTEM

PAYMENT REFERS TO	ITEM NO		UNIT	QUAN-TITY	RATE	AMOUNT
	BROUGHT FORWARD					
	0.23	Supply and install 200 x 200mm externally insulated galvanized ducting c/w supports and transition pieces	m	52		
	0.24	Supply and install 350 x 350mm uninsulated galvanized ducting c/w supports and transition pieces	m	30		
	0.25	Supply and install 300 x 250mm uninsulated galvanized ducting c/w supports and transition pieces	m	20		
	0.24	Supply and install 250 x 250mm uninsulated galvanized ducting c/w supports and transition pieces	m	180		
	0.25	Supply and install 250 x 200mm uninsulated galvanized ducting c/w supports and transition pieces	m	6		
	0.26	Supply and install 200 x 200mm uninsulated galvanized ducting c/w supports and transition pieces	m	6		
	0.27	Supply and install uninsulated galvanized 250mm diameter spiral ducting, rate to be complete with all required spigots and mounting accessories.	m	6		
	0.28	Supply and install insulated galvanized 150mm diameter spiral ducting, rate to be complete with all required spigots and mounting accessories.	m	420		
	0.29	Supply and install uninsulated galvanized 150mm diameter spiral ducting, rate to be complete with all required spigots and mounting accessories.	m	16		
	0.30	Supply and install 150 x 200mm diameter galvanized ducting c/w supports and transition pieces.	m	6		
	0.31	Supply and install uninsulated 150mm flexible ducting, rate to be complete with all installation accessories	m	80		
	0.32	Supply and install 150mm disc valve	No.	8		
	0.33	Supply and install 500mm x 300mm natural anodised aluminium door grille.	No.	32		
	0.34	Supply & install 300 x 250 mm fire dampers with fusible links	No.	45		
	0.35	Supply 500mm x 500mm natural anodised aluminium supply air grille.	No.	110		
	0.36	Supply 1200mm x 600mm natural anodised aluminium return air grille.	No.	2		
	CARRIED FORWARD					

SCHEDULE OF QUANTITIES

SCHEDULE NO 1: AIR CONDITIONING AND VENTILATION SYSTEM

PAYMENT REFERS TO	ITEM NO		UNIT	QUAN-TITY	RATE	AMOUNT
	BROUGHT FORWARD					
		0.37 Supply 350mm x 350mm natural anodised aluminium weather louvre.	No.	30		
		0.38 Supply 300mm x 300mm natural anodised aluminium weather louvre.	No.	4		
		0.39 Supply 250mm x 250mm natural anodised aluminium weather louvre.	No.	2		
		0.40 Supply and install 300mm x 300mm white epoxy coated supply air grille, 150mm spigot.	No.	160		
		0.41 Supply and install 150mm x 150mm white epoxy coated supply air grille, 150mm spigot.	No.	2		
		0.42 Supply and install 25mm PVC piping for condensate removal including all accessories.	m	1350		
		0.43 Provide insulation for underside of slabs	PC	Sum	200 000,00	200 000,00
		Smoke Extraction				
		Supply and install smoke extraction system as per Fire Engineer's Specifications	PC	Sum	1 521 000,00	1 521 000,00
	1.05	Commissioning and Training				
		0.1 Prepare and supply three sets of detailed Operation and Maintenance Manuals including as-built drawings. An electronic version of the drawings shall also be supplied on compact disc in AutoCAD format. The manuals and compact disc shall be handed over to the Engineer.	-	-	Sum	
		Development of a syllabus for maintenance and operations training				
		02 HVAC Systems	-	-	Sum	
		Presentation of training course on HVAC Equipment Maintenance and Operations.				
		03 HVAC System	-	-	Sum	
		COMMISSIONING				
		Commissioning and testing of the installation				
		.01 HVAC Equipment	-	-	Sum	
	CARRIED FORWARD TO SUMMARY					

BERTRAMS MECHANICAL SERVICES
BILL NO 2
BUILDING WET SERVICES

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	2.00	PLUMBING				
	2.01	Installation of domestic copper water piping systems, Class 0 SABS 460 with capillary copper fittings :				
		.01 Cold water piping installed on surface in ducts, against walls and soffits including bracketing				
		.01 35 dia	m	10		
		.02 28 dia	m	120		
		.03 22 dia	m	210		
		.04 15 dia	m	280		
		.02 Hot water piping , installed on surface in ducts, against walls and soffits, inclusive of lagging , cladding and bracketing				
		.01 22 dia	m	130		
		.02 15 dia	m	270		
		.03 Hot and cold water piping chased in walls including wrapping of pipes with builders paper, chasing and reinstatement of chased surfaces				
		.03 22 dia	m	70		
		.04 15 dia	m	220		
		.04 Capillary soldered copper fittings for tees;				
		.01 22 dia	No	240		
		.02 15 dia	No	340		
		.03 28 dia x 22 dia	No	80		
		.03 22 dia x 15 dia	No	90		
		.05 Capillary soldered copper fittings for elbows				
		.01 22 dia	No	270		
		.02 15 dia	No	240		
		Carried forward			R	

BERTRAMS MECHANICAL SERVICES
BILL NO 2
BUILDING WET SERVICES

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT	
	Brought forward					R	
		.06 Shut off ball valves					
		.01 20 dia	No	120			
		.02 15 dia	No	390			
		.07 Strainers					
		.01 25 dia	No	60			
		.02 20 dia	No	52			
		.08 Non return valves					
		.01 25 dia	No	30			
		.02 20 dia	No	120			
		.03 15 dia	No	390			
	2.02	Supply and install domestic SABS approved solar geysers including shut-off valves, strainers, non-return valves expansion relief valve, safety valve and 3kW power provision (Indirect system);					
		.01 300 ltr	No	4			
		.02 200 ltr	No	3			
		.03 Supply and install 150l electric geyser complete with all accessories to make installation complete.	No	2			
	2.03	Supply and installation of a 5l Hydro Boil	No	4			
	2.04	Allow for fittings to connect to main water pipe	sum	-	-		
	2.05	Green Wall Irrigation					
		.01 Allow for automatic irrigation of the Greenwall	Prov	Sum	-	30 000,00	
		.02 Profit and attendance	%			-	
	Carried forward					R	

BERTRAMS MECHANICAL SERVICES
BILL NO 2
BUILDING WET SERVICES

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT	
	Brought forward					R	
	2.06	Supply and installation of water drainage pipe work and fittings					
		.01 uPVC piping installed on surface in ducts, against walls and soffits including bracketing					
		.01 110 dia	m	540			
		.02 50 dia	No	330			
		.02 Extra over 50 mm pipes for					
		.01 Bend	No	160			
		.02 Bend with cleaning eye	No	90			
		.03 Junction with cleaning eye	No	60			
		.04 Vent Fitting with Cowl	No	150			
		.05 Butyl resealing P-trap	No	190			
		.06 Two way vent valves	No	50			
		.03 Extra over 110 mm pipes for					
		.01 Bend	No	54			
		.02 Bend with cleaning eye	No	40			
		.03 Junction with cleaning eye	No	34			
		.04 Butyl resealing P-trap	No	70			
		.05 Two way vent valve	No	40			
	2.07	Allow for fittings to connect to main sewer pipe	sum	-			
	2.08	Tests and Inspection on completion of installation work					
		.01 Pressure test completed water piping installation	sum	-			
	TOTAL CARRIED FORWARD TO WET SERVICES SUMMARY					R	

BERTRAMS MECHANICAL SERVICES
BILL NO. 3
FIRE DETECTION

	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	3.0	<u>FIRE DETECTION SYSTEM</u>				
	3.01	Supply, install, test and commission a complete fire detection and alarm system as per The Fire detection shall comply with SANS10400, SANS 10139. The fire detection system shall be provided throughout the facilities (System category L1 and P) and shall be an addressable Fire Detection system. Refer to drawings in tender document.				
	3.02	Supply and install 25mm metal conduits for fire detection system wiring, including all round and square termination boxes and P8000 trunking.	m	1 900		
	3.03	Supply and install fire resistant type 1mm ² wire, interconnected between, the detectors, the break glass units, strobe light and audible alarm.	m	3 900		
	3.04	Supply and install 4 loop analogue addressable fire control panel complete with battery back-up system and printer as per specification. Wall mounted 1,5m above ground in area indicated on the Engineer's drawing.	No	1		
	3.05	Supply and install mimic fire control panel with battery back-up system and printer as per Engineer's drawing.	No	3		
	3.06	Supply and install analogue addressable optical smoke detectors as per specification fixed to a 65mm diameter conduit box.	No	130		
	3.07	Supply and install analogue addressable rate-of rise heat detectors as per specification fixed to a 65mm diameter conduit box.	No	91		
	3.08	Supply and install optical smoke detectors or rate-of rise heat detectors with base siren/sounder warning unit as per specification fixed to a 65mm diameter conduit box, as shown on the drawing.	No	26		
	3.09	Supply and install fire signage and accessories.	-	-	Sum	
	3.10	Supply and install analogue addressable 'Red' strobe lights as per specification fixed to a 65mm diameter conduit box.	No	36		
	3.11	Supply and install Red "fire" manual call points (Breakglass Unit) as per specification fixed to a 65mm diameter conduit box.	No	24		
	CARRIED FORWARD					

BROUGHT FORWARD					
3.12	Install accessories to ensure system is interfaced with the HVAC and Lift installations so as to comply with Fire Regulations.	-	-	Sum	
3.13	REMRAD System Supply and install REMRAD system linked to fire panel and with wireless communication link to security and emergency management systems. Installation to include one year's licence including maintenance.	No	1		
3.14	Operation and Maintenance Manuals .01 Prepare and supply three sets of detailed and Operation and Maintenance manuals including as-built drawings. An electronic version of the drawings shall also be supplied on compact disc in AutoCAD format. The manuals and compact disc shall be handed over to the Engineer.	-	-	Sum	
	Development of a syllabus for maintenance and operations training .02 Complete Fire Detection System	-	-	Sum	
	Presentation of training course on Fire Detection Equipment Maintenance and Operations .03 Complete Fire Detection System	-	-	Sum	
3.15	Commissioning Testing and commissioning of the entire fire detection system including issuing relevant installation certificates.	-	-	Sum	
TOTAL BILL NO 3 - CARRIED TO SUMMARY				R	

SCHEDULE OF QUANTITIES: REPAIR WORK
BILL NO 4:
KITCHEN EQUIPMENT

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	4.00	<u>GENERAL</u>				
	4.01	As-built information and Operating and Maintenance Manuals				
	.01	Obtaining of all available information for updating, compiling and finalising the three sets of Operating and Maintenance Manuals including as-built drawings.	-	-	Sum	
	4.02	Training				
	.01	Kitchen equipment	-	-	Sum	
	.02	Development of syllabus for training operators	-	-	Sum	
	.03	Presenting a training course for operators	No.	1		
	4.03	<u>KITCHEN EQUIPMENT</u>				
		<u>Tendered rates for the following items to be inclusive of all external connections to drainage, water or steam piping.</u>				
	4.04	Gas Stove				
	.01	Supply and install 4 open burner gas range stove with oven. The gas rating should be 118 000 kJ/hr	No	5		
	4.05	Supply and Installation of New Extract Canopy for the Gas Stoves				
	.01	Kitchen extract ventilation hood of 430 stainless steel of approximate dimensions 3,600 mm (L) x 1,200 mm (W) 0,9 mm thick with all fittings and complete with 500 x 500 cycloclean grease filters including 220 V35 W LED light.	No.	4		
	.02	Axial flow type long casing fans. Diameter 500 mm 4pole 380 V and 0.75 kW pressure of 200 pascals.	No.	4		
	.03	500 mm sound attenuators to keep the noise level within the area of the canopy to within 70db including square to round fit canopy & 500mm vertical discharge.	No.	4		
	.04	Support steel and all accessories to make installation complete	No.	4		
	CARRIED FORWARD					

BROUGHT FORWARD					
	4.06	<u>GAS</u>			
		.01	Supply and install 48kg LPG free standing gas cylinders to be installed in a lockable cage. LP gas cylinders are to be installed in an upright position supported and bracketed to prevent fall. Cylinders to be installed in a lockable cage to Architect's specification.	No	4
		.02	Supply and install a 2000 x 1500 x 600mm LPG cylinder lockable cage.	No	1
		.03	Install dia 22mm 2 way gas selector valve in the middle of the cylinders linking both gas cylinders.	No	2
		.04	Install 4 off dia 22mm gas isolation valves outside after each gas cylinder	No	2
		.05	Supply and install dia 75mm pvc sleeve which is required to be laid in under the concrete surface from the gas cylinders outside to the indoor position of gas stoves	m	2
		4.06	Microwave		
		.01	Supply and install 55 litre 1000W stainless steel microwave oven.	No.	1
		4.07	Stainless steel table		
		.01	Supply of stainless steel table with splashback. Table dimensions:length 1650 mm, height 910 mm & depth 650mm	No.	2
		4.08	Baking Oven		
		.01	Convection Oven and Steamer		
		.01	Supply and installation of a 40-pan Convection Oven with Steamer, complete with accessories.	No.	5
		4.09	Refrigerator		
		.01	Supply and install 660 litre side by side refrigerator including ice and water dispenser.	No.	7
CARRIED FORWARD					R

BROUGHT FORWARD						
	4.10	Display Refrigerator				
	.01	Supply and install 118 litre 1500mm x 470mm x 680 display refrigerator 230 V 50 Hz, 0.417kW with 2 shelves with total empty weight of 90 kg.	No.	2		
	4.11	Cold Room				
	.01	Supply and install 2m x 2,4m x 2,4m cold room with chromadek polystyrene panels with 1,5 HP condensing unit with matching blower coil. Single phase 25A.	No.	2		
	4.12	Grease/Fat Trap				
	.01	Break out existing brick & concrete, remove rubble and prepare for construction of new trap chamber	No	3		
	.02	Grease trap chamber complete as per drawing for 16l/s grease trap	No	3		
	.03	Stainless steel grease trap with a flow rate of 16l/s, complete with stainless steel covers as per drawing	No.	3		
4.10	<u>COMMISSIONING</u>					
		Commissioning and testing of the installation:				
	.01	Bill No. 4: Kitchen Equipment	-	-	sum	
TOTAL BILL NO 4 - CARRIED TO SUMMARY					R	

SCHEDULE OF QUANTITIES: REPAIR WORK

**BERTRAMS: MECHANICAL SERVICES
BILL NO. 5 LIFTS**

PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUAN-TITY	RATE	AMOUNT
	5.00	LIFTS				
	5.01	Supply and installation of elevator complete with accessories				
	.01	630 kg 4 stop lift for Administration Block	-	-	Sum	
	.02	1125 kg 4 stop lift for Administration Block	-	-	Sum	
	.03	Allow for interface with Fire Detection	-	-	Sum	
	5.02	COMMISSIONING				
		Commissioning and testing of the installation				
	.01	Lifts	-	-	Sum	
TOTAL BILL NO 4 - CARRIED TO SUMMARY						R

BERTRAMS MECHANICAL SERVICES

SUMMARY: SCHEDULE OF QUANTITIES: MECHANICAL SERVICES

BILL NO 1: AIR CONDITIONING AND VENTILATION

R _____

BILL NO 2: WET SERVICES

R _____

BILL NO 3: FIRE DETECTION

R _____

BILL NO 4: KITCHEN EQUIPMENT

R _____

BILL NO 5: LIFTS

R _____

TOTAL OF SCHEDULE OF QUANTITIES: MECHANICAL SERVICES

R _____

ANNEXURE C

BILL OF QUANTITIES - FIRE

**JDA BERTRAMS
FIRE INSTALLATIONS
BILLS OF QUANTITIES**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SECTION 1					
PRELIMINARY & GENERAL ITEMS					
1,1	Nett price for compliance with the Conditions and Special Conditions of Contract, and various specifications, which costs are not specifically covered elsewhere or by unit rates.	Sum	1		
1,2	Prices shall include for all transportation, conveying, delivering, specialised scaffolding, unloading, lifting, storage, fabrication, fitting and fixing, including all accessories related to fixing the equipment.	Sum	1		
1,3	Prices shall exclude VAT but shall include any taxes or related costs incurred in the procurement of equipment.	Sum	1		
1,4	Tenderers are required to scrutinise the drawings and take the relevant quantities from the drawings and appropriately complete the bill of quantities. Any items required to be installed that are not listed, must be listed with a cost put against each item.	Sum	1		
1,5	Allowance for any costs associated with the requirements of the Principal Contractor Principal Contract preliminaries which may affect the selected sub-contract.	Sum	1		
1,6	Provide a project specific Health and Safety File in line with the End-User Client specifications including fall protection plans when working at heights above 3m.	Sum	1		
ENGINEERING AND MANAGEMENT					
1,7	Duties of the sub-contractor's staff.	Sum	1		
1,8	Programming of the Works.	Sum	1		
1,9	Equipment submittals, shop drawings approvals, cutting lists, samples of materials or equipment and construction drawings.	Sum	1		
1,10	Making reference, to other relevant drawings e.g. Civil, Structural, Architectural, Structural, Electrical and Mechanical as well as any existing services etc.				
1,11	Tests and Inspection and commissioning	Sum	1		
1,12	Setting out.	Sum	1		
1,13	Free Maintenance and Guarantee for 12 Months incl quarterly service	Sum	1		
1,14	Sundries	Sum	1		
1,15	As built documentation	Sum	1		
1,16	Training of appointed End-user client staff regarding the operation of specialised material or equipment, Fixed Automatic Sprinklers, Fire Detection & Alarm, Smoke Ventilators, etc. as applicable.	Sum	1		
TOTAL SECTION 1 C/F TO TENDER SUMMARY					R -

**JDA BERTRAMS
FIRE INSTALLATIONS
BILLS OF QUANTITIES**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SECTION 2				
	<u>SPRINKLER SYSTEM</u>				
2.1	WATER STORAGE TANKS				
	Supply and install a bi-sectional combined sprinkler and conventional fire water tank of total total effective capacity of 344m3 to structural engineer's details and specifications. Including all fittings Tank to be erected complete with the following: - Diameter 100mm gear driven butterfly valve on tank infill - Diameter 100mm Cast Iron type mechanical ball float valves - Equal tank divisional wall (50%/50%) - External catladders to access ball float valves to detail - Internal catladders - 600mm x 600mm access hatch above ball float valve - Diameter 150mm overflow warning pipe outlet - Diameter 80mm drain outlet with normally closed valve - Diameter 100mm pump test return inlet through tank roof top - Diameter 600mm vortex inhibitor in sump to detail - Diameter 150mm OS&Y pump suction gate valve - Tank Level controller - Diameter 100mm water level balancing outlets - Diameter 100mm balacing valve (normally open) - Diameter 150mm tank air breather vents	No.	1	R	-
2.2	<u>SPRINKLER BOOSTER PUMPS</u>				
	Supply and install 1 x electrical duty, plus jockey pump and standby diesel driven sprinkler pump set complete with all pumphouse piping and fittings including dry run protection, electrical control panels, valves in accordance with the good practice guide of ASIB 12th edition of 2021. <u>Pump Duty</u> - 1800L/min @ 6-8 bar (Main electric and diesel driven pump) - 120 L/min @ 7bar (Jockey)	Set	1	R	-
2.3	<u>CONVENTIONAL FIRE BOOSTER PUMPS</u>				
	Supply and install duty and standby electrical pumps plus jockey complete with complete with all pump house interconnecting piping and fittings including dry run protection, electrical control panels, valves, etc good practice guide of ASIB 12th edition of 2021. <u>Pump Duty</u> - 2500 L/min @ 6 bar (duty and standby pumps) - 90 L/min @ 6 bar (Jockey)	Set	1	R	-
2.4	<u>SPRINKLER INSTALLATION CONTROL VALVE (ICV) ASSEMBLY</u>				
	Each control valve described hereunder shall consist of but not limited to the following: - Isolating Stop Valves - A water motor alarm and gong - Two pressure gauges located on either side of the alarm valve - 15mm test pipe - Ø50mm flushing connection - Two Ø65mm instantaneous Fire Brigade booster connections - Non-return valve if required - Downstream and Upstream stop valves shall be monitored				
2.4.1	Ø150mm Sprinkler Control Valve assembly, including bypass arrangement, alarm gong, gauges, flow switch and required fittings and supports	No	3	R	-

JDA BERTRAMS
FIRE INSTALLATIONS
BILLS OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2.4.1	Ø100mm Sprinkler Control Valve assembly, including bypass arrangement, alarm gong, gauges, flow switch and required fittings and supports	No	1		R -

**JDA BERTRAMS
FIRE INSTALLATIONS
BILLS OF QUANTITIES**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2.5	SPRINKLER SUPPLY MAINS - FROM ICV TO SPRINKLER ARRAY INCLUDING HANGERS, FITTINGS AND SUPPORTS				
	All sprinkler piping shall be medium grade black steel piping to SANS 62-1 or BS1387, and the rates supplied herein shall include all pipe hangers, supports, sockets, fittings nipples, flexible connections, and all necessary fittings along the running length.				
	All piping will be applied with one coat of primer at the workshop prior to delivery to site and then followed by another touch up of the primer on delivery to site. All exposed piping shall be painted with two coats of signal red acrylic / gloss enamel paint.				
	Threaded pipe fittings up to and including 150mm diameter will be malleable cast iron to SABS 509/1975 or BS 143/1952. Flanges up to and including 150mm diameter will be steel plate flanges to SABS 1123/1600/4 or BS 4505/16/4. Welded pipe fittings up to and including 300mm diameter will be of steel butt-weld type to JIS B2304-72. Weld flanges between 100mm and 300mm diameter will be steel plate flanges to SABS 1123/1600/3 or BS 4504/16/3. "Klambon" couplings can be used where deemed necessary.				
2.5.1	Ø150 mm	m	1500	R	-
2.5.2	Ø100 mm	m	750	R	-
2.5.3	Ø80 mm	m	450	R	-
2.5.4	Ø65 mm	m	600	R	-
2.6	SPRINKLER HEADS				
	NOTE: The rate for sprinkler heads shall include all range pipes, i.e. 25mm, 32mm, 40mm and 50mm				
2.6.1	Supply & installation of Ø15mm, 68°C, Conventional type, Chrome pendant Fast Response fusible bulb K8, 5,0 mm/min density ceiling level sprinklers complete with rosette.	No	1700	R	-
2.6.2	Supply & installation of Ø15mm, 68°C, brass upright, Fast Response K8, 5,0 mm/min density to office void.	No	1100	R	-
2.6.3	Supply & installation of Ø15mm, 68°C, Conventional type Chrome pendant Standard Response fusible bulb K8, 5,0 mm/min density to office void.	No	1		Rate Only
2.6.4	Supply & installation of Ø15mm, 68°C, brass upright, Standard Response K8, 5,0 mm/min density to office void.	No	1		Rate Only

**JDA BERTRAMS
FIRE INSTALLATIONS
BILLS OF QUANTITIES**


ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SECTION 3				
	CONVENTIONAL FIRE PROTECTION SYSTEM				
	FIRE FIGHTING EQUIPMENT				
	FIRE HYDRANTS				
	Suction Hydrant				
3.1	Supply and install Right Angle Tamperproof Hydrant with 100mm Storz Outlet and 100mm Female BSP Inlet. (Installation downstream of water meter connection).	No.	1		
	Backflow Preventer				
3.2	Supply and install Cast Iron Wafer Check Valve with Ductile Iron or 316 Stainless Steel Double Doors and EPDM Seal. This valve assembly to be encased in a medium grade 600mm x 480mm manhole with frame for access for maintenance.	No.	1		
	Twin Fire Brigade Booster Connection				
3.3	Supply and install Two-Port Booster with 65mm Brass Booster Connectors and a Pressure Gauge and 100mm T/16 Inlet encased in a steel cover with front open. Pressure gauge Dial to read up to 2500kPa. (Installed downstream of Item Above).	No.	1		
3.4	Supply and install complete, internal 80mm x 65mm tamperproof fire hydrants with single lug	No	18		
	FIRE HOSE REELS				
3.5	Supply and install 30 Metre Hose Reel complete with 25mm Chromium plated Shut-off valve, Aluminium Nozzle, Hose Guide and angle iron fixing bracket.	No.	37		
	PORTABLE FIRE EXTINGUISHERS				
3.6	Supply and install 9kg Dry Chemical Powder (DCP) Type portable fire extinguisher complete with steel mounting bracket and 100mm W x 600mm L polished & varnished Meranti Hardwood Backing board plugged in wall behind.	No.	20		
3.7	Supply and install 4.5kg Dry Chemical Powder (DCP) Type portable fire extinguisher complete with steel mounting bracket and 100mm W x 600mm L polished & varnished Meranti Hardwood Backing board plugged in wall behind.	No.	74		
3.8	Supply and install 5.0kg Carbon Dioxide (CO ₂) Type portable fire extinguisher complete with steel mounting bracket and 100mm W x 600mm L polished & varnished Meranti Hardwood Backing board plugged in wall behind.	No.	20		

**JDA BERTRAMS
FIRE INSTALLATIONS
BILLS OF QUANTITIES**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>STATUTORY SIGNAGE</u>				
3,9	Photoluminescent signage and warning notices in accordance with SANS 1186 Parts 1 & 5 incorporating the pictographs in the standard 190mm x 190mm module size encased in Aluminium metal frames with chamfered edges mechanically and securely fixed to walls or roof slabs. Strictly no double sided tape or silicone sealing of statutory signage is allowed.	No.	150		
	<u>PIPING RETICULATION</u>				
	<u>All rates supplied in this bill of quantities will be deemed to include scaffolding to any height and fixing piping up to roof height.</u>				
	<u>All piping rates supplied shall include couplings, bends, tees, sockets, pipe supports, anchors, along the running length and backfilling and compaction where pipes are laid in the ground.</u>				
	All pipes suspended from concrete slabs, roof, ceiling, etc, shall be deemed to include in the rates all necessary hanger brackets, threaded rods (irrespective of the suspension length), nuts, washers, anchors and drilling of holes in the concrete slab.				
	All pipes are generally to be concealed inside ducts, ceiling voids except where it is necessary to feed an appliance and fixed with standard type pipe supports and brackets spaced at intervals strictly as per manufacturer's recommendations.				
	<u>ABOVE GROUND PIPING</u>				
	<u>Galvanised Steel Pipework and Fittings</u>				
	All above-ground firewater pipes shall be Medium Grade Galvanised Steel to SANS 62 Part 1 for nominal sizes from 25mm up to and including 150mm above which pipes shall be Heavy Grade Galvanised Steel to SANS 719.				
	All pipes and fittings shall be installed strictly in accordance with the manufacturer's specifications, and recommendations.				
	Pipes shall be colour coded in accordance with the requirements of SANS 10140 Identification Colour Marking - Part 3: 2017 Contents of Pipelines or similar approved in close consultation with the engineer.				
	<u>Medium Grade Steel Pipes</u>				
3,10	100mm diameter pipes	m	700		
3,11	80mm diameter pipes	m	15		
3,12	50mm diameter pipes	m	1400		
3,13	40mm diameter pipes	m	10		
3,14	32mm diameter pipes	m	20		
3,15	25mm diameter pipes	m	250		

ANNEXURE D

Occupations Health and Safety

	JOHANNESBURG DEVELOPMENT AGENCY (JDA): SOCIAL DEVELOPMENT PROGRAMMES BETRAMS NEW MULTI-PURPOSE CENTRE	Contract No	SOCDEV_OHSC/2020/21
		Document	Occupational Health and Safety Standard Specifications
		Submission Date	2021 SEPTEMBER 20




OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

FOR

JOHANNESBURG DEVELOPMENT AGENCY (JDA)



**SOCIAL DEVELOPMENT PROGRAMMES:
BETRAMS NEW MULTI-PURPOSE CENTRE**



	JOHANNESBURG DEVELOPMENT AGENCY (JDA): SOCIAL DEVELOPMENT PROGRAMMES BETRAMS NEW MULTI-PURPOSE CENTRE	Contract No	SOCDEV_OHSC/2020/21
		Document	Occupational Health and Safety Standard Specifications
		Submission Date	2021 SEPTEMBER 20

DOCUMENT DETAILS

DOCUMENTATION DEVELOPMENT

TS Doc Control	Name	Signature	Date
SHE Specialist	Olga Mlaudzi		20 September 2021
SHE Practitioner	Kondwani Kaonga		20 September 2021

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REVISION AND AMENDMENTS

Date	No.	Description of Revision or Amendment
23 September 2021	1	Final Version- Client Submission




	JOHANNESBURG DEVELOPMENT AGENCY (JDA): SOCIAL DEVELOPMENT PROGRAMMES BETRAMS NEW MULTI-PURPOSE CENTRE	Contract No	SOCDEV_OHSC/2020/21
		Document	Occupational Health and Safety Standard Specifications
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1. DEFINITIONS

“Building” Includes –

- a) Any structure attached to the soil;
- b) Any building of such structure or part thereof which is in the process of being erected; or
- c) Any prefabricated building or structure not attached to the soil;

“Chief Executive Officer”, In relation to a body corporate or an enterprise conducted by the State, means the person who is responsible for the overall management and control of the business of such body corporate or enterprise;

“Competent Person” means a person who is medically fit and possesses the necessary knowledge, training, experience and where legally required, the qualification required to perform a specific job. Task or role and or any person having the knowledge, training, experience and qualification specific to the work or task being performed. Provided that where appropriate qualifications and training are registered in terms of the provision of the South African Qualification Authority Act, 1995 (Act No 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training.

“Danger” means anything which may cause injury or damage to persons or property;

“Employer”, means, subject to the provisions of subsection (2), any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him but excludes a labour broker as defined in section 1(1) of the Labour Relations Act, 1956 (Act No. 28 of 1956);

“Hazard” means a source of or exposure to danger;

“Health and Safety Equipment” means any article or part thereof which is manufactured, provided or installed in the interest of the health and safety of any person;

“Incident” means an incident as contemplated in section 24(1) and includes an environmental incident and a near miss.

“Mandatory” includes an agent, a contractor or a subcontractor for work, but without derogating from his status in his own right as an employer or a user;


“Occupational Health Practitioner” means an occupational medicine practitioner or a person who holds a qualification in occupational health recognised by the South African medical and dentist council as referred to in the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act No.56 of 1974), or the South African Nursing Council as referred to in the Nursing Act, 1987 (Act No.50 of 1978)

“Risk” means the probability that injury or damage will occur.

“Safe” means free from exposure to any hazard

“Certificate of Competency” or “Certificate” means a certificate of competency as a mechanical or an electrical engineer, as the case may be issued in terms of regulation 2(1)

“Agent” means any person for whom construction work is performed

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“Construction Activities” is any construction work as defined in construction Regulations and any training or meetings directly in relation to such construction work and exclude the transportation of employees to and from a worksite.

“Contractor” means an employer, as defined in section 1 of the Act, who performs construction work and includes principal contractors;

“Fall Preventative Equipment” means equipment used to prevent persons from falling from an elevated position, including personal equipment, body harness, body belts, lanyards, lifelines or physical equipment, guardrails, screens, barricades anchorages or similar equipment;

“Fall Arrest Equipment” means equipment used to arrest the person in a fall from an elevated position including personal equipment, body harness, lanyards, deceleration devices, lifelines or similar equipment, but excludes body belts;

“Fall Protection Plan”, means a documented plan, of all risks relating to working from an elevated position, considering the nature of work undertaken and settling out the procedure and methods to be applied in order to eliminate the risk

“Hazard Identification” means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed

“Health and Safety File” means a file or other record in permanent form, containing the information required as contemplated in these regulations

“Health and Safety Plan” means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons.


“Health and Safety Specification” means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons.

“Medical Certificate of Fitness” means a program to determine any risk associated with any hazard at a construction site. In order to identify the steps needed to be taken to remove, reduce or control such hazards.

“Structure” means any building, steel or reinforced concrete structure(not being a building) railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure; any formwork, false work, scaffold or other structure designed or used to provide support or means of access during construction work; or any fixed plant in respect of work which includes the Installation, commissioning, decommissioning or dismantling where any such work involves a risk of a person falling two meters or more;


“Workplace” is the area defined as such in the NEC contract and includes the servitude and authorised access roads to and from the servitude by the shortest route, the site camp and material laydown areas but does not include any public road defines as such in terms of the Road Traffic Act.

“Worksite” is the area in the workplace where construction activities are underway.

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“On Duty” Is the time during which and after the Daily Safe Task Instruction is/has been conducted and construction activities are being performed. It excludes to and from the workplace whether or not in a company, private, hired or subsidised vehicle. Where a vehicle has been provided solely for the purpose of transporting workers to and from the worksite, the driver only will be deemed to be on duty while driving in the workplace and on a public road.

“Visitor” is any person who is not permanently employed on the project and will not perform any construction work. It included persons who visit the project for a period of not more than 3 consecutive days including representatives from the client, facilitators from training organisations and specialist mechanics who assess or repair vehicles, plants or equipment. Employees from Head Office are not deemed to be visitors as they will spend time on the project at various intervals

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2. INTRODUCTION


2.1 Purpose

This Occupational Health and Safety Specification aim to:

- Outline the Health and Safety Requirements and approach that will be used during the Johannesburg Development Agency (JDA) –The design and implementation of demolition and construction of new offices at Bertrams to ensure that the construction works programme and compliance monitoring is aligned with the requirements of the Occupational Health and Safety Act 85 of 1993 and its latest regulations.
- Identify and comply with all project regulatory and related health, safety and environmental legal, client requirements in all project phases.
- Identify, assess and proposed mitigation measures for the risks pertaining to the project that can have a significant impact on the project quality, milestones, Safety, Health and Environmental contraventions.
- List the outcomes to be expected through the implementation of this specification and to ensure that they are implemented by all the project parties.
- Ensure that the monitoring, evaluation, reporting and review methods for this OHS specification are implementable and appropriate as measuring tools to ensure effectiveness.
- Ensure that there are sound Health and Safety practices applied at all times and that Health and Safety remain paramount to the construction works.


2.2 Occupational Health and Safety Specification Objectives

- That the Covid 19 construction-related regulations are complied with at all times.
- Zero Tolerance of Covid 19 or any other Hazardous Biological Agents incidents caused by the project activities.
- Zero tolerance to breaches of SHE requirements, including the Client Requirement, shall be applicable at all times.
- All hazards shall be identified, assessed and controlled through an extensive risk assessment process that is project-specific.
- Management and Supervisors shall lead by example to encourage involvement and ownership and all levels of management will be accountable for managing safety and health issues
- Working safely to be the condition of employment and unsafe acts or behaviour shall be investigated and result in disciplinary action.
- Implementation of a Principal Contractor project-based training plan to ensure that employee involvement and consultation is essential.
- All incidents and near misses shall be reported, investigated and communicated to prevent reoccurrences
- Ensure that sub-contractors and suppliers strive for Safety, Health and Environmental best practices and to comply with the Principal Contractor's Health and Safety Plan.

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2.3 Methodology and Safe Work Procedure expected outcomes

- To ensure that there are zero Safety, Health and Environmental incidents that can be detrimental to the health and safety of employees, client and suppliers and contractors.
- An improvement in the management of the project throughout all the project phases from Site Establishment, Commissioning and Handover.
- A platform to attending to grievances, complaints and uncertainties in terms of Quality, Technical issues during all project phases.
- This OHS Specification can be measured, monitored, reviewed periodically to ensure continual improvement and also be reported for any changes or improvements to the client timeously.

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3. LEGAL REFERENCES AND FRAMEWORK

3.1 National Legislation and Standards

Constitution of Republic of South Africa 108 of 1996
 Occupational Health and Safety Act 85 of 1993
 National Disaster Management Act, 2002
 National Environmental Management Act 107 of 1998
 National Environmental Management: Air quality Act 39 of 2004
 National Environmental Management: Waste Act 59 of 2008
 Atmospheric Air pollution prevention Act 45 of 1965
 Hazardous Chemical Act 15 of 1973
 National Water Act 36 of 1998
 Water Services Act, 1997
 City of Johannesburg Metropolitan Municipality By-Laws
 Compensation of Occupational Injuries and Disease Act, 1993

3.2 Regulations, Norms, Standards and Strategies

National Building Regulations
 Disaster Management Act, 2002 Sectorial Guidelines
 OHS Measures in the Workplace – Covid 19
 Management of Human Remains Regulations, 2013
 Draft Sectorial Construction Regulations, 2020
 Construction Regulations, 2014
 Driven Machinery regulations, 2015
 Electrical Installation regulations
 Electrical Machinery Regulations, 2011
 Environmental Regulations for Workplaces, 1987
 Facilities Regulations, 2004
 Hazardous Chemical Substance Regulations, 1995
 Hazardous Biological Agents, 2001
 National Norms and Standards for the Storage of Waste in
 Asbestos Abatement Regulations, 2020
 Hazardous Chemical Agents, 2021
 Regulations For Hazardous Chemical Agents, 2021
 Major Hazard Installations Regulations, 2001
 Noise Induced Hearing Loss Regulations, 2003
 Pressure Equipment Regulations, 2009

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4. PROJECT SCOPE OF WORKS

- These specifications are applicable to the specific scope of work pertaining to the above-mentioned project as detailed in the tender documents, and is summarized below:

(i) OVERVIEW OF THE WORKS


General description of the scope of works

The works to be executed under this contract include the following but is not limited to:

- Demolition and construction of new offices.

Other Activities

- Establishment of the contractor on-site;
- Construction Works.

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5. ROLES AND RESPONSIBILITIES

5.1 Client


- The Client or his appointed Agent on his behalf will appoint the Principal Contractor for this project or phase/section of the project in writing for assuming the role of Principal Contractor as intended by the Construction Regulations and determined by the Bills of Quantities.
- The Client or his appointed Agent on his behalf shall discuss and negotiate with the Principal Contractor the contents of the Health and Safety plan of both Principal Contractor and Sub-Contractors for approval.
- The Client or his appointed Agent on his behalf will take reasonable steps to ensure that the Health and Safety plan of both the Principal Contractor and Sub-Contractor is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every month.
- The Client or his appointed Agent on his behalf, will prevent the Principal Contractor and/or the Contractor from commencing or continuing with construction work, should the Principal Contractor and/or the Contractor at any stage in the execution of the works be found to:
 - Have failed to comply with any of the administrative measures required by the Construction Regulations in preparation for the construction project or any physical preparations necessary in terms of the Act;
 - Have failed to implement or maintain their health and safety plan;
 - Have executed construction work which is not in accordance with their Health and Safety plan; or
 - Act in any way which may pose a threat to the health and safety of any person(s) present on the site of the works or in its vicinity, irrespective of him/them being employed or legitimately on the site of the works or in its vicinity.

5.2 Principal Contractor

- The Principal Contractor shall accept the appointment under the Terms and Conditions of the Contract. The Principal Contractor shall sign and agree to those terms and conditions and shall, before commencing work, notify the Department of Labour of the intended construction work in terms of Regulation 4 of the Construction Regulations.
- The Principal Contractor shall ensure that he is fully conversant with the requirements of this Specification and all relevant health and safety legislation. This Specification is not intended to supersede the Act nor the Construction Regulations or any part of either. Those sections of the Act and the Construction Regulations which apply to the scope of work to be performed by the Principal Contractor in terms of this contract (entirely or in part) will continue to be legally required of the Principal Contractor to comply with.
- The Principal Contractor will in no manner or means be absolved from the responsibility to comply with all applicable sections of the Act, the Construction Regulations or any Regulations proclaimed under the Act or which may perceivable be applicable to the contract.
- The Principal Contractor shall provide and demonstrate to the Client a suitable and sufficiently documented Health and Safety plan based on this Specification, the Act and the Construction Regulations, which shall be applied from the date of commencement of and for the duration of execution of the works. This plan shall, as appendices, include the Health and Safety plans of all Sub-contractors for which he has to take responsibility in terms of this contract.


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- The Principal Contractor shall provide proof of his registration and good standing with the Compensation Fund or with a licensed compensation insurer prior to commencement of the works.
- The Potential Principal Contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and safety requirements, the Act and Construction Regulations. (Note: This shall have to be contained in the conditions of tender upon which a tenderer's offer is based.)
- The Principal Contractor shall consistently demonstrate his competence and the adequacy of his resources to perform the duties imposed on the Principal Contractor in terms of this Specification, the Act and the Construction Regulations.
- The Principal Contractor shall ensure that a copy of his health and safety plan is available on site and is presented upon request to the Client, an Inspector, Employee or Sub-contractor.
- The Principal Contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of this Specification, the Act and the Construction Regulations, is opened and kept on-site and made available to the Client or Inspector upon request. Upon completion of the works, the Principal Contractor shall hand over a consolidated health and safety file to the Client.
- The Principal Contractor shall, throughout the execution of the contract, ensure that all conditions imposed on his Sub-contractors in terms of the Act and the Construction Regulations are complied with as if they were the Principal Contractor.
- The Principal Contractor shall from time to time evaluate the relevance of the Health and Safety Plan and revise the same as required, following which revised plan shall be submitted to the Client and/or his/her Agent for approval.
- The Principal Contractor will comply with the legal requirements such as the Occupational Health and Safety Act 85 of 1993, and with all its regulations namely, construction regulations, environmental regulations, hazardous chemical regulations, OHS Covid 19 measures in workplace regulations driven machinery regulations and all the other applicable ones within the Act.
- The Principal Contractor will comply with the Compensation of occupational injuries and Disease Act (COIDA) of 1993 when carrying out work, for reporting and adherence to the Act.
- The Principal Contractor will also comply with all the local legislation such as the City of Johannesburg municipality by-laws pertaining to the health and safety of the people, and all the community safety. The bylaws will also be applicable during the waste management at the municipality landfill site.
- The Principal Contractor will comply with the National Road Traffic Act when using national or regional roads as well as the suppliers.
- The Principal Contractor will comply with the Environmental Legislation in support of the environmental regulations of the OHS Act 85 of 1993 as required by the Environmental Regulations.
- The Principal Contractor will comply as far as reasonably practicable to the client and stakeholder's requirements.

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5.3 Client Representatives roles and Responsibilities Table

Position	Responsibility
Client Consulting Engineer	<ul style="list-style-type: none"> To monitor the Principal Contractors construction works programme and ensure that the project is not delayed. To provide guidance and direction on the project with regard to the construction and project management requirements. Overall responsible on behalf of the client in ensuring that the OHS requirements on the project are met.
Client Designer	<ul style="list-style-type: none"> To ensure that the applicable safety standards incorporated into the OHS regulations are complied with in the design. Provide and demonstrate all relevant health and safety information about the design of the relevant structure. Inform the client in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered. Inspections at appropriate stages to verify that the construction of the relevant structure is carried out in accordance with his design.
Client OHS Consultant	<ul style="list-style-type: none"> Assessment and analysis of potential risks attached to the project Development of a project-specific health and Safety specification for the project Evaluation and approval of the contractor's Health and Safety Plan for the project Site visits and regular monitoring audits Attend monthly site meetings for the presentation of the monthly audit report Conduct a final compliance audit on completion of the project and submit a closeout report Ad-Hoc meetings as required by the client Presentations to affected stakeholders of the project

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5.4 Principal Contractor Roles and Responsibilities

Position	Responsibility
Chief Executive Officer CR 16(1)	The CEO takes responsibility for ensuring that SHE management is managed effectively throughout the business. The CEO will ensure that adequate resources are provided to ensure implementation of the SHE Policy and will appoint persons accordingly.
Finance and procurement	<p>The Finance and procurement take responsibility for ensuring that records of SHE management expenditure are maintained and can be extracted for confirmation and review purposes.</p> <p>The Finance and procurement will ensure that all the required resources for the implementation of this plan are procured timeously and effectively.</p>
Human Resources Manager	The Human Resources department is responsible for ensuring that SHE responsibilities form part of employment contracts and that SHE disciplinary actions are implemented when required.
Project Manager CR16 (2) Section 8 Duties	<p>As appointed by the CEO will carry out duties of the CR16 (2) appointee by being responsible for all the SHE Relate matters on the project.</p> <p>This will include but is not limited to Resource allocation; Incident Management; Construction Methodology to reduce risks; Inspections and overall support of the Project SHE related matters.</p> <ul style="list-style-type: none"> The Project Manager Section 16 (2) appointee, as appointed by the Chief Executive officer Section 16 (1) of Principal Contractor will be responsible for the Safety and Health of all persons entering the offices, and construction site camps during the construction phase of this project. The Project Manager shall be assisted in all SHE requirements by the Construction Manager who shall be appointed as the Construction Supervisor C.R. 8(7). The Project Manager shall be responsible for the appointment of all persons on the project as is legally required. This includes the legal appointments of persons employed as Mandatories. The Project Manager shall appoint a competent SHE Officer on-site to assist with the implementation of the SHE plan and all Johannesburg Development Agency requirements on the project. The SHE Officer will support entirely by the SHE Manager, who will ensure that all SHE requirements are met both at Head Office and on Site. The Project Manager and Construction Manager shall ensure that all work operations onsite have the appointed, competent supervisor with the Assistant Construction Manager Appointment. 8(1) The Project Manager and Construction Manager, with the assistance of the Principal Contractor Project Administration and Head Office Administration, that centralised personnel database shall be kept which will entail a record



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	<p>of the induction, training and competency of all staff as part of the on-site SHE filing system.</p> <ul style="list-style-type: none"> Construction Managers and Supervisors (Assistant Construction Manager) must ensure that they give clear instructions for the work to be performed to all personnel allocated to carrying out that work.
Construction Manager 8 (1) Section 8 Duties	<p>Will make themselves familiar with, and shall work in compliance with the SHE Method Statements; SHE Plan; SHE Specifications and all the other SHE project related documentation for their tasks and its arrangements as they affect their activity;</p> <ul style="list-style-type: none"> Will follow all SHE instructions issued by management and supervising staff relating to their work activity and emergency procedures; Will Report any SHE incident arising out of or in connection with their work activity to their SHE Officer; Client and SHE Manager Will refrain from any conduct that may impact negatively on the employees Will ensure that the employees and equipment under their control are environmentally compliant at all times.
Temporary Designer	<ul style="list-style-type: none"> To ensure that all temporary works are adequately designed so that they will be capable of supporting all anticipated vertical and lateral loads that may be applied. To ensure that the designs of temporary works are done with close reference to the structural design drawings. To ensure that all drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector.
SHE Manager (SACPCMP registration compulsory) All OHS Act Sections	<p>Identify any SHE hazards associated with the project; Ensure appropriate Risk Assessments for projects are carried out to develop the Risk Management Plan.</p> <ul style="list-style-type: none"> ➤ Ensure implementation of SHE requirements; ➤ Ensure all staff on projects are aware of SHE requirements ➤ Ensure that any incident is recorded and investigated where appropriate in accordance with the Accident Reporting Procedures. Ensure that Monthly SHE meetings are held and effective Support all site SHE Based staff through training and capacity building. Carry out Audits and Ad-hoc site inspections to track compliance
SHE Officer CR 8(5) (SACPCMP registration compulsory)	<p>The SHE Officer is required to actively advise and assist the Construction Manager and Construction Supervisor to ensure the following: -</p> <ul style="list-style-type: none"> Compliance with all S HE Legislation Compliance with the company's SHE Management System Implementation of the contract-specific SHE Management Plan



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	<ul style="list-style-type: none"> • Early identification and reporting of significant site-specific SHE risks • Management of the interactions with landowners • Reporting, Investigation incidents, accidents and near misses. • Safety, Health and Environmental control of site activities • Good and timeous liaison with the client with regard to environmental matters. • SHE officer must be competent to do work and must provide relevant proof of registration (SACPCMP). • The SHE officer will be responsible to advise the Project Manager and Construction Manager on all Safety, Health and Environmental related issues. • The SHE Officer will be responsible for compiling and filling in an incident Logbook whenever an accident, incident or near-miss occurs on-site, and for informing the SHE Manager and SHE Head Office incident number shall be referenced in the Incident Log Book on the project. • The SHE Officer shall carry out weekly inspections on all Principal Contractor Construction Teams, all appointed Mandatory and conduct internal audits at least monthly and all audit reports shall be submitted to the Construction Manager, Project Manager and the SHE Manager within 7 days of such audit. The SHE officer will make the inspections available on site for the Johannesburg Development Agency Safety and environmental Representatives for audit purposes. • The SHE officer will communicate any deviations to the SHE Plan to the relevant team supervisor and will follow up to ensure that the matter is dealt with. <p>The SHE Officer is also required to identify and report any deviations from the legislation, SHE Management System and the contract-specific SHE Management Plan through regular auditing and the generation of non-conformance reports (NCRs) and Corrective action reports (CARs) SHE officer is required to be active in assisting the site management to close out NCRs and CARs.</p>
<p>SHE Reps Section 17 Duties Section 13 Duties</p>	<ul style="list-style-type: none"> • Will make themselves familiar with, and shall work in compliance with the SHE work instructions for their tasks and their arrangements as they affect their activity; • Will Report any SHE incident arising out of or in connection with their work activity to their Supervisor. • Will refrain from any conduct that may impact negatively on the employees
<p>General Employees Section 14 Duties Section 13 Duties</p>	<ul style="list-style-type: none"> • Will make themselves familiar with, and shall work in compliance with the SHE work instructions for their tasks and their arrangements as they affect their activity; • Will report any potentially Safety, health and environmental defect in premises, plant or equipment to their Supervisors, Construction Manager or Contract Manager; • Will Report any Safety, health and environmental incident arising out of or in connection with their work activity to their Supervisor




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	<ul style="list-style-type: none"> • Will refrain from any conduct that may impact negatively on the employees
Project Employees	<p>Employees will be responsible for their health and safety and that of their co-workers in their area. Employees will be made aware of their responsibilities during site induction, weekly toolbox talks and daily safe task instruction. These responsibilities include the following:</p> <ul style="list-style-type: none"> • Familiarising themselves with workplace, work tasks and health a procedures • Working in a safe manner to ensure that they do not endanger them others • Keeping the work areas tidy by observing housekeeping practices • Reporting all incidents/accidents and near misses immediately • Protecting fellow workers from injury • Reporting unsafe acts and unsafe conditions • Reporting any situation that may become hazardous • Carrying out lawful instruction and obeying the health and safety rules • Adhering to the Principal Contractor Requirements, the Principal Contractor Health and Safety Policy and the client specification <p>All employees will be inducted before being permitted to work on site. This shall include a company Induction, project Induction facilitated by Johannesburg Development Agency after which a project-specific induction facilitated by the Principal Contractor.</p> <p>No employee shall be permitted to undergo a project induction unless they are in possession of a copy of their medical certificate of fitness and proof of having attended the Johannesburg Development Agency Induction both of which shall be handed to the inductor for filing purposes.</p> <p>Employees will not be permitted to work under the influence of alcohol or drugs.</p> <p>Any violation of the SHE Plan will result in disciplinary from the project and disciplinary action will be instituted which could result in dismissal. Disciplinary action will be implemented for any violations of health and safety rules and employees will be re-inducted or retrained.</p>
Plant Operators	<ul style="list-style-type: none"> • The Construction Manager and Safety Officer, jointly, will ensure that only competent and qualified employees operate any vehicles, plant or equipment. Such drivers and operators must be in possession of written authorization to drive or operate the specific category of plant, machinery or vehicle which shall be kept in their respective files in their vehicles. • All drivers or operators shall be responsible to complete a Daily Vehicle Check Sheet and shall hand these to their respective supervisors who shall peruse each check sheet and if satisfied that no faults have been reported shall return it to that driver operator who shall keep it in his possession for the duration of the shift. If any fault is reported, the supervisor shall bring this to the attention of the appointed inspector who shall decide whether the

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	<p>vehicle may be permitted to continue working and shall so endorse the check sheet.</p> <ul style="list-style-type: none"> • Should he deem the vehicle unsafe to use he shall bring this to the attention of the Construction Supervisor. Completed check sheets shall on a weekly basis be handed to the Safety Officer for filing.
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6. HEALTH AND SAFETY MANAGEMENT DOCUMENTATION

The Principal Contractor must, in terms of Construction Regulation 7(1)(b), keep a Health & Safety File on-site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done. A more detailed list of documents and other legal requirements that must be kept in the Health and Safety File is attached as an addendum to this document.

Legal Documents	Project OHS Plans	Monitoring Documents
<ul style="list-style-type: none"> Client's approval of the SHE Plan General Liability Insurance (Summary of Policy) and/or COIDA Letter of Good Standing Construction Work Permit Section 37 (2) Agreement and 5(1)K Appointment Appointment letters Site Access Certificate 	<ul style="list-style-type: none"> Health and Safety Plan Fire Prevention Plan Fall Protection Plan Covid-19 Workplace Plan Emergency Preparedness Plan Incident and Accident Management Procedure Method Statements (Safe Work Procedures) Risk Assessments Covid 19 Policy and OHS Plan. Covid 19 Risk Assessment 	<ul style="list-style-type: none"> Records of all reported Incidents, accidents and near misses Daily Safety Task Instructions Site Induction Records/Attendance Registers SHE Committee members Audit Reports Job Observation records Visible Felt Leadership records PPE Issue and Inspection Records Training Matrix Equipment Inspection Checklists Monthly SHE Meeting Minutes Medical fitness certificates Hazardous substance registers and Material Safety Data Sheets Permits Mandatory Records i.e., assessments, audits, appointments, safely files Performance statistics Lifting equipment certificates Client Specifications SHE Correspondence Emergency Plan and Contact Numbers PPE and Clothing Register Permits (Hot Work, Confined Space, Excavation, Hi-Voltage, etc.) Inspection and Audit Reports (internal and external) Incident Register and Investigation Reports MSDS's Calibration Certificates SHE Statistics and Reporting Copy of Occupational Health and Safety Act & Regulations Proof of site handover (meeting minutes) Health and Safety Training Records Proof of competency records Equipment Registers

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7. CONSTRUCTION ACTIVITIES AND WORKS

7.1 Site Establishment

7.1.1 Site Security

- A Site Security Management Plan appropriate to the site security risks and to coordinate and achieve adequate site security, to ensure that during construction, the property is not left accessible by the public and must be implemented on the project throughout.
- A Full-time Security shall be appointed to control access and exit on-site at all times. All vehicles shall be searched before entering and exiting the site at all times.
- A register shall be kept at the entry point to register the names of those who will be entering the site.


AT NO TIME SHALL THE PROPERTY BE LEFT UNGUARDED OR UNSECURED.

7.1.2 Site Layout

- A good site layout is important to ensure the safety of the working environment and effective and efficient operations.
- Construction site layout planning involves identifying, sizing, and positioning temporary and permanent facilities within the boundary of the construction site.
- The plan must take into consideration Safety, Health and Environmental Management information such as fire precautions, emergency preparedness, first aid areas, welfare facilities, Waste Management with relevant signage. Existing services on the land must be displayed on the site layout plan.

7.1.3 Access and Traffic Management

- Where activities are performed close to public routes, the Principal Contractor will establish a traffic management plan including the requirements of relevant City of Johannesburg Metropolitan Municipal By-Laws.
- The contractor should ensure that proper access control is in place and functional at all times on and off the construction site.
- The contractor should capture images of an access road before and after the construction of the site camp.
- At a minimum, there should be a provision of barricading, warning signage and flagmen to ensure the protection of workers from moving vehicles.
- Where required, the Principal Contractor will interact with the local traffic department to establish minimum requirements to be implemented on public routes.
- The contractor shall obey the site traffic plan to ensure the safe movement of all construction mobile plants on site.

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- The traffic management plan will be reviewed at the monthly safety meeting to ensure its applicability. Proper road signage must be displayed during the construction phase of the project. All security requirements have to be highlighted at the induction given by the contractor.

7.1.4 Demarcation and Fencing

- The site should be demarcated to ensure that there is no interference with the neighbouring properties.
- Where hazards exist, entry must be specifically restricted for health and safety reasons.
- A security fence will be erected around the construction site to demarcate the boundaries, as well as to restrict access from the site to surrounding areas where trampling may occur on the indigenous vegetation. Internal demarcation will be erected to outline particular designated and screened areas.
- A fire break will be maintained on either side of the fence to limit the spread of fire from neighbouring properties; this shall be maintained regularly.
- Where there is indigenous vegetation, the clearing of the firebreak should be supervised by the SHE Officer more often.

7.1.5 Signage and Notices

- At the entrance of the site camp, a sign with the Johannesburg Development Agency and Principal Contractor, OHS Consultants and emergency details will be erected and shall include the project name and number, the name and contact numbers of the Project Manager, Site Manager, SHE Officer.
- Having established the site camp, the Construction Manager and SHE Officer shall together assess the needs for and the location of all fire and first aid treatment facilities. Signage shall be prominently displayed indicating the fire location of each of these.
- The SMI board will be erected that will display Principal Contractor and Johannesburg Development Agency logo, Lost Time Injuries Frequency Rate (LTIFR); Man Hours and Incidents, accidents statistics.
- Safety, Health and Environmental Signage (Visible and Interpretable) (SANS 1186) will be posted on the construction site to ensure that employees are well made aware of the workplace surroundings. The signage will include but is not limited to drinking water signs on water points, Fire extinguisher signs indicating the location of fire extinguisher; Assembly point signage and demarcation for emergencies; First Aid Kit signage to alert employees of the First Aiders location; Construction Area signage demarcating the active construction works; Barricading caution signage and excavation signage indicating the open excavations.
- More signage will be installed in addition to the above mentioned to ensure that persons working are made aware. Employees shall be trained to ensure that they can interpret the signs.
- Barricading will be applicable on the excavations and other no go areas demarcation to ensure that persons are prevented through visibility of excavation hazards and risks. These will also be incorporated into the method statements, risk assessment and standard operating procedures.

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7.1.6 Barricading

- All barricading shall at all times comply with the requirements of CR13 (3)(l). All excavations and openings where there exists any risk of a fall, shall at all times be properly barricaded using a solid type of barricade or fencing, able to withstand a horizontal pressure of 100 kilograms. Signs with the responsible person's contact number will be placed on at least one of the barricades at each location.
- When an excavation or unsafe deep place is to be left for a period exceeding 2 days, the supervisor shall inspect all barricading daily and ensure that all is and remains safe and serviceable and he shall keep a record of such daily inspections. Where barricading is to be used to prevent accidental entry into a "High Voltage Area" use may be made of orange / red shark netting.

Under no circumstances may danger tape be used in lieu of barricading.

7.1.7 Workplace Facilities.

- The contractor shall ensure that where reasonably practicable provide ergonomically sound seats for every site management office for employees whose work can be effectively performed while seating.
- All entrances of the ablution facilities must be constructed in a way that will accommodate privacy to users and keys shall be kept inside, to enable the user to lock while inside.
- Ablutions shall be properly marked for gender identification, separate male and female changing facilities and sheltered eating areas. Furthermore, these facilities must be kept clean and free from odours at all times.
- Sanitary conveniences must be provided and maintained at a rate of at least one shower facility for every 30 workers and at least one ablution facility for every 20 workers.
- Where chemical toilets are provided, one toilet for every twenty-five employees must be allocated. All ablutions must be properly cleaned on the daily basis, disinfected and provided with toilet paper.
- All employees making use of these facilities have the responsibility to adhere to all etiquette hygienic practices.
- Provision of washing facilities, including soap and towels, must be made available for use by the contractor's employees.
- Drinking water must be provided on-site.
- Drainage from all facilities must be properly designed and constructed to prevent employee exposure to wastewater and the associated biological hazards.
- Wastewater may not accumulate or stand in pools at any location on the project site.
- No chemicals or equipment's, except those normally used for domestic cleaning of these facilities, may be stored in the facilities.
- The Eating Area will be established for the employees to use as required by the facilities regulations. The food will be kept within reasonable temperatures and the water will be kept cool for consumption purposes. Only designated eating areas will be used for eating purposes and the employees will have access to waste disposal facilities but within a reasonable distance that will not be affected by the waste receptacles.

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7.1.8 Stacking And Storage

The stacking and storage of materials will be in accordance with the Occupational Health and Safety Act 85 of 1993, stacking and storage regulation. The storage and staking method will ensure that the risk of falling and collapsing objects is prevented. The stacking of material must be on a stable level surface in order to ensure that the stability of the materials is secured.


7.1.9 Hazardous Substances

A contractor must designate a hazardous and chemicals storage area. The designated area must be constructed with a concrete foundation and must be surrounded by a bund wall and must have 110% of the volume of the substances stored. The concrete foundation must deep gentle in one direction where a drainage system with a stop cork installed. Access to the hazardous and chemical storage area must be controlled. Where required the Health and Safety Plan shall include a method statement detailing the safe use, storage, decanting and spill controls for all flammable liquids used and stored on site.

7.2 Excavations Works

A contractor must ensure that excavation work is carried out under the supervision of a competent person who has been appointed in writing for that purpose.

- A contractor must ensure a relevant risk assessment and method statement are developed and applied.
- A contractor shall evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins, as per Construction Regulation 13(1).
- All barricading shall at all times comply with the requirements of Construction Regulation 13 (2)(l).
- No person may enter an excavation unless a Permit to Work has been issued providing authorisation for specific tasks to be carried out within the excavation.
- Excavations must be backfilled as soon as possible, and the material used (usually the original material) must be properly compacted. An excavated area must be restored to its original condition if at all possible.
- If a hazardous condition is identified while work is being carried out in an excavation, then all persons in the excavation must be evacuated to safety without delay, as per Construction Regulation 13 (2)(g).
- Every excavation, including all bracing and shoring, shall be inspected daily, before the commencement of each shift and that no person enters the excavation or works in a risk zone until the excavation is assessed and declared safe, as per Construction Regulations 13 (2)(h)
- All excavations must be left open for the minimum of time required and those that are left open on the site must be protected by a barrier or a fence of at least one meter in height as close to the excavation as is practicable, as per Construction Regulations 13 (2)(i).
- The protective barrier or fence/ barricade must adequately prevent persons from falling into the excavation and barrier taping is not sufficient for this purpose, as per Construction Regulation 13 (2)(i).
- Excavation shoring and bracing, if required shall be designed by a designer appointed in writing who shall inspect and approve the installed shoring and bracing. Where persons work, inspect or test excavations, warning signs must be in place next to an excavation.

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- No danger tapes are allowed for barricading purposes and barricading must be placed as close as possible to the excavation.
- The risk assessment must consider the hazards and risks associated with a person being trapped in an excavation as a result of laying stormwater pipes.
- A safe work procedure for laying stormwater pipes must be in place.
- A detailed stormwater management plan must be developed.
- Whenever persons are required to work in confined spaces the contractor must take into consideration the provisions of General Safety Regulations 5.


The provisions of Regulation 13 of the Construction Regulations shall be followed in every detail.

7.3 Demolition Works

A contractor shall appoint a competent person in writing to supervise and control all demolition work on site.

- The contractor shall ensure that before any demolition work being carried out, determine the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a method statement on the procedure to be followed in demolishing the structure is developed by that person, as per Construction Regulation 14(2).
- The contractor must ensure a relevant risk assessment and method statement are developed and applied.
- All demolition work shall be carried out as per Construction Regulation 14 Demolition Work.
- During the demolition, a competent person shall check the structural integrity of the structure at intervals determined in the method statement to avoid any premature collapses, as per Construction Regulation 14(3).
- All demolition work must be planned, and all project stakeholders must be involved in the planning; this includes making a detailed risk assessment.
- If explosives are to be used, the requirements in terms of the Explosives Regulations shall be adhered to.

The provisions of Regulation 14 of the Construction Regulations shall be followed in every detail.

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7.4 Structures.


A contractor must designate a competent person who will control and supervise all work on the erection of structures.

- The contractor must ensure a relevant risk assessment and method statement are developed and applied.
- The contractor must ensure that all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work.
- No structure or part of a structure must be loaded in a manner that would render it unsafe; and all drawings on the design of the relevant structure must be kept on-site and made available on request to an inspector, other contractors, the client and the client's agent or employee.
- The structure must be maintained in a manner that it remains safe for continued use; The records of inspections and maintenance shall be kept and made available on request to an inspector.
- No person shall perform the trade of plumbing as contemplated in Government Notice No. R. 1875 of 31 August 1979 unless he is a trained plumber or works under the adequate control of a trained plumber or approved competent person.
- The contractor must ensure that all temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the structure that the structure is not designed to withstand.
- All temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least daily until the temporary works structure has been removed and the results have been recorded in a register and made available on site.

7.5 Layer Works.

A contractor must designate a competent person who will control and supervise all layer works.

- The contractor must ensure a relevant risk assessment and method statement are developed and applied.
- A contractor must ensure that the operation of a bulk mixing plant is supervised by a competent person who has been appointed in writing and is aware of all the dangers involved in the operation thereof; and conversant with the precautionary measures to be taken in the interest of health and safety, as per Construction Regulation 20.
- The contractor must ensure that all batch plant operations are carried out in a specifically designated area.
- Mixing, transporting, and handling of concrete shall be properly coordinated with placing and finishing works.
- The Contractor must ensure that precautionary measures are put in place to prevent and control the spillages of concrete and asphalt into the soil and water resources.

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- The contractor must ensure that all employees involved in concrete mixing and asphalt overlay are provided with proper PPE.
- The contractor must ensure that all safe work procedures for the laying of pavement and kerbs are adhered to.

The provisions of Regulation 20 of the Construction Regulations shall be followed in every detail.

7.6 Electrical Works.

The contractor must ensure that all electrical installations on the construction site are designated to a competent person who has been appointed in writing for that purpose. Method statements for all the activities should be in place.


- A contractor shall appoint a competent electrician in writing who shall control all electrical installations.
- All temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site.
- All electrical machinery is inspected by the authorized 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.
- A contractor must ensure a relevant risk assessment and method statement are developed and applied.
- The electrical installation worked on by a contractor must be inspected by a competent person to ensure that the installation complies with all legal requirements, codes, design criteria and safety standards applicable to the project.
- Work on new electrical installations and modifications or repairs to existing installations may only be carried out by competent personnel. Electrical safety devices specifically, earth leakage protection and overcurrent protection must be installed on all distribution circuits and the settings must be established by suitably qualified personnel.

The provisions of Regulation 24 of the Construction Regulations shall be followed in every detail.

7.7 Roof Works.

A contractor must designate a competent person to be responsible for the preparation of the fall protection plan. The contractor must also ensure that all roof erectors are competent to carry out their work. Risk assessments and Method statements for all the activities should be in place.


- Whenever persons are required to work in an elevated position, a fall protection plan (which includes fall prevention) will be compiled, implemented and reviewed and every possible and practicable means shall be adopted to provide such persons with effective training and safeguards, as per Construction Regulation 10.
- A contractor must ensure a relevant risk assessment and method statement are developed, reviewed, approved and applied, as per Construction Regulation 10(2).
- The Contractor shall stop all persons working in elevated positions during periods of bad weather or if the possibility of lightning strikes is present, as per Construction Regulation 10(5).

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- An appropriate full-body safety harness shall be worn when working at an elevation of 2 meters or more.
- Working on elevated positions shall only be carried out under the supervision of a competent person, as per Construction Regulation 10.
- Provision must be made to prevent objects or material from falling from elevated areas and the protection of employees working below.
- A risk assessment covering all work at elevated heights is to be carried out and appropriate mitigation measures to be put in place, as per Construction Regulation 10(2).
- Equipment in elevated positions must be tied back to the structure.
- The contractor must ensure that all roof erectors are competent to carry out their work, as per Construction Regulation 10(5)

Note: All employees required to work in elevated positions shall be declared medically fit

The provisions of Regulation 10 of the Construction Regulations shall be followed in every detail.

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8. Construction Works Management

8.1 Plant and Equipment Inspections


- The appointed Plant and Equipment Inspector and Safety officer, jointly, will ensure that all plant used is equipped with the necessary guards for protection. All guarding will be examined monthly by the appointed Plant and Equipment Inspector and a check sheet completed by them.
- The Safety Officer will ensure that all equipment in use has been inspected/checked/tested regularly by the Supplier / Appointed Inspector to ensure compliance to OHS Act 85 and relevant Regulations.
- A competent inspector of Construction Vehicles and Mobile Plant shall be appointed by the Project Manager unless if supplied or outsources whereby the service record, inspection records and maintenance records will be inspected by the SHE Manager/ SHE Officer.

8.2 Noise Management

- The level of noise produced must conform to the requirements as specified in the Noise Control Regulations.
- Excessive, disruptive and displeasing noise emanating from any activity on any premises must be controlled to ensure acceptable levels.
- Noise prevention and mitigation measures should be applied where noise impacts from construction activities exceed the applicable noise control regulations guidelines
- No amplified music will be allowed on the site. The use of radios, tape recorders, compact disc players, television sets etc. will not be permitted unless at a level that does not serve as an intrusion to the surrounding community.
- The Contractor will take preventative measures (e.g. screening, muffling, pre-notification of affected parties) to minimise complaints regarding noise and vibration nuisances from sources such as power tools.
- The speed limit should be 40km/h on all roads running through and accessing the project area.
- Machinery should be serviced periodically.


8.3 Dust Management

- Dust control measures must be put in place to control dust from the construction activities and all emissions must be in compliance with the National Environmental Management; Air Quality Act, 2004 (Act No. 39 of 2004).
- Dust must be suppressed on access roads, office camp, and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that must not result in the generation of run-off.
- Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution.

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8.4 Asbestos Management

- The contractor shall ensure that there is an asbestos abatement management plan in place.
- The asbestos contractor must have an asbestos safety file.
- The asbestos contractor must be registered with Department of Labour as an Asbestos Contractor
- The client must provide the asbestos contractor with an up-to-date inventory of asbestos in place.
- The asbestos management plan must entail details of how the asbestos removal work will take place, including methods of removal, tools and equipment, and the appropriate personal protective equipment to be used.
- The contractor shall ensure that there is a list of employees' names and identification numbers with verification of valid asbestos training and medical surveillance records for the asbestos work.
- The contractor shall ensure that all employees involved in asbestos work are provided with information, instruction and training on how to handle asbestos material.
- The contractor shall ensure that the exposure of employees to asbestos is either prevented or, where this is not reasonably practicable, adequately controlled.
- The asbestos contractor shall notify the Chief Director: Chief Operations in writing, at least seven days prior to commencement of the asbestos work.
- Before commencement of any asbestos work and during such work, the contractor must ensure that a risk assessment is conducted, that includes identification of the hazards to which employees may be exposed; an assessment of the risks related to the hazards based on a documented method; and documented control measures to mitigate the risk.
- The contractor must provide respiratory protective equipment and protective clothing suitable for protection against regulated asbestos fibres to all employees who may be exposed to asbestos;
- The contractor shall ensure that there is sufficient demarcation, labelling and signage for all regulated asbestos areas, asbestos waste and on-site temporary storage areas.
- Air monitoring of the concentration of airborne regulated fibres to which an employee may be exposed shall be conducted, as required by Asbestos Abatement Regulations 16.
- The contractor shall ensure that all asbestos waste is placed in containers that will prevent exposure during handling and the premises, structure or area are thoroughly checked to ensure that all asbestos waste intended for disposal has been removed.
- The contractor shall ensure that all employees involved in the collection, transport and disposal of asbestos waste, who may be exposed to that waste, are provided with suitable personal protective equipment.
- Where the services of a contractor for the transport and disposal of asbestos waste are used, the contractor must be registered with Department of Labour and must provide asbestos disposal certificate.
- After completion of the asbestos work the asbestos contractor shall provide an asbestos free certificate.


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8.5 Waste Management

- Approved methods of waste collection, storage, and disposal shall be adopted, and in compliance with the City of Johannesburg Metropolitan Waste Management By-laws
- Application to dispose of waste shall be made to ensure that there is approval to dispose of waste.
- The contractor must ensure that all waste that is generated on-site is handled, stored, transported and disposed of under the requirements of the applicable legislation.
- No waste may be removed from the project site to a waste storage or disposal facility unless that facility has been approved for use by the nominated project management representative.
- Designated waste bins and skips must be provided by the contractor and suitable arrangements must be made to ensure that these bins and skips are emptied regularly.
- The waste storage area must be located such that it is not in close proximity to the eating area
- Employees must be adequately trained in the identification, separation, handling and storing of waste.
- Hazardous wastes must be kept separate from general wastes.
- Debris and other waste material from the demolition should be temporarily disposed of in a designated area on-site and access to the area should be strictly controlled.
- Suitable, effective and approved drainage and sewage disposal system must be in place on the premises in compliance with the City of Johannesburg Metropolitan Waste Management and Public Health By-laws.
- The contractor must provide proof of safe waste disposal.

8.6 Stacking And Storage

- The stacking and storage of materials will be in accordance with the Occupational Health and Safety Act 85 of 1993, stacking and storage regulation. The storage and staking method will ensure that the risk of falling and collapsing objects is prevented. The stacking of material must be on a stable level surface in order to ensure that the stability of the materials is secured.
- Failure to properly stack and store can cause spillages which has an effect on the environmental protection, the health and safety of the persons leading to inhalation and physical injuries; property damage; material loss and production loss.
- The stacking of objects must be horizontally supported in proportion with the vertical height to reduce the falling of objects. Effective Stacking and Storage will ensure that there are no obstructions to the access to fire equipment; electrical connections; doorways; walkways; first aid access; work areas and construction areas.
- Hazardous Chemical storage must be in line with the hazardous regulation of the OHS Act 85 of 1993; project-related Environmental Management Plan and the Environmental method Statements. The hazardous chemical substance must have a Material Safety Data Sheet at the point of storage and use at all times.
- The storage and stacking of hazardous chemical substances must be in such a way that should spillages occur, the preventative measure can be feasible before affecting the environment at the workplace.

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- A staking and storage appointment shall be in place for the person responsible for ensuring compliance.

8.7 Hazardous Substances

- If any Hazardous Substance is to be used, stored, transported or manufactured, arrangements must be made for the safe use, storage and transport thereof. Materials Safety Data Sheets shall be kept in the store and in each supervisor's file where any possibility exists that any person may be exposed to such substances. PPE must be used in every instance where such a substance is used.
- First Aiders are to be specifically trained in the Treatment of any person who is exposed in any way and additional facilities are to be made available for such treatment. These include, but were not limited to eyewash facilities, etc. The client representative must be advised in writing by the Principal Contractor Project Manager prior to any Hazardous Substance being brought onto the site.
- All containers shall be properly marked with the contents fully described. If decanted into another container for use, no more shall be decanted than what can reasonably be expected to be used during any single operation. A register shall be kept of all Hazardous Substances on site.


UNDER NO CIRCUMSTANCES MAY COOL DRINK OR SIMILAR BOTTLES OR CONTAINERS BE USED.

8.8 Housekeeping

- Good housekeeping practices should be adopted to ensure premises are kept free of conditions that may attract pests.
- The Construction Manager is responsible to ensure that a competent person has been appointed to supervise all stacking and storage operations. To ensure that SHE remains paramount, shall ensure that areas are of sufficient size and demarcated. All demarcations shall be strictly adhered to at all times.
- The contractor shall ensure that every employee has an unimpeded workspace.
- The contractor shall ensure that the premises is kept free from any condition that may result in the breeding of flies or mosquitoes, and other vermin.
- The principle to be applied is that there is a place for everything and everything has its own place and the correct placement of things will ensure proper housekeeping.

8.9 Scaffolding

- A contractor must appoint a competent person in writing who must ensure that all scaffolding work operations are carried out under his or her supervision and that all scaffold erectors, team leaders and inspectors are competent to carry out their work, as per Construction Regulation 16.
- A contractor using access scaffolding must ensure that such scaffolding when in use, complies with the safety standards incorporated in the Construction Regulation 16.
- All Scaffolds must comply with SANS 10085, as per Construction Regulation 16.
- Scaffolding must be inspected and supervised daily and after inclement weather or any other imposed load by a competent appointed scaffold inspector.

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- A contractor must ensure that all scaffolds are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the scaffold that the scaffold is not designed to withstand.

8.10 Smoking.

- The contractor must designate a smoking area on-site; however, the selected area must comply with the applicable legislation. Such an area must be demarcated and the required signage must be displayed
- The contractor must not permit smoking on-site except within designated smoking areas.
- Any person found smoking or discarding a cigarette butt outside of a designated smoking area may be removed (temporarily or permanently) from the site. In all designated smoking areas, adequate non-combustible commercial ashtrays and/or cigarette butt receptacles (butt cans) must be provided.
- Ashtrays and other containers provided for the disposal of smoking materials must not be emptied into rubbish bins or any other container holding flammable materials.
- No Smoking" signs must be strictly observed.

8.11 Hand Tools, Explosive Tools and Portable Electrical Equipment

- Hand tools, explosive tools and portable electrical equipment will be logged on a register. This equipment shall be registered and inspected daily by a supervisor and persons using the tools. The SHE Officer will inspect these daily and a qualified person will conduct inspections on a weekly basis. No person shall operate any explosive powered tool or any portable electric tool unless trained in the correct safe use and handling thereof.
- All plants, vehicles, machinery and equipment which has the potential to cause electric shock from contact or injury from nip points or moving parts, shall be properly guarded against exposure. Should the guarding be located within a safe working distance of the potential contact point, it shall be of a solid type to prevent potential exposure of fingers to contact or injury. No item of plant, vehicle, machinery or equipment which is required to be guarded may be used if the guards are missing or defective in any way.

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9. CONSTRUCTION WORK DOCUMENTATION

9.1 List of Appointments and References

- Copies of all appointments legally required by the Act are to be filed In the SHE file and copies relevant to each team are to be placed in the relevant supervisor working file. A checklist of appointments anticipated on the project.
- Only persons deemed to be competent may be appointed. The responsibility of ensuring competence is with the Project Manager who shall be the only person entitled to sign any appointments other than his own appointment In terms of Section 16(2) which shall be signed by the Principal Contractor CEO. The list below is the basic appointment list and the additional appointments must be in place as required by the Act for activities depending on the project activities.
 - Construction Regulation Section 16(1) Declaration of the CEO/ Board Appointment
 - Construction Regulation Section 16 (2) Project Manager
 - Construction Regulation CR 8 (1) Construction Manager
 - Construction Regulation CR 8 (7) Construction Supervisor
 - Construction Regulation CR 8 (8) Assistant Construction Supervisor
 - Construction Regulation CR 8(5) SHE Officer
 - Construction Regulation CR 9 (1) Risk Assessor
 - Construction Regulation CR 10 (1) Fall Protection Officer
 - Construction Regulation 23 (1)i) Construction Vehicle and Mobile Plant Inspector
 - General Safety Regulation 26(a) Stacking and Storage Supervisor
 - Construction Regulation 29 (h) Fire Fighting Equipment Inspector
 - General Machinery Regulation 5(1) Portable Electrical Tool Inspector
 - General Administration regulation 9(2)- Incident Investigator
 - General Safety Regulation 3(4)- First Aider
 - General Safety Regulation 13(A) Ladder Inspector
 - Construction Regulation 17 (1) GAR 7 Safety, Health and Environmental Rep
 - Construction Regulation CR 13(1)(a)- Excavation Work Supervisor
 - Construction Regulation CR 24(a)- Temporary Electrical Install Controller

9.2 Risk Assessments

- At the commencement of the project, a team of qualified risk assessors which involves a SHE representative, Construction Manager; Project Manager; Finance and Procurement representative; SHE officer will conduct a project-specific risk assessment for each activity and will assess and propose management plans.
- The Principal Contractor will take control measures to assist the SHE Officer by advising of possible dangerous conditions and working methods that they have identified within the workplace. All dangerous conditions identified must be reported to the SHE Manager and Construction Manager Immediately and corrective steps taken.


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9.2.1 High-Risk Activities

- The Construction Manager and SHE Officer jointly will ensure that only competent and qualified employees work at heights and that they have each undergone a medical examination by an Occupational Health Practitioner within the previous 12 months certifying them physically & psychologically fit to work at heights.
- The SHE officer and Construction Manager will jointly ensure that the team Supervisor conducts Daily Safe Task instructions pertinent to the tasks to be performed that day and Risk Assessments, that they are recorded.
- The Supervisors must personally discuss the tasks for the day and point out any dangers and limits for those tasks as is contained in the Daily Safe Task Instruction. This responsibility may not be passed on to another person, However, it is recommended that team members rotate and that each participate in Identifying the risks prevalent and advise the learn of SWP's. This is to facilitate involvement and must still be done in the presence of and under the direction of the appointed supervisor. Both the Weekly Toolbox Talk and the DSTI are to be signed by every employee prior to work commencing.
- The appointed supervisor or foreman, who is appointed into CR8 (8) shall remain present at all times while any form of work is being undertaken.
- Such supervisor shall ensure that use is made of all safety devices and any other equipment which has been identified or which may be required in the interests of Safety & Health. These would include not be limited to; PPE, Barricading, Warning Signs, etc.
- A Fall Protection Plan will be compiled separately to this Written SHE Plan by a competent person in line with fall protection Plan Development requirements as per Construction Regulation 10. The Construction Supervisor and all relevant Assistant Construction Supervisors will be issued with the latest revision of the Written SHE Plan and the Fall Protection Plan.

9.2.2 Task Risk Assessment

- At every location where a task or job is to be performed, the Supervisor shall ensure that the Base Line Risk Assessment and Method Statements which are in his possession are valid and that no additional hazards or risks are present.
- The Supervisor shall endorse the DSTI to that effect and shall include a reference to the various risk assessments in the DSTI's which are to be signed by every employee on site prior to the commencement of any work.
- Where a hazard develops during a work process, which has not been previously identified or addressed, and this is recognized by the supervisor or another person and reported to the supervisor, the supervisor shall make an assessment of the hazard and if deemed by him to be of low risk, the supervisor may allow work to continue, otherwise, the supervisor shall immediately cause all work related to that hazard to be stopped and arrange a formal Risk Assessment be carried out by a team and shall then revise or develop his Safe Work Procedure based upon the outcome of the risk assessment process, always considering SAFETY FIRST.

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9.2.3 List of risk assessment identified for this project are but not limited to the following:

- Risk Assessment: Site Establishment
- Risk Assessment: Alterations
- Risk Assessment: Earthworks
- Risk Assessment: Concrete.
- Risk Assessment: Drainage
- Risk Assessment Asbestos Works
- Risk Assessment Demolition Works
- Risk Assessment Electrical Works
- Risk Assessment: Structures
- Risk Assessment: External Works
- Risk Assessment: Working at Heights

9.3 Method Statements and Safe Work Procedures

- All Method Statements will be submitted to the Client for approval. Based on the risk assessments, the Construction Manager, SHE Manager and SHE Officer and relevant Supervisor shall develop a method statement for each task. No project activity will commence without the approval of a project-specific method statement and the risk assessment.
- Any deviation from the approved method statement and risk assessment on carrying out work will result in revoking the approval and the Principal Contractor will have to stop all activities and review the method statement and risk assessment for re-approval.
- Combined there shall be the method in which the task is performed safely and may not be deviated from unless during the performance of the task it becomes apparent that the procedure is unsafe. After completion of each task, the Supervisor shall review the validity of each Method Statement and the procedures followed.
- Where the Construction supervisor or Construction Manager or other team members feel that the methods used could be improved upon in a view to reducing risk, The Construction Manager shall advise the SHE Officer and jointly they will revise the relevant Method Statement and submit it to the Johannesburg Development Agency OHS Consultant and representative for ensuring that the methods are aligned with project objectives, legal and Johannesburg Development Agency requirements. Such revisions shall immediately be included in the SHE file and copies handed to each supervisor who would at that stage have an older version in his working file.


ANY AMENDED RISK ASSESSMENT OR METHOD STATEMENT, ONCE ACCEPTED AND IMPLEMENTED ON-SITE AND REPLACE THE PREVIOUS VERSION

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10. WORKPLACE SAFETY MANAGEMENT

10.1 Personal Protection Equipment (PPE)


- The Construction Manager and SHE Officer with the assistance of the Principal Contractor SHE Manager shall undertake a risk assessment at the project start-up to identify the PPE that will be required for each task to be performed during the project.
- The Project Manager and Site Manager are to ensure that the required PPE is available for distribution to the employees.
- Supervisors are responsible for ensuring that the persons under their authority are wearing the Personal Protective Equipment necessary for the tasks they are performing. This shall include a minimum of two-piece overalls for all workers excluding supervisors. Specific PPE shall be used as is identified as a final control measure in Risk Assessments.
- Employees are responsible to ensure that they wear, inspect and maintain the PPE in good order and report damaged PPE to the supervisor immediately.
- Managers, Supervisors and Foremen will wear high visibility vests and white hard hats.
- Dedicated First Aider, SHE Officer will wear green hard hats with appropriate stickers attached on both sides indicating their status.
- Visitors will be provided with a high visibility vest and wear a hard hat with a "VISITOR" sticker attached on both sides.
- Every person on-site or at a workplace shall wear appropriate foot protection.
- Hearing protection shall be worn by every person who enters into a demarcated noise zone.
- Eye protection shall be worn by all persons on site. They shall be of a type with shatterproof lenses and side shields. Anyone who wears prescription spectacles shall ensure that they comply with this requirement or they shall wear appropriate goggles over such prescription spectacles.
- Any person working Inside an excavation shall wear clear safety glasses and all others may wear tinted safety glasses.
- Any workers handling any material shall wear gloves. Where it is cumbersome and not dangerous, work may be undertaken without the use of gloves. Examples of these are mechanics and persons assembling nuts and bolts where dexterity is important.
- All vehicles used to transport persons shall be suitable and will comply with the requirements as stipulated in Construction Regulation 21 and the specification. A seat and seatbelt shall be provided to, and shall be used by, every person at all times being transported whether on-site or off-site.
- It is the responsibility of all drivers is to ensure that employees are seated with seat belts fastened and safe while in transit. To ensure compliance drivers are required to personally check that seatbelts have been fastened and not rely on a passenger advising them that it is safe to commence driving. There should be no personnel on the rear of the LDVs or trucks whenever heavy materials are transported. Drivers are to be disciplined for failing to comply.
- Every person working on or visiting the worksite shall wear safety shoes or boots.
- Safety shoes/boots remain necessary, however other PPE is not necessary for designated and signposted 'GREEN AREAS'. This shall normally only be the site administration area and is applicable to administration staff.

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- Supervisors shall inspect all PPE of every employee in their teams at least monthly and record the findings as required on the inspection record sheets. Where it is found that PPE is unsafe or worn and requires replacement, an application must be completed.
- The induction is to be carried at all times and must be produced at the request of any employee at any time while on the site. Visitors will at all times be accompanied by a competent person. Any client representative or other employees not permanently and solely employed on the project shall be deemed to be a visitor. Client representatives permanently employed on the project need not be accompanied.
- No visitor may perform any construction work. Persons from training institutions who are at the project solely to provide training shall only be required to attend the visitor's induction.
- Specialists who visit the site including for example Mechanics or Technicians who are there only to assess or repair specific equipment shall only be required to attend the visitors' induction prior to been allowed to commence any work.
- No employee will be allowed to work without the adequate and relevant PPE
- Employees will be given N95 masks to be worn and face shields
- Re-usable PPE such as overalls will be worn by employees
- Gloves are to be worn at all times
- Re-usable PPE must be thoroughly cleaned after use and not shared between workers
- Single-use PPE should be disposed of so that it cannot be re-used
- Single-use PPE is to be treated and disposed of as hazardous waste. Their disposal will be as per the contractor's guidelines.

10.2 Workplace Occupational Stressors

- Once the construction camp has been outlined and the layout of the camp confirmed the Project Manager, Construction Manager, SHE Office with the assistance of the SHE Manager and relevant
- Supervisors will set about identifying the occupational stressors.
- The SHE Officer will supply a baseline list of occupational stressors identified on other similar projects and these will be used as a guideline to identifying the project-specific stressors.
- Once these stressors have been identified, a risk assessment will be carried out to determine the significance of these stressors in each area or activity where exposure to them can be identified.
- Those areas or activities that return a "Medium to High" risk of the stressors occurring will be investigated and monitored and specific control measures implemented. These control measures will be provided in a written format for distribution to the supervisors in the areas or activities where these stressors have been identified.
- The Supervisors will be responsible for ensuring that the employees are made aware of the stressors and that they are implementing the control measures that are specified. Ongoing monitoring of the effect or presence of these stressors will be implemented. A written programme to monitor will be developed and implemented on the site for the duration of the programme.
- Should the risk assessments or the legal situation require it, an independent occupational hygiene consultant will be appointed to carry out the monitoring to determine the impact of a stressor. Where necessary, the exposure to stresses of an individual will be monitored through the medical surveillance programme and through the Employee Wellness Programme.

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10.3 Occupational Health: Medical Surveillance Programme

- It is required that all people working on the project undergoing medical examinations be examined by an occupational doctor for all possible scenarios and the certificate is to indicate all categories of fitness. Medical Certificate of Fitness and Medical Records is to be completed by the OHS Practitioner. This is in order to facilitate promotions or other job functions into which the employee may be promoted. This is to include the Covid- 19 requirements.
- All of these shall be submitted to the SHE Officer who shall decide on the type of employment of the individual and compile the necessary contract based on the levels of fitness and exposure which the OHS practitioner has deemed the employee fit to perform.
- Only a copy of the certificate of fitness to work may be retained on-site, but the full medical record must be available on request.

10.4 Employee Health Wellness Welfare and Assistance Programme


- The Principal Contractor must value its people and be committed to creating a positive, healthy and diversity-friendly working environment. The Principal Contractor will implement on-site SHE awareness training by including certain off-site SHE topics in weekly toolbox talks and must once a month conduct an off- the job topic relates to their health such as HIV, AIDS Awareness, Communicable Diseases, etc.

10.5 Alcohol and Drug Abuse Management

- A safety officer will physically examine on his/ her description that an employee on-site is smelling or suspect to be under the influence of alcohol and be removed from the site.
- That employee will be taken to a doctor to conduct blood sample tests.
- A urine and saliva test shall be conducted as well.
- If positive result outcomes, the employee will be suspended from work.

10.6 Communications and Training


- Each supervisor shall personally conduct a Daily safe Task Instruction (DSTI) with his team, prior to the commencement of any work. This shall be done at the workplace during which he shall identify any risks present to all workers. A communication sheet and workers register are to be completed by every worker prior to starting work.
- Toolbox talk topics will be conducted every morning in the Site camp by the Construction Manager 8(1) or Construction Supervisor CR 8(7) appointee] and he shall be assisted in this regard by the SHE Officer.
- Every person including mandatories must attend the daily toolbox talk and sign an attendance register.
- Topics will be decided by the Construction Manager and SHE Officer and additional topics, including off-site topics, will be provided by the SHE Manager for discussion.

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- A weekly communication will be carried out by the SHE Officer or Construction Manager to discuss the outcome of the inspections weekly by the SHE Officer and on the first week of every month will communicate the monthly audit outcomes carried out by the SHE official client representative.
- The statutory site safety meetings will be conducted monthly and the Construction Manager, all Supervisors including the Mandatory's and Contractors and all Safety Representatives on-site are required to attend. All persons will be appointed and all their appointments will be on-site documentation.
- The Construction Manager is responsible to ensure that all work is undertaken with due regard to safety and health. He/she is to ensure that every supervisor including those of Mandatory are issued with the latest revision of the Safety Plan, Fall Protection Plan, Risk Assessments and Method Statements which pertain to their work to be performed.
- The Construction Manager will attend all SHE Meetings and will address all issues raised in such meetings. The Construction Manager will give feedback on corrective actions. The Construction Manager will sign the minutes of these meetings and submit them to the SHE & Training Manager within 7 days of the meeting. SHE issues shall be the first item on the agendas for discussion at every meeting of any natures on the project to be discussed are incidents, accidents, state of SHE awareness on the project.
- Under no circumstances may any person who has not been appointed as a member of the safety committee be allowed to participate in the meeting. This shall include client representatives, it is recognized that the intention of the legislator was only to permit members and safety representatives to attend such moving except for technical advisors, who if present, may not be permitted to vote on any issue. The minutes of the safety meeting will be filed in the SHE file on site and copies sent to the SHE & Training Manager within seven days of the meeting, having been signed by the chairman, project manager and site manager.
- The following will be discussed:
 - SHE representative deviation reports
 - All Incidents including Near Misses Risk Assessment review Method Statement (SWP) review
 - Statistics Targets and Objectives
 - SHE Awareness, incentives and awards
 - Upcoming high-risk activities
 - All Planned Job Observations and Visible Felt Leadership reports

10.7 VISITORS/ SUPPLIERS


- All visitors on-site will report to the appointed SHE Officer for a safety Induction and who will provide them with the basic PPE required. The Site Traffic Control Plan must be developed for each site that forms part of the project, which will form part of the Site Layout to ensure that all visitors and suppliers do not interfere with the construction activities and are not exposed to hazards not associated with their work.
- No visitor may perform any construction work. Persons from training institutions who are at the project solely to provide training shall only be required to attend the visitor's Induction.
- Specialists who visit the site including for example Consulting Engineers or other Consultants and client representatives who are there only to assess or repair specific equipment shall only be required to attend the visitors' Induction prior to been allowed to commence any work.

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11. EMERGENCY AND INCIDENT MANAGEMENT

11.1 Incident/ Accident Management

- It is the duty of every employee to advise his immediate supervisor or SHE representative of any situation which is unsafe and the incident in which he is involved or becomes aware. The SHE representative shall immediately advise the supervisor of any such report.
- When a supervisor becomes aware of any unsafe condition or a report of any unsafe condition or situation is made to him, he shall immediately intervene and if required he shall immediately stop the activity and take appropriate action to render the situation or condition safe prior to allowing the activity to recommence.
- An incident report shall be compiled by him/her in that regard. Where an individual or group of employees has committed any unsafe act or have failed to comply with any Safety Health or Environment requirement, the supervisor shall furthermore be required to investigate and report such an employee with a view to initiate disciplinary action. Should any supervisor fail in this regard, he shall be disciplined in that he will be deemed to fail in his duties as is required by law.
- The Construction Manager shall report all incidents and accidents and near misses immediately to the SHE Manager and the Project Manager as well as the client representative. The Project Manager shall in turn advise the clients' Project Manager telephonically and by e-mail.
- The Construction Manager is responsible to ensure that an Incident Report is properly completed and sent to the Client within 24 hours of the time of an accident or injury.
- The Construction Manager shall also ensure that any other contractual requirement and any client requirement in this regard is adhered to.
- The client's requirements as contained in the SHE Specification reporting, recording, investigating cost and follow-up of incidents and procedure for the effective management of SHE related incidents shall in addition also be strictly adhered to.
- All client representatives and client agents on the project are to report all incidents in which they are involved, immediately to our Site Manager who shall forthwith report them to the Project manager and SHE Manager. Any person found to have not reported any incident or who intentionally or negligently fails to follow these procedures shall be disciplined.
- Any Motor Vehicle Accident on any Public Road shall be reported to the Johannesburg Development Agency in accordance with the requirement as stipulated in the Road Traffic Act. All such accidents shall be reported as required but will not be recorded on the project statistics unless the driver is on duty and is injured.
- They shall be deemed to be covered in terms of the Road Accident Fund; however, they shall be reported to the insurance where medical treatment other than First Aid is required by the driver or any other employees. The client insurance shall decide based on the subsequent Investigation where to accept liability or to refer any claims to the Road Traffic Fund. Their decision will in no way impact our decision on whether or not the accident is recorded against the project statistics.
- The employees will be encouraged to report incidents through toolbox talks training; incident recalls communication. Daily Safety Task Instruction; SHE monthly meetings and through Veld Leadership.


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11.2 Emergency Management

- The SHE Officer will ensure that all appointed First Aiders are in possession of, or have immediate access to a first aid kit that complies with the requirement of General Safety Requirements while on-site at all times.
- The SHE officer will ensure that the first aid kits are complete and contain all the necessary items listed inside the first aid box. The SHE officer shall examine all first aid kits monthly and complete the required check sheet in that regard. Contents shall at a minimum be based on legal requirements. Additional items may be included where deemed necessary, as may have been identified in any Risk Assessment.
- A local emergency services centre will be informed of the project and be sensitized about the risks associated with the construction work to be performed in order to facilitate effective response in case of an emergency.
- Whenever any material is removed from the first aid box such material will be replaced and a report indicating the use thereof will be forwarded to Head Office, SHE Department within 2 days, even if used to assist a casualty who is not an employee.
- The SHE Officer will ensure that a valid copy of First Aiders Certificates are in the SHE file at all times. Other trained First Aiders on each team will be appointed in writing and will also be issued with or given access to First Aid kits.

11.3 Fire Prevention and Protection

- A Fire break will be established in line with the Environmental requirements to ensure that the runaway fires impacts are minimized and prevented to affect the construction area. Appointment and Training on fire awareness and firefighting will be conducted to ensure that there is a trained and competent person for fire-fighting. A smoking area will be demarcated and will be established away from objects, material that can facilitate fire spread. The smoking area will be equipped with a sand bucket for extinguishing cigarettes butts and will also be equipped with a serviced fire extinguisher.

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12. ASSESSMENTS AND MONITORING

A monitoring plan, schedule and programme will be established for this project which will entail all the internal and external audits, external inspections, internal inspection; planned task observations, SOC and Visible Field leadership.

12.1 Audits

The following audits will be carried out:

Internal Project audits shall be carried out on the project by the appointed SHE Manager monthly as a follow-up, but will carry out weekly inspections carried out by the SHE officer which will be used during the Client monthly audits. Internal project audits shall be carried out by the Principal Contractor SHE Manager at least four times during the project. The Principal Contractor shall audit all Mandatory's at least once a month if applicable to ensure compliance.

Non-conformance's will be generated and issued to the Principal Contractor Project Manager based on the findings of the audits. The Principal Contractor Project Manager will ensure that these Non-conformance's are addressed and corrective action implemented.


12.2 General Inspections

The inspections will be carried out by supervisors daily using the DSTI and risk assessment review on tasks. The aim is to ensure that all the risks are correctly evaluated, assessed and that the management plans are effective. The SHE Officer will carry out weekly inspections using a standard inspection checklist on every team and will communicate the outcomes with the supervisor.

12.3 Visible Felt Leadership

Visible commitment is essential to providing a safe and healthy work environment which is demonstrated at the highest level of management and that is reviewed to ensure continual improvement. Managers, supervisors and employees at all levels shall demonstrate their commitment and concern by:


- Ensuring that decisions and practices are consistent with the stated Principal Contractor Health and Safety Policy and objectives.
- Ensuring adequate resources are available to achieve the principles of the Principal Contractor Health and Safety Policy.
- Participating in risk assessments and the development of Method Statements (Safe work procedures).
- Ensures that safety issues are discussed by supervisors and employees daily through Daily Safe Task Instruction, Monthly SHE Meetings, Tool Box Talks, Incidents Communication and review and other Johannesburg Development Agency SHE engagement platforms.
- Visiting all work areas regularly, perform inspections, observations and on the job communication.
- Wearing the correct Personal Protective Equipment at all times applicable for the task at hand.
- Commending safe work conditions and coaching employees who need to improve their safety performance.
- Refusing to order or sanction shortcuts to save time or money at the expense of safety or health.
- Placing SHE first on the agenda of all site meetings of any nature and discussing SHE performance.

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- Ensures that monthly SHE meetings are held and all the areas within SHE are covered, incidents are reviewed and the working programme is in line with SHE deliverables and that all SHE actions are followed up.
- Ensuring that all incidents are reported and investigated through the Johannesburg Development Agency incident management procedure within the SHE Spec using relevant templates such as flash reports, incident investigation reports and follow-up procedures that Principal Contractor has implemented.
- Participating in accident investigation and ensuring that incidents are communicated as a duty to inform (Section 13, OHS Act 85 of 1993) and follow up to prevent reoccurrences.
- Foremen and Supervisor conducting and recording of Daily Safe task Instruction (DSTIs).
- Completion of regular Job Observation by the Site Manager, Safety Practitioners, Site Supervisors and Site Foremen.
- Never walking past unsafe behaviours or conditions without immediately correcting them.

12.4 Action Management

- Principal Contractor shall at all times strictly adhere to all legal requirements as contained in the OHS Act and relevant regulations and shall at times endeavour to comply with the clients' specifications.
- Regular weekly compliance inspections using a standard check sheet will be carried out by the SHE Officer on our own activities and the activities of all Mandatory's appointed by us. Where it is found that we have not complied to either legal or to other contractual.
- The SHE Manager will carry out monthly SHE Audits and will be discussed in the monthly SHE meetings.
- Any result of any Internal Compliance Audit by the SHE Manager with a score of 70% or less shall be reported to the Project Manager and Construction Manager. Non-Conformances and legal Contraventions raised during any audit will be communicated with Executive Management and a Root Cause Analysis will be conducted whereby preventive actions to be taken to prevent reoccurrence until it is closed.
- Formalised management reviews of the Health, Safety and Environmental Performance of the project will be undertaken on a 3 monthly basis by the Project Manager, Construction Manager, SHE officer and Principal Contractor SHE Manager. The purpose of the reviews will be to ensure the continuing suitability, adequacy and effectiveness of the SHE Plan. The following information shall be considered during the project management review:
 - Results of audits
 - Minutes of SHE Committee Meetings
 - SHE Performance Statistics
 - Incidents, accidents and near-miss reports
- Nonconformance's and Corrective Action status
- Follow-up actions from previous management reviews
- Changing circumstances such as a change in legal requirements or change in the Clients requirements.

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12.5 SHE Performance Reporting

Statistics shall be reported in line with the client's requirement of every Wednesday of all the Man Hours. In summary, the construction Manager will submit statistics to both the Project Manager and SHE Head Office (Administration) by no later than 08:00 each Wednesday using the Johannesburg Development Agency reporting template for the preceding week. This shall be on the prescribed form and shall include total hours worked during the previous week, by Mandatory's and third parties, and shall include all incidents and accidents and training provided.

It is imperative to note that all time worked on the project by the client or the client's agent shall be included in our statistics report and therefore the client or his agents' site representative are to be required to provide a summary of hours worked to be included in the report.

13. DEMOBILISATION

13.1 Commissioning and Handover

The Principal Contractor will compile the commissioning risk assessment and compile a commissioning plan before the commissioning of the project. These will include the submission of Safety, health and Environmental documentation as well as the facilities. The commission risk assessment and commission plan will be submitted to the Johannesburg Development Agency Safety official for review and approval.

13.2 Site Decommissioning


The site decommissioning risk assessment and site decommissioning plan will be compiled and will be submitted to the Johannesburg Development Agency Safety Official for approval. Once approved, the Principal Contractor will then start with decommissioning as well as the SHE staffing Plan.

14. NON-CONFORMANCE AND PENALTIES

The client will issue an NCR to the contractor when the contractor is in deviation with the Health and Safety Specification or when the construction work on-site fails to meet the Health and Safety quality standards. The application of penalties is at the discretion of the project manager and relevant contract penalties will apply as Non-compliance to Health, Safety and Environmental compliance are deemed as a contract transgression.

15. GENERAL

Principal Contractor shall comply with the requirements of Occupational Health and Safety Act 85 of 1993. Any contraventions of the said Act or the safety measures as contained in the safety file are noticed, the works will be stopped immediately and the contravention reported to the SHE Manager who shall institute an investigation. Authority for the works to continue will only be given after the SHE Manager and Johannesburg Development Agency Safety Official are satisfied that the task is able to carry on safely.


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16. COVID-19 Preventative Measures

- There is one entry point to the site where all employees will be screened daily upon arrival.
- A record of all the information acquired will be kept on the DSTI.
- Appointed personnel will conduct a Daily Safety Task Instruction (DSTI), record individual temperatures and ask for any COVID 19 vital signs for all the employees under their area of responsibilities.
- Every employee will be required to sign the DSTI document on the acknowledgement of
- training confirming that all the information they are given is true to the best of their knowledge on COVID 19 vital signs.
- All employees will be requested to sanitize their hands at the site during screening before
- the start of the shift.
- The security will be responsible to ensure that every person entering the premises have been checked for COVID 19 vital signs (temperature and declaration) and sanitize their hands before proceeding into their offices. This will take place every day upon arrival on-site. There will be a register of the screening results kept.
- Sufficient alcohol-based sanitiser will be kept out in the open to ensure that it's easily available to all employees.
- Any abnormalities detected during screening will be dealt with according to the emergency
- management plan.
- Employees will be encouraged not to share tools where applicable or, disinfect the tools and equipment before use.

Abnormalities detected during screening (Temperatures at or above >37.5°C/ COVID 19 signs)


- Employees found to have elevated temperatures or similar COVID 19 vital signs (fever, headache, joint and muscle aches, sore throat, weakness, diarrhoea, vomiting, stomach pain) will immediately be isolated from the other workers for further examination and interview to determine the possible contact/ travel history by the OMP. Such employees will be isolated in an area designated by the contractor.
- The Contracts Manager will be informed immediately and inform the OMP about the
- abnormalities and request him/her to take full charge but informing the contracts manager about all the proceedings.
- The suspected employee will be kept in isolation until the ambulance service arrives.
- Once the suspected employee is removed from the isolation point, the area will be cleaned, disinfected thoroughly, waste material placed inside a toxic waste container and disposed of by a registered waste removal company.
- High-pressure jet spray shall not be used in confined spaces during cleaning.
- Physical material like blood and vomitus must be first cleaned up and removed before terminal cleaning commences.

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- Containers with secretions, excretions and other waste products such as vomitus and blood should be flooded with a copious amount of disinfectant for at least 30 minutes.

Working on Site

- Tools and equipment will be wipe down with a disinfectant solution before it is used, during use and after use to make sure that when tools exchange hands it is clean and disinfected.
- Employees will work not close together and spaces of 1,5 meters will be implemented between employees. This will be mandatory to make sure all employees stay a safe distance from each other.
- Activities that where human contact is unavoidable, should be postponed and avoided as far as possible. If is it vital for human contact, extra special care should be taken in terms of wearing gloves, good quality face masks.
- It is the responsibility of every employee to make sure he or she is wearing the PPE issued and use correctly at all times.
- It is the responsibility of every employee to report any contact with a COVID-19 infected person before the commencement of work daily
- In any case of cuts or bruises must be attended to immediately
- Thero Services issued permit is to be carried by the employee at all times
- Smoking on-site is prohibited
- There will be no congregation of employees during lunchtime.

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ANNEXURE: Relevant Summarised Project Legal References

OHS Act Section/ Regulation	Subject	Requirements
Construction. Regulation (CR) 4	Notice of carrying out Construction work	Department of Labour notified Copy of Notice available on Site
General Admin. Regulation 4	*Copy of OH&S Act (Act 85 of 1993)	An updated copy of the Act & Regulations on site. Readily available for perusal by employees.
COID Act Section 80. CR 5 (1)(j)	*Registration with Compels. Insurer	Written proof of registration/Letter of good standing available on Site
Construction. Regulation 4 & 5(1)	H&S Specification & Programme	H&S Spec received from Client and/or its Agent on its behalf OH&S programme developed & Updated regularly
Section 8(2)(d) Construction. Regulation 9	*Hazard Identification & Risk Assessment	Hazard Identification carried out/Recorded Risk Assessment and – Plan drawn up/Updated RA Plan available on Site Employees/Sub-Contractors informed/trained
Section 16(2)	*Assigned duties (Managers)	Responsibility for complying with the OH&S Act assigned to other person/s by CEO.
Construction. Regulation(CR) 8(1)	Designation of Person Responsible on Site	Competent person appointed in writing as Construction Supervisor with a job description
Construction. Regulation 8(7)	Designation of Assistant for above	Competent person appointed in writing as Assistant Construction Supervisor with a job description
Section 17 & 18 General Administrative Regulations 6 & 7	*Designation of Health & Safety Representatives	More than 20 employees - one H&S Representative, one additional H&S Rep. for every 50 employees or part thereof. Designation in writing, period and area of responsibility specified in terms of GAR 6 & 7 Meaningful H&S Rep. reports. Reports actioned by Management.
Section 19 & 20 General Administrative Regulations 5	*Health & Safety Committee/s	H&S Committee/s established. All H&S Reps shall be members of H&S Committees Additional members are appointed in writing. Meetings held monthly, Minutes kept. Actioned by Management.



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Section 37(1) & (2)	*Agreement with Mandatories/ (Sub-)Contractors	Written agreement with (Sub-)Contractors List of (Sub-)Contractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing Construction Supervisor designated Written arrangements re. H&S Reps & H&S Committee Written arrangements re. First Aid
Section 24 & General Admin. Regulation 8 COID Act Sect.38, 39 & 41	*Reporting Incidents (Dept. of Labour)	Incident Reporting Procedure displayed. All incidents in terms of Sect. 24 reported to the Provincial Director, Department of Labour, within 3 days. (Annexure 1?)(WCL 1 or 2) and to the Client and/or its Agent on its behalf Cases of Occupational Disease Reported Copies of Reports available on Site Record of First Aid injuries kept
General Admin. Regulation 9	*Investigation and Recording Incidents	All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by the investigator designated in writing. Copies of Reports (Annexure 1) available on Site Tabled at H&S Committee meeting Action taken by Site Management.
Construction. Regulation 10	Fall Prevention & Protection	Competent person appointed to draw up and supervise the Fall Protection Plan Proof of appointees competence available on Site Risk Assessment carried out for work at heights Fall Protection Plan drawn up/updated Available on Site
Construction. Regulation 11	Structures	Information re. the structure being erected received from the Designer including: - geoscience technical report where relevant - the design loading of the structure - the methods & sequence of construction - anticipated dangers/hazards/special measures to construct safely Risk Assessment carried out A method statement is drawn up All above available on Site Structures inspected before each shift. Inspections register kept
Construction. Regulation 16	Scaffolding	Competent persons appointed in writing to: - erect scaffolding (Scaffold Erector/s) - act as Scaffold Team Leaders - inspect Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Written Proof of Competence of above appointees available on Site Copy of SABS 085 available on Site Risk Assessment carried out Inspected weekly/after bad weather. Inspection



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		register/s kept
Construction. Regulation 13	Excavations	Competent person/s appointed in writing to supervise and inspect excavation work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Inspected: - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept Method statement developed where explosives will be/ are used
Construction. Regulation 19	Materials Hoist	Competent person appointed in writing to inspect the Material Hoist Written Proof of Competence of above appointee available on Site. Materials Hoist to be inspected weekly by a competent person. Inspections register kept.
Construction. Regulation 22 Driven Machinery Regulations 18 & 19	Cranes & Lifting Machines Equipment	Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment Written Proof of Competence of above appointee available on Site. Cranes & Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection: - All cranes - daily by operator - Tower Crane/s - after erection/6monthly - Other cranes - annually by comp. person - Lifting tackle(slings/ropes/chain slings etc.) - daily or before every new application
Construction. Regulation 24 Electrical Machinery Regulations 9 & 10/ Electrical Installation Regulations	*Inspection & Maintenance of Electrical Installation & Equipment (including portable electrical tools)	Competent person appointed in writing to inspect/test the installation and equipment. Written Proof of Competence of above appointee available on Site. Inspections: - Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept Portable electric tools, electric lights and extension leads must be uniquely identified/numbered. Weekly visual inspection by User/Issuer/Storeman.



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		Register kept.
Construction. Regulation 28 General Safety Regulation 8(1)(a)	*Designation of Stacking & Storage Supervisor.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site
Construction. Regulation 29/ Environmental Regulation 9	Designation of a Person to Co-ordinate Emergency Planning And Fire Protection	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on the register . Inspected weekly. Inspection Register kept Serviced annually
General Safety Regulation 3	*First Aid	Every workplace provided with a sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid freely available Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aid Officials and Certificates Name of person/s in charge of First Aid box/es displayed. Location of First Aid boxes clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries
General Safety Regulation 2	Personal Safety Equipment (PSE)	PSE Risk Assessment carried out Items of PSE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PSE PSE remain property of Employer, not to be removed from premises GSR 2(4)
General Safety Regulation 9	*Inspection & Use of Welding/Flame Cutting Equipment	Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment Written Proof of Competence of above appointee available on Site



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		All new vessels checked for leaks, leaking vessels NOT taken into stock but returned to the supplier immediately Equipment identified/numbered and entered into a register Equipment inspected weekly. Inspection Register kept Separate, purpose-made storage available for full and empty vessels
Hazardous Chemical Substances (HCS) Regulations Construction Regulation 23	*Control of Storage & Usage of HCS and Flammables	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of HCS (including Flammables) Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site Separate, purpose-made storage available for full and empty containers
Construction. Regulation 23	Construction Vehicles & Earth Moving Equipment	Operators/Drivers appointed to: - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive Written Proof of Competence of above appointee available on Site. Record of Daily inspections kept
General Safety Regulation 13A	*Inspection of Ladders	Competent person appointed in writing to inspect Ladders Ladders inspected at arrival on-site and weekly thereafter. Inspections register kept Application of the types of ladders (wooden, aluminium etc.) regulated by training and inspections and noted in a register
General Safety regulation 13B	Ramps	Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept. Daily inspected and noted in a register

ANNEXURE D

Baseline Risk Assessment



Johannesburg Development Agency Social
Development: Bertrams New Multi Purpose Centre
Baseline Risk Assessment



PALLADIUM RISK MATRIX

PROBABILITY (P)	SEVERITY (S)				FREQUENCY (F)
	EFFECT		Productivity (PR)	Cost Implications (C)	
	Injury / Illness (I)	Environmental Effect (E)			
0. No exposure to the Hazard can arise during any single task.	0. No First Aid or Medical Attention necessary. No contact or injury can occur.	0. No Environmental Effect.	0. No Lost time.	0. Zero cost implication.	0. Hazard arises at period greater than 5 years.
1. Highly Improbable that exposure to the Hazard will arise during any single task.	1. First Aid or Medical Attention.	1. Insignificant Effect - Proper & immediate cleanup will eliminate effect immediately.	1. Loss of Less than 1 man shift	1. R0 - R999	1. Hazard arises every 5 years
2. Unlikely that exposure to the Hazard will arise during any single task.	2. 1-13 Days off Normal Duty with Full Recovery	2. Short Term - 1 day to 6 months	2. Loss of 1 day production on team	2. R1000 - R9999	2. Hazard arises once a year
3. Possible that exposure to the Hazard will arise during any single task.	3. 14 Days or more off Normal Duty with Full Recovery	3. Medium Term - 6 months to 24 months	3. Loss of 2 days to 7 days production on team.	3. R10 000 - R99 999	3. Hazard arises once a month
4. Probable that exposure to the Hazard will arise during any single task.	4. Slight or Severe Permanent Disability	4. Long Term - 24 months to 5 years	4. Loss of 8 days to 30 days production on team.	4. R100 000 - R999 999	4. Hazard arises once a week
5. Almost Certain or Inevitable that exposure to the Hazard will arise during any single task.	5. Fatality	5. Permanent - more than 5 years	5. Loss of 1 days production on Project	5. R1 000 000 +	5. Hazard is permanent

RISK RESULTS (Expressed as a %)

Low	Medium	High	Extremely High
0-40%	41-60%	61-80%	81-100%

ACTION

LOW - Monitor and review every 12 months	MEDIUM - Monitor and Review every 6 months - PRIORITY 3.	HIGH - Monitor and Review 3 months	EXTREMELY HIGH - STOP ALL WORK - Take immediate action. Re-assess. -PRIORITY 1
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Definition of Review - revisit to establish if valid - if changes required, then new written revision will be issued.



Task / Activity	Activity Description	Hazard / Aspect (What are the danger)	Impact/Risk (What can go wrong)	S or H	Legal / Policy Commitment	Base/Core Ranking										Recommended steps for controlling Hazard	Residual Ranking					Responsible person	Timeframe	
						Legal Compliance (Y or N)	Norms/Standards/Regulations (A or E)	Probability	Injury/Illness/Environment	Productivity	Cost Implications	Severity	Risk Rating %	Significance	Probability		Injury/Illness/Environment	Productivity	Cost Implications	Severity	Risk Rating %			Significance
1. Designs and Drawings		1.1A Inadequate/unsafe designs from the design	1.2A Fatalities	S	Construction Regulation (CR) 6	Y	N	5	5	4	5	5	96	EH	1.3A Design of contract to be awarded to a designer by the client	2	2	2	2	3	44	M	Client	Ongoing
	Interpretation of Drawings	Designs and drawings from unqualified and incompetent	1.2B Injuries	H	OHS ACT Section 8	Y	N	5	5	4	5	5	96	EH	- Johannesburg Development Agency, Designers to be either an qualified Architect or a registered and	2	2	2	2	3	44	M	OHS Agent	
			1.2C Property Damage			Y	N	5	5	5	5	5	100	EH	appointed Engineer. Health and Safety Specifications to be provided to the designer. Designer to take	2	2	2	2	3	44	M	Consulting Engineer	
			1.2D Reputational Harm			Y	N	5	5	5	5	5	100	EH	Health and Safety into consideration when designing.	2	2	2	2	3	44	M		
		1.1B Contractor incompetent in interpreting designs	1.2A Fatalities	S	Construction Regulation 5	Y	N	4	5	5	5	5	96	EH	1.3B Contractor to be evaluated prior to awarding the	2	2	2	2	3	44	M	Client	Ongoing
			1.2B Injuries	H	OHS ACT Section 8	Y	N	4	5	5	5	5	96	EH	tender. Contractor to be appointed in terms of CR	2	2	2	2	3	44	M	OHS Agent	
			1.2C Property Damage		OHS ACT Section 37(2)	Y	N	4	5	5	5	5	96	EH	S(1)(k) of Construction Regulations 2016 and in terms	2	2	2	2	3	44	M	Consulting Engineer	
			1.2D Reputational Harm			Y	N	4	5	5	5	5	96	EH	of Section 37(2) of the OHS Act 85 of 1993.	2	2	2	2	3	44	M		
2. Procurement																								
	Material and tools procurement	2.1A Inadequate provision made for Health and Safety	2.2A Fatalities	S	OHS Act GSR 2	Y	N	5	5	4	5	5	96	EH	2.3A Provision has to be made for Health and Safety	2	2	2	3	2	44	M	Client	Ongoing
			2.2B Injuries	H	Construction regulation (CR) 7	Y	N	5	5	4	5	5	96	EH	in the tender documents. When a prospective	2	2	2	3	2	44	M	OHS Agent	
	Equipment procurement	Procurement of incorrect materials and tools	2.2C Property Damage			Y	N	5	5	4	5	5	96	EH	contractor tenders for the project, his tender	2	2	2	3	2	44	M	Consulting Engineer	
	PPE procurement	Procurement of incorrect PPE and ancillary	2.2D Reputational Harm			Y	N	5	5	4	5	5	96	EH	submission is to be evaluated to ensure that he has	2	2	2	3	2	44	M		
	Ancillary procurement													made provision for adequate Health and Safety										
														resources. The project specification is to be taken										
														into account when preparing a tender submission.										
	Management of procurement process	2.1B Incompetent employees appointed in statutory positions	2.2A Fatalities			Y	N	5	5	5	4	5	96	EH	2.3B All prospective employees that will be appointed	2	3	2	2	2	44	M	Client	Ongoing
			2.2B Injuries			Y	N	5	5	5	4	5	96	EH	in statutory positions must be evaluated by the	2	3	2	2	2	44	M	OHS Agent	
			2.2C Property Damage			Y	N	5	5	5	4	5	96	EH	prospective contractor as part of their selection	2	3	2	2	2	44	M	Consulting Engineer	
			2.2D Reputational Harm			Y	N	5	5	5	4	5	96	EH	process. The CV's and qualifications of these	2	3	2	2	2	44	M		
														employees are to be submitted as part of the OHS										
														File to the Clients Representative to evaluate and										
														approve. Also refer to 1.3B.										
	Procured plant, equipment, materials and tools procurement	2.1C Inadequate/ Unsafe plant, materials and equipment procured	2.2A Fatalities			Y	N	4	5	5	5	5	96	EH	2.3C A plant, material and equipment schedule to	2	3	2	2	2	44	M	Client	Ongoing
			2.2B Injuries			Y	N	4	5	5	5	5	96	EH	be included into the OHS File when submitting to the	2	3	2	2	2	44	M	OHS Agent	
			2.3C Property Damage			Y	N	4	5	5	5	5	96	EH	Consultants for review and approval. Maintenance	2	3	2	2	2	44	M	Consulting Engineer	
			2.4D Reputational Harm			Y	N	4	5	5	5	5	96	EH	records/ service history of plant to be evaluated.	2	3	2	2	2	44	M		
3. Site Access																								
	Site Camp access	3.1A Unauthorised access granted to contractor	3.2A Civil Unrest	S	General Administrative Regulations (G)	Y	A	5	4	5	4	5	92	EH	3.3A Client to grant access in writing to the	2	2	2	3	2	44	M	Client	Ongoing
			3.2B Reputational Harm	H	OHS Act Section 8	Y	A	5	5	5	5	5	100	EH	contractor. Public Participation and consultation	2	2	2	3	2	44	M	OHS Agent	
			3.2C Property Damage			Y	A	5	5	5	4	5	96	EH	meetings to be held with the community informing	2	2	2	3	2	44	M	Consulting Engineer	
	Security	Access to site is not water tight - exposure to crime	3.2D Theft			Y	A	5	4	5	5	5	96	EH	them about the intended works.	2	2	2	3	2	44	M		
	Barricading	Barricading and open- access to the public	3.2A Civil Unrest			Y	A	5	4	5	4	5	92	EH		2	2	2	3	2	44	M		
		Temporary access is not granted	3.2B Reputational Harm			Y	A	5	5	5	5	5	100	EH		2	2	2	3	2	44	M		
			3.2C Property Damage			Y	A	5	5	5	4	5	96	EH		2	2	2	3	2	44	M		
			3.2D Property loss due to Theft			Y	A	5	4	5	5	5	96	EH		2	2	2	3	2	44	M		
4. Transportation of material/equipment/tools/containers to/from site																								
		4.1A Untrained driver	4.2A Fatalities	S	Construction Regulation 23	Y	A	4	4	4	4	5	84	EH	4.3A Driver to be licensed, authorised. Induction to	2	3	2	2	3	46	M	Contractor	Ongoing
			4.2B Injuries	H	OHS Act Section 8	Y	A	4	4	4	4	5	84	EH	be done.	2	3	2	2	3	46	M	OHS Agent	
			4.2C Property Damage		National Road Traffic Act	Y	A	4	4	4	4	5	84	EH		2	3	2	2	3	46	M		
	Transportation of material/equipment/tools/containers to/from site	4.1B Unroadworthy vehicle	4.2D Civil claims			Y	A	4	4	4	4	5	84	EH	4.3B Vehicle to be inspected every time before	2	3	2	2	3	46	M	Contractor	Ongoing
			4.2E Reputational harm			Y	A	4	4	4	4	5	84	EH	coming onto site. Pre use inspection to be done.	2	3	2	2	3	46	M		
														Vehicle to be fitted with a orange rotating light.										
		4.1C Material/equipment/containers not secured properly	4.2C Property Damage			Y	N	3	4	4	4	5	80	H	4.3C Material/equipment to be properly secured. No	2	3	2	2	3	46	M	Contractor	Ongoing
			4.2B Injuries			Y	N	3	4	4	4	5	80	H	"satan" type levers. Load to be inspected before	2	3	2	2	3	46	M		
			4.2F Property loss due to Theft			Y	N	3	4	4	4	5	80	H	coming onto site.	2	3	2	2	3	46	M		
		4.1D Unsafe road conditions	4.2A Fatalities			Y	A	4	4	4	4	5	84	EH	4.3D Driver to adhere to speed limits and Road	2	3	2	2	3	46	M	Contractor	Ongoing
			4.2B Injuries			Y	A	4	4	4	4	5	84	EH	Signage. If driving in inclement weather conditions,	2	3	2	2	3	46	M		
			4.2C Property Damage			Y	A	4	4	4	4	5	84	EH	driver to drive according to conditions.	2	3	2	2	3	46	M		
			4.2D Civil claims			Y	A	4	4	4	4	5	84	EH		2	3	2	2	3	46	M		
			4.2E Reputational harm			Y	A	4	4	4	4	5	84	EH	4.1E Driver to adhere to speed limits and road signs. If	2	3	2	2	3	46	M		
														driving on site vehicle to be escorted to the designated										
		4.1E Collision with other vehicles/property	4.2A Fatalities			Y	A	4	4	4	4	5	84	EH	area. Head Lights to be on, as well as strobe light.	2	3	2	2	3	46	M	Contractor	Ongoing
			4.2B Injuries			Y	A	4	4	4	4	5	84	EH	Flagman to be identified and visible.	2	3	2	2	3	46	M		

			4.2C Property Damage			Y	A	4	4	4	4	5	84	EH				2	3	2	2	3	48	M			
		4.1F Theft	4.2A Fatalities			Y	A	5	4	4	4	5	88	EH				2	3	2	2	3	48	M	Contractor	Ongoing	
			4.2B Injuries			Y	A	5	4	4	4	5	88	EH				2	3	2	2	3	48	M			
			4.2C Property Damage			Y	A	5	4	4	4	5	88	EH	4.3F When leaving departure point, driver is to drive			2	3	2	2	3	48	M			
			4.2E Reputational harm			Y	A	5	4	4	4	5	88	EH	straight to site. If possible, drive during day time on			2	3	2	2	3	48	M			
			4.2F Property loss due to Theft			Y	A	5	4	4	4	5	88	EH	pre-determined routes.			2	3	2	2	3	48	M			
		4.1G Talking on cell phone while driving	4.2A Fatalities			Y	A	4	4	4	4	5	84	EH	4.3G Driver to wait until he arrives at the designated			2	2	3	2	3	48	M	Contractor	Ongoing	
			4.2B Injuries			Y	A	4	4	4	4	5	84	EH	area. No talking on cell phone while driving.			2	2	3	2	3	48	M			
			4.2C Property Damage			Y	A	4	4	4	4	5	84	EH				2	2	3	2	3	48	M			
		4.1H Driving while under the influence of alcohol	4.2A Fatalities			Y	A	4	4	4	4	5	84	EH	4.3H Random alcohol test with a breathalyser to be done on drivers			2	2	3	2	3	48	M	Contractor	Ongoing	
			4.2B Injuries			Y	A	4	4	4	4	5	84	EH	arriving on site everyday. Induction to be done.			2	2	3	2	3	48	M			
			4.2C Property Damage			Y	A	4	4	4	4	5	84	EH				2	2	3	2	3	48	M			
		4.1I Speeding	4.2A Fatalities			Y	A	4	4	4	4	5	84	EH	4.3I Driver to adhere to on-site speed limit of ~8km/h in congested ar			2	2	3	2	3	48	M	Contractor	Ongoing	
			4.2B Injuries			Y	A	4	4	4	4	5	84	EH				2	2	3	2	3	48	M			
			4.2C Property Damage			Y	A	4	4	4	4	5	84	EH				2	2	3	2	3	48	M			
5. Site Establishment																											
		Sanitation Facilities	5.1A Unauthorised access onto property	5.2A Injuries	S	Facilities Regulations	Y	A	4	5	4	5	5	92	EH	5.3A Client to grant access in writing to the			2	2	3	2	3	48	M	Contractor	Ongoing
		Eating area (Dining rooms)	5.2B Property Damage				Y	A	4	5	4	5	5	92	EH	contractor. Public Participation and consultation			2	2	3	2	3	48	M	OHS Agent	
		Designated Parking areas	5.2C Civil Unrest		H	General Administrative Regulations	Y	A	4	5	4	5	5	92	EH	meetings to be held with the community informing			2	2	3	2	3	48	M	Client	
		Site Office	5.2D Theft				Y	A	4	5	4	5	5	92	EH	them about the intended works.			2	2	3	2	3	48	M		
		Lockable flammable materials storage	5.2E Reputational Harm				Y	A	4	5	4	5	5	92	EH				2	2	3	2	3	48	M		
		Tools Storage area																									
		Drinking water	5.1B Poor planning of the project leading to incomplete establishment of the construction area	5.2A Injuries		OHS Act Section 8	Y	A	4	5	4	5	5	92	EH	5.3B Activity to be planned properly and instructions to be given to a			2	2	3	2	3	48	M	Contractor	Ongoing
		Ergonomics	5.2B Property Damage				Y	A	4	5	4	5	5	92	EH	person nominated by the Contractor and the Client's Representative			2	2	3	2	3	48	M	OHS Agent	
		Changing rooms	5.2C Civil Unrest		CR 7		Y	A	4	5	4	5	5	92	EH				2	2	3	2	3	48	M		
			5.2D Theft				Y	A	4	5	4	5	5	92	EH				2	2	3	2	3	48	M		
			5.2E Reputational Harm				Y	A	4	5	4	5	5	92	EH				2	2	3	2	3	48	M		
		5.1C Poor Communication	5.2A Injuries				Y	N	5	4	5	5	5	96	EH	5.3C Formal communication to be evident between the contractor			2	2	3	2	3	48	M	Contractor	Ongoing
			5.2B Property Damage				Y	N	5	4	5	5	5	96	EH	and the Client.			2	2	3	2	3	48	M	OHS Agent	
			5.2C Civil Unrest				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
			5.2D Theft				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
			5.2E Reputational Harm				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
		5.1D Damaging existing services e.g. sewage, power cables, subsoil drains system during connections of the services to the site camp	5.2A Injuries			Facilities Regulations	Y									5.3D Where possible existing service provider to be											
			5.2B Property Damage				Y	N	5	4	5	5	5	96	EH	used to ensure knowledge of existing services. If not,			2	2	3	2	3	48	M	OHS Agent	
			5.2C Civil Unrest				Y	N	5	4	5	5	5	96	EH	a alternative service provider to be used and to be			2	2	3	2	3	48	M		
			5.2E Reputational Harm				Y	N	5	4	5	5	5	96	EH	monitored.			2	2	3	2	3	48	M		
			5.2F Acute and Chronic Illnesses				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
		5.1E Poor refuse removal/No removal of waste during the demolishing of the excavations and site concrete palisade wall	5.2A Injuries				Y									5.3E Refuse removal service provider to be appointed			2	2	3	2	3	48	M	Contractor	Ongoing
			5.2B Property Damage				Y	N	5	4	5	5	5	96	EH	upon establishment. Waste removal/ disposal slips to			2	2	3	2	3	48	M	OHS Agent	
			5.2C Civil Unrest				Y	N	5	4	5	5	5	96	EH	be kept with the OHS File on site.			2	2	3	2	3	48	M		
			5.2E Reputational Harm				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
			5.2F Acute and Chronic Illnesses				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
		5.1F Employees untrained and incompetent utilised during the establishment phase from the principal contractor or suppliers	5.2A Injuries				Y									5.3F Employees assisting with this activity to be			2	2	3	2	3	48	M	Contractor	Ongoing
			5.2B Property Damage				Y	N	5	4	5	5	5	96	EH	trained- documented on the Job training to be done by			2	2	3	2	3	48	M	OHS Agent	
			5.2C Civil Unrest				Y	N	5	4	5	5	5	96	EH	the supervisor.			2	2	3	2	3	48	M		
			5.2E Reputational Harm				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
																5.3G All tools to be inspected everyday prior to use as well as											
																equipment. Material used to be in accordance with											
		5.1G Tools/material/equipment unsafe/poor	5.2A Injuries				Y	N	5	4	5	5	5	96	EH	designs specifications and the relevant SANS code.			2	2	3	2	3	48	M	Contractor	Ongoing
			5.2B Property Damage				Y	N	5	4	5	5	5	96	EH	All tools to be inspected by the appointed person and			2	2	3	2	3	48	M	OHS Agent	
			5.2E Reputational Harm				Y	N	5	4	5	5	5	96	EH	to be colour coded or marked so they can be easily identified.			2	2	3	2	3	48	M		
			5.2G Fatalities				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
		5.1H Social Disruption caused by lack of communication on project establishment- Employment ,community risks and safety, traffic disruptions	5.2A Injuries				Y									5.3H Permission to be granted from the community .											
			5.2B Property Damage				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M	Contractor	
			5.2C Civil Unrest				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M	OHS Agent	
			5.2E Reputational Harm				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
		5.1I Contractors/ Service providers working on site without being approved by the OHS department	5.2A Injuries				Y									3.3I All contractors/ service providers to report to the			2	2	3	2	3	48	M	Contractor	Ongoing
			5.2B Property Damage				Y	N	5	4	5	5	5	96	EH	OHS Department before any work starts.			2	2	3	2	3	48	M	OHS Agent	
			5.2C Civil Unrest				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
			5.2E Reputational Harm				Y	N	5	4	5	5	5	96	EH				2	2	3	2	3	48	M		
6. Loading/offloading of material/equipment by hand																											
		6.1A Nip/pinch points	6.2A Injuries		S	OHS Act Section 8	Y	N	4	5	4	5	5	92	EH	6.3A Employees to take instructions from one person.			3	2	3	2	3	52	M	Contractor	Ongoing
			6.2B Property Damage		H	Construction Regulation 9	Y	N	4	5	4	5	5	92	EH	Employees to ensure safe placement of hands.			3	2	3	2	3	52</			

	Loading/offloading of material/ equipment/tools by hand		6.2C Overexertion			Y	N	4	5	4	5	5	92	EH	Employees to wear leather gloves and relevant PPE in good and use	3	2	3	2	3	52	M		
		6.1B Poor communication	6.2A Injuries			Y	N	4	5	4	5	4	88	EH	6.3B One person gives orders. If the person has to	3	2	3	2	3	52	M	Contractor	Ongoing
			6.2B Property Damage			Y	N	4	5	4	5	4	88	EH	leave the area he is to delegate the responsibility to	3	2	3	2	3	52	M		
			6.2C Overexertion			Y	N	4	5	4	5	4	88	EH	another employee.	3	2	3	2	3	52	M		
			6.2D Twist or Wrench Ligaments			Y	N	4	5	4	5	4	88	EH		3	2	3	2	3	52	M		
		6.1C Slipping/tripping	6.2A Injuries			Y	N	4	5	4	5	4	88	EH	6.3C Pre work inspection of area and walkways to be done to ensure	3	2	3	2	3	52	M	Contractor	Ongoing
			6.2B Property Damage			Y	N	4	5	4	5	4	88	EH	tripping hazards in walkways.	3	2	3	2	3	52	M		
			6.2C Overexertion			Y	N	4	5	4	5	4	88	EH		3	2	3	2	3	52	M		
			6.2D Twist or Wrench Ligaments			Y	N	4	5	4	5	4	88	EH		3	2	3	2	3	52	M		
		6.1D Employee handling material/equipment that is too heavy	6.2A Injuries			Y	N	4	5	4	5	4	88	EH	6.3D No employee to handle anything weighing +- 25kg's	3	2	3	2	3	52	M	Contractor	Ongoing
			6.2B Property Damage			Y	N	4	5	4	5	4	88	EH	or more. In case were more than 25kg's need to be handled	3	2	3	2	3	52	M		
			6.2C Overexertion			Y	N	4	5	4	5	4	88	EH	other employees/plant to assist.	3	2	3	2	3	52	M		
			6.2D Twist or Wrench Ligaments			Y	N	4	5	4	5	4	88	EH	Bend knees, feet apart, back straight. Get mechanical help e.g. Lifting machine, heavy loads, etc.	3	2	3	2	3	52	M		
7. Establishing of plant		7.1A Unsafe plant	7.2A Fatalities	S	Construction Regulation 23	Y	N	4	5	5	4	5	92	EH	7.3A Plant to be inspected, authorised and approved	3	3	3	3	3	60	M	Contractor	Ongoing
	Establishing of plant		7.2B Injuries	H	General Machinery Regulations	Y	N	4	5	5	4	5	92	EH	before working on site. All test certificates to be valid	3	3	3	3	3	60	M	Consulting Engineer	
			7.2C Property Damage		OHS Act Section 8	Y	N	4	5	5	4	5	92	EH	and maintenance records as well as pre-use checklist to be available.	3	3	3	3	3	60	M	OHS Agent	
			7.2D Civil claims			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
			7.2E Reputational Harm			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
		7.1B Untrained operator/driver	7.2A Fatalities			Y	N	4	5	5	4	5	92	EH	7.3B Driver/ operator to be trained, competent, authorised and legally appointed.	3	3	3	3	3	60	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
			7.2C Property Damage			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
		7.1C Unsafe access onto plant	7.2A Fatalities			Y	N	4	5	5	4	5	92	EH	7.3C Operator/ driver to ensure firm footing when gaining access onto/ into plant.	3	3	3	3	3	60	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
			7.2C Property Damage			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
		7.1D Driving with loose hooks/ loads	7.2A Fatalities			Y	N	4	5	5	4	5	92	EH	7.3D Hooks to be secured and stowed when driving on site. All loads to be secured and strapped properly before driving.	3	3	3	3	3	60	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
			7.2C Property Damage			Y	N	4	5	5	4	5	92	EH		3	3	3	3	3	60	M		
		7.1E Inclement weather conditions	7.2A Fatalities			Y	N	4	5	5	5	5	96	EH	7.3E Operator/ driver to drive according to conditions. To increase following distance in wet, muddy, foggy, misty conditions. ->8km/h in congested areas.	3	3	3	3	3	60	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			7.2C Property Damage			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
		7.1F Poor ground conditions	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3F Operator to inspect ground conditions when in doubt and Rigger/ Banksman to assist. The outside edge of the outrigger pad is not to stand closer than 1.5 m from the edge of an embankment if the angle is greater than 45 degrees when lifting machines are used. Driver not to drive if in doubt.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		7.1G Oil/diesel spills	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3G Pre-use checklist and Maintenance record to be available. Drip Tray to be in cab. Operators and drivers to be trained on a spillage containment procedure.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2D Slips and Trips			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		7.1H Unsafe manual handling of outrigger pads	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3H If pads are stacked on top of each other, the top pad is to be removed first. Employee to wear gloves.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage																					
		7.1I Driving/operating while busy with cell phone	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3I Operator/ driver not allowed to talk on cell phone while operating or driving.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		7.1J Unsafe interaction between people/ plant/property	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3J Flagman to escort plant when in congested areas. Operator to adhere to road signs and adhere to the speed limits.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		7.1K Unauthorised access onto/ into plant	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3K Operator/ driver to adhere to Lock out procedure and to be trained.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		7.1L Plant rolling forwards/ backwards while stationary	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3L Handbrake to be engaged as per K53 standard. Wheels to be checked on an incline/ decline.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		7.1M Incorrect access routes used	7.2A Fatalities			Y	N	4	5	4	5	5	92	EH	7.3M Only approved access routes to be used.	2	2	3	2	3	48	M	Contractor	Ongoing
			7.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			7.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
8. Loading/offloading of plant from lowbed		8.1A Sub standard lowbed	8.2A Fatalities	S	Construction Regulation 23	Y	N	4	5	4	5	5	92	EH	8.3A Lowbed to be authorised, inspected and approved. Pre-use checks to be done and Maintenance records to be available on request.	2	2	3	2	3	48	M	Contractor	Ongoing
	Loading/offloading of plant from lowbed		8.2B Injuries	H	General Machinery Regulations	Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M	OHS Agent	
			8.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M	Consulting Engineer	
			8.2D Civil Claims			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			8.2E Reputational harm		OHS Act Section 8	Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		8.1B Untrained driver	8.2A Fatalities		CR 27	Y	N	4	5	4	5	5	0	EH	8.3B Driver to be trained, appointed and authorised. Minimum one Planned Task Observation on driver to be done.	2	2	3	2	3	0	M	Contractor	Ongoing
			8.2B Injuries		CR 28	Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			8.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		8.1C Poor ground conditions	8.2A Fatalities			Y	N	4	5	4	5	5	92	EH	8.3C Ground conditions to be checked prior to loading/ offloading from lowbed. If ground conditions are poor, alternative area to be allocated.	2	2	3	2	3	48	M	Contractor	Ongoing
			8.2B Injuries			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			8.2C Property Damage			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
			8.2F Slips and Trips			Y	N	4	5	4	5	5	92	EH		2	2	3	2	3	48	M		
		8.1D Plant falling from lowbed while loading/ offloading to/ from lowbed	8.2A Fatalities			Y	N	4	5															

		8.1F Driving in inclement weather conditions	8.2A Fatalities 8.2B Injuries 8.2C Property Damage 8.2F Slips and Trips		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH	8.3F Drivers to drive according to conditions. Driver to adhere to speed limits and signage.	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	60 M 60 M 60 M 60 M	Contractor	Ongoing
		8.1G Poor communication	8.2A Fatalities 8.2B Injuries 8.2C Property Damage 8.2F Slips and Trips		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH	8.3G Rigger and Operator to communicate via hand signals and use whistle. Radios to be used if line of sight is obstructed	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	60 M 60 M 60 M 60 M	Contractor	Ongoing
		8.1H Oil/diesel spill	8.2A Fatalities 8.2B Injuries 8.2C Property Damage 8.2F Slips and Trips		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH	8.3H Drip tray and rags to be available on plant and lifting machines. Operators to be trained on a spillage procedure.	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	60 M 60 M 60 M 60 M	Contractor	Ongoing
		8.1I Driver not medically fit	8.2A Fatalities 8.2B Injuries 8.2C Property Damage 8.2E Reputational harm		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH	8.3I Driver to have passed Medical Evaluation and to be declared medically fit by an OHP. Proof of medicals to be always available and recorded in the OHS file on site and produced on request	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	60 M 60 M 60 M 60 M	Contractor	Ongoing
		8.1J Driver under the influence of alcohol/ drugs	8.2A Fatalities 8.2B Injuries 8.2C Property Damage 8.2E Reputational harm		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH	8.3J Driver not allowed to drive while under the influence alcohol, drugs or any other toxic substance. Random tests to be done and records to be always kept in the OHS file on site	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	60 M 60 M 60 M 60 M	Contractor	Ongoing
		8.1K Driver under medication	8.2A Fatalities 8.2B Injuries 8.2C Property Damage 8.2E Reputational harm		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH	8.3K Driver to declare if he/ she is using medication especially if alcohol is in the medication. Proof of the medication to be evident e.g. Box with the contents of the medication.	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	60 M 60 M 60 M 60 M	Contractor	Ongoing
		8.1L Fatigue	8.2A Fatalities 8.2B Injuries 8.2C Property Damage 8.2E Reputational harm 8.2F Slips and Trips		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH 92 EH	8.3L Prior to driving the driver to ensure at least 8 hours rest of 24 hours if fatigue persists, driver to consult a doctor immediately to avoid unnecessary incidents/accidents on site.	3 3	60 M 60 M 60 M 60 M 60 M	Contractor	Ongoing
9. Housekeeping											
Stacking & Storage of material/equipment.		9.1A Nip/pinch points	9.2A Injuries 9.2D Cuts	S Construction Regulation 28 H OHS Act Section 8	Y N 4 4 4 4 4 Y N 4 4 4 4 4	80 H 80 H	9.3A Employees to wear correct PPEs such as leather gloves. Employ to ensure safe placement of hands when offloading.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor OHS Agent	
	Stacking & Storage of material/equipment.	9.1B Unsafe stacking practices	9.2A Injuries 9.2B Fatalities	CR 27	Y N 4 5 5 5 5 Y N 4 5 5 5 5	96 EH 96 EH	9.3B Employees to be trained in the proper stacking Procedure. The base of a stack to be 3 times the height. Walkways of at least 1.5 m to be left between stacks. Dunnage/ sandbags underneath stacks to be placed at the edges to prevent tripping. No protruding dunnage/ sandbags in walkways.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor	Ongoing
		9.1C Snake/insect bites	9.2A Injuries 9.2B Fatalities 9.2C Acute and chronic illness		Y N 4 5 5 5 5 Y N 4 5 5 5 5 Y N 4 5 5 5 5	96 EH 96 EH 96 EH	9.3C Employees to check area before handling material. Do visual inspection of stacks, stamp feet, turn material over with plant or feet. Hooks to be used to minimize exposure to insects/ snakes. All grass/ weeds to be kept short.	3 2 2 2 3 3 2 2 2 3 3 2 2 2 3	48 M 48 M 48 M	Contractor	Ongoing
		9.1D Untrained employees	9.2A Injuries 9.2B Fatalities		Y A 4 5 5 5 5 Y A 4 5 5 5 5	96 EH 96 EH	9.3D Employees to be trained in the Stacking Procedure.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor	Ongoing
		9.1E Dunnage/sandbags protruding in walkways	9.2A Injuries 9.2B Fatalities		Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH	9.3E Daily inspections to be done to ensure no material is protruding in walkways.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor	Ongoing
		9.1F No walkways between stacked material	9.2A Injuries 9.2B Fatalities		Y A 4 4 4 4 4 Y A 4 4 4 4 4	80 H 80 H	9.3F Walkways of at least 1.5m between stacks to be left to ensure effective movement.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor	Ongoing
		9.1G Slip/trip	9.2A Injuries 9.2B Fatalities		Y N 4 4 4 4 4 Y N 4 4 4 4 4	80 H 80 H	9.3G Ensure firm footing and try and avoid muddy and wet areas.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor	Ongoing
		9.1H Handling material that is too heavy	9.2A Injuries 9.2B Fatalities		Y N 4 4 4 4 5 Y N 4 4 4 4 5	84 EH 84 EH	9.3H Employees not to lift material more than 25kg's alone. Employees to get help in case they must lift more than 25kg's. Employees to bend knees and keep back straight when picking material up.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor	Ongoing
		9.1I Unauthorised access into area	9.2A Injuries 9.2B Fatalities		Y N 4 4 4 4 5 Y N 4 5 4 4 5	84 EH 88 EH	9.3I Area to be always barricaded, signage to be posted and tags to be displayed. Responsible person's details to be on the tag.	3 2 2 2 3 3 2 2 2 3	48 M 48 M	Contractor	Ongoing
10. Signage		10.1A Sub standard signage	10.2A Injuries 10.2B Misinformation 10.2C Reputational damage	OHS Act 85 of 1993 General Safety Regulations	Y N 4 4 3 4 5 Y N 4 4 3 4 5 Y N 4 4 3 4 5	80 H 80 H 80 H	10.3A All signage to comply to relevant standards.	2 2 2 3 2 2 2 2 3 2 2 2 2 3 2	44 M 44 M 44 M	Contractor OHS Agent	Ongoing
		10.1B Signage not relating to area	10.2A Injuries 10.2B Misinformation		Y N 4 3 4 4 5 Y N 4 3 4 4 5	80 H 80 H	10.3B A signage survey to be conducted prior to any activity starting.	2 2 2 3 2 2 2 2 3 2	44 M 44 M	Contractor	Ongoing
		10.1C Employees not trained and incompetent	10.2A Injuries 10.2B Misinformation		Y N 4 4 4 4 4 Y N 4 4 4 4 4	80 H 80 H	10.3C Employees to be trained in the meaning of the signage from induction and to be done ongoing in a routine.	2 2 2 3 2 2 2 2 3 2	44 M 44 M	Contractor	Ongoing
11. Grinding and Cutting		11.1A Unsafe equipment	11.2A Fatalities 11.2B Injuries 11.2C Temporary or Permanent Physical Damage 11.2D Property Damage 11.2E Reputational Damage	S General Safety Regulations H Construction Regulation 24 Phys Driven Machinery Regulation 8 Noise Induced Hearing Loss Regulations 12	Y A 4 4 5 5 5 Y A 4 4 5 5 5 Y A 4 4 5 5 5 Y A 4 4 5 5 5 Y A 4 4 5 5 5	92 EH 92 EH 92 EH 92 EH 92 EH	11.3A Equipment to be inspected by an qualified, trained, competent and appointed person monthly and records to be kept on site. Pre-use inspections to be done randomly. Dead Man switch to be always engaged.	2 3 2 3 3 2 3 2 3 3 2 3 2 3 3 2 3 2 3 3 2 3 2 3 3	52 M 52 M 52 M 52 M 52 M	Contractor OHS Agent	Ongoing
	Grinding and Cutting Work	11.1B Untrained employee	11.2A Fatalities 11.2B Injuries 11.2C Temporary or Permanent Physical Damage	GSR 9	Y N 4 5 5 5 5 Y N 4 5 5 5 5 Y N 4 5 5 5 5	96 EH 96 EH 96 EH	11.3B Employee to be trained, competent and officially appointed.	2 3 2 3 3 2 3 2 3 3 2 3 2 3 3	52 M 52 M 52 M	Contractor	Ongoing
		11.1C Poor spark containment	11.2A Fatalities 11.2B Injuries 11.2C Temporary or Permanent Physical Damage 11.2F Fires and Severe Skin Burns		Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5 Y N 4 5 4 5 5	92 EH 92 EH 92 EH 92 EH	11.3C Welding screens, fire blankets to be used. No employees in the "line of fire" from sparks.	2 3 2 3 3 2 3 2 3 3 2 3 2 3 3 2 3 2 3 3	52 M 52 M 52 M 52 M	Contractor	Ongoing
		11.1D Old grinding/cutting disc lying around (Poor housekeeping)	11.2B Injuries 11.2C Temporary or Permanent Physical Damage		Y N 4 5 5 5 5 Y N 4 5 5 5 5	96 EH 96 EH	11.3D All grinding/cutting discs to be disposed of in the correct bin - refer to the Waste Management Plan.	2 3 2 3 3 2 3 2 3 3	52 M 52 M	Contractor	Ongoing
		11.1E Failure to Lock Out	11.2A Fatalities		Y N 5 4 5 5 5	96 EH	11.1E Employee to unplug grinder when not using it. When	2 3 2 3 3	52 M	Contractor	Ongoing

			13.1E Ladder tipping over	13.2A Injuries		Y	N	4	4	4	5	4	84	EH	13.3E One employee to hold on to ladder while other	2	2	3	3	2	48	M	Contractor	Ongoing
				13.2B Property Damage		Y	N	4	4	4	5	4	84	EH	employee climbs. Ladder to be secured at the bottom when	2	2	3	3	2	48	M		
				13.2D Temporary or permanent Disability		Y	N	4	4	4	5	4	84	EH	climbing into/ out of an excavation.	2	2	3	3	2	48	M		
			13.1F Slipping while climbing	13.2A Injuries		Y	N	4	4	4	5	4	84	EH	13.3F Employee to ensure firm footing. Not to climb the ladder during	2	2	3	3	2	48	M	Contractor	Ongoing
				13.2B Property Damage		Y	N	4	4	4	5	4	84	EH	wet weather conditions or where neither the ladder or the safety boot	2	2	3	3	2	48	M		
				13.2D Temporary or permanent Disability		Y	N	4	4	4	5	4	84	EH		2	2	3	3	2	48	M		
			13.1G Reflection of sun from ladders	13.2A Injuries		Y	N	4	4	4	5	4	84	EH	13.3G Employees to ask for dark safety goggles where the	2	2	3	3	2	48	M	Contractor	Ongoing
				13.2B Property Damage		Y	N	4	4	4	5	4	84	EH	reflection is too strong.	2	2	3	3	2	48	M		
				13.2D Temporary or permanent Disability		Y	N	4	4	4	5	4	84	EH		2	2	3	3	2	48	M		
			13.1H Climbing with tools/nuts/bolts in hand	13.2A Injuries		Y	N	4	4	4	5	4	84	EH	13.3H Bolt bags are to be used. No employee will be	2	2	3	3	2	48	M	Contractor	Ongoing
				13.2B Property Damage		Y	N	4	4	4	5	4	84	EH	allowed to climb a ladder with any tools in his hand.	2	2	3	3	2	48	M		
				13.2D Temporary or permanent Disability		Y	N	4	4	4	5	4	84	EH		2	2	3	3	2	48	M		
			13.1I Metal ladders near electric lines	13.2A Injuries		Y	N	4	4	4	5	4	84	EH	13.3I Wooden ladders to be used when working in the	2	2	3	3	2	48	M	Contractor	Ongoing
				13.2B Property Damage		Y	N	4	4	4	5	4	84	EH	close proximity of electric lines.	2	2	3	3	2	48	M		
				13.2E Electrical shock		Y	N	4	4	4	5	4	84	EH		2	2	3	3	2	48	M		
				13.2F Severe Burns		Y	N	4	4	4	5	4	84	EH		2	2	3	3	2	48	M		
14. Fall Risk on elevated positions			14.1A Tools/Equipment/Material falling	14.2A Fatalities	S Construction Regulation 10	Y	N	5	4	5	5	5	96	EH	14.3A All tools to be fitted with lanyards and to be worn	4	3	3	3	4	68	H	Contractor	Ongoing
	Working at height			14.2B Injuries	H	Y	N	5	4	5	5	5	96	EH	around wrist. Chain straps to be used. Heavier equipment/tools to be	4	3	3	3	4	68	H	OHS Agent	
	Retaining wall works			14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	the structure. Bolt bags to be used when bolts are taken up.	4	3	3	3	4	68	H	Consulting Engineer	
	Earthworks														No loose, nuts, bolts, tools or any other objects on the structure/edges.									
	Concrete and reinforcement works		14.1B Employee untrained	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3B Employee to be trained and to be trained, competent, medical	4	3	3	3	4	68	H		
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	authorised to work at Heights. Training provider to be SAQA accredited	4	3	3	3	4	68	H	Contractor	Ongoing
	Finishing			14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			14.1C Employee not hooked	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3C Employees to be hooked by safety harness at all times -100%	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	Additional slings to be tied around larger items and employees to hold	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	onto the slings to prevent "Backslashing" on the lanyards	3	4	3	3	4	68	H		
			14.1D Throwing objects	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3D Objects are not to be thrown overboard from elevated position	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	or to each other. No horseplay to be allowed while working on-site.	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH		3	4	3	3	4	68	H		
			14.1E Employee fear of heights	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3E Employee to declare to supervisor if any medical	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	condition or medication is used. Employee to complete	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	Heights Questionnaire.	3	4	3	3	4	68	H		
			14.1F Not medically fit	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3F Entrance medical. Report any medical condition or	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	medication to supervisor. Not to work at Heights when on	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	medication.	3	4	3	3	4	68	H		
			14.1G No access provided or in use	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3G All ladders to be secured and extend at least 900mm	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	past landing. Angle ladder correctly. All ladders to be on	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	register and to be inspected daily before use, and monthly	3	4	3	3	4	68	H		
															by a appointed person.									
			14.1H Unsafe work platforms	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3H All elemental platforms must have no openings in	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	floor. Surface to be oil free. No loose material and	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	equipment lying around on platforms or on the edge of an	3	4	3	3	4	68	H		
				14.2E Slips/Trips		Y	N	5	4	5	5	5	96	EH	excavation.	3	4	3	3	4	68	H		
			14.1I Incorrect use of Safety Harness	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3I Do not hook lanyard to each other. Ensure safety	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	harness adjusted to fit person properly. Only hook onto	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	solid anchor points. Ensure 100% tie down at all times	3	4	3	3	4	68	H		
				14.2D Fall from height		Y	N	5	4	5	5	5	96	EH	when working at Heights. At least one lanyard must be	3	4	3	3	4	68	H		
				14.2E Slips/Trips		Y	N	5	4	5	5	5	96	EH	secured at all times, especially when a employee moves by	3	4	3	3	4	68	H		
															means of the AB method. When working at Heights,									
															employees are to work according to a "buddy" system.									
			14.1J No place to secure harness	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3J Correct Crosby clamps ("do not saddle dead horse").	3	4	3	3	4	68	H	Contractor	Ongoing
				14.2B Injuries		Y	N	5	4	5	5	5	96	EH	Lifeline to be tagged on register and to be inspected prior	3	4	3	3	4	68	H		
				14.2C Temporary or Permanent disability		Y	N	5	4	5	5	5	96	EH	to use by an competent appointed person. Findings to be	3	4	3	3	4	68	H		
															noted and actioned immediately. Only use proper steel									
															wire rope. Minimum 10mm to erect a lifeline. SALA Blocks									
															(inertia reel) to be used. To be inspected daily before use									
															and to be inspected monthly by a competent appointed									
															person and records to be kept. When offloading containers,									
															employees are to be hooked onto a SALA Block (inertia									
															reel) that must be hooked onto the main hook of the crane.									
															No employees allowed within 300 mm away from the edge									
															of an excavation deeper than 2 meters.									
			14.1K No emergency procedure if a person fall	14.2A Fatalities		Y	N	5	4	5	5	5	96	EH	14.3K Supervisor to ensure and provide place to secure	3	4	3	3	4	68	H	Contractor	Ongoing

		15.2D Fatalities			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
	15.1C Poor ventilation	15.2A Injuries			Y	N	4	4	4	4	5	84	EH	15.3C Store to be adequately ventilated to ensure no build up of fumes.			3	3	2	2	3	52	M	Contractor	Ongoing
		15.2B Acute and Chronic Illnesses			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
		15.2C Poisoning			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
		15.2D Fatalities			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
	15.1D Unauthorised access	15.2A Injuries			Y	N	4	4	4	4	5	84	EH	15.3D Store to be controlled by appointed employee. To be locked and key to be kept with appointed employee.			3	3	2	2	3	52	M	Contractor	Ongoing
		15.2B Acute and Chronic Illnesses			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
		15.2C Poisoning			Y	N	4	4	4	4	5	84	EH	Register to be implemented to control issue of HCS's.			3	3	2	2	3	52	M		
		15.2D Fatalities			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
	15.1E Fire	15.2A Injuries			Y	N	4	4	4	4	5	84	EH	15.3E Fire extinguishers to be posted. MSDS's to be studied to ensure correct Fire extinguishers are posted.			3	3	2	2	3	52	M	Contractor	Ongoing
		15.2B Acute and Chronic Illnesses			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
		15.2C Poisoning			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
		15.2D Fatalities			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
	15.1F Containers not identified	15.2A Injuries			Y	N	4	4	4	4	5	84	EH	15.3F All containers to be identified.			3	3	2	2	3	52	M	Contractor	Ongoing
		15.2B Acute and Chronic Illnesses			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
		15.2C Poisoning			Y	N	4	4	4	4	5	84	EH				3	3	2	2	3	52	M		
17. Scaffolding Work																									
	17.1A Scaffold erected by an untrained, incompetent and unqualified individual	17.2A Fatalities	S Construction Regulation 16		Y	N	5	5	5	5	5	100	EH	17.3A All scaffolding to be erected by a trained, qualified, appointed competent scaffold erector. Scaffolding to be inspected and supervised daily and after inclement weather by a competent appointed scaffold inspector to sign the green tag and enter the date of inspection. If scaffolding is unsafe, a red tag is to be posted. Scaffold to comply to SANS 10 085 Standard. Special scaffold to be approved and a design to be evident.			4	3	4	3	4	72	H	Contractor	Ongoing
	Scaffolding Work	17.2B Injuries	H SANS 10085		Y	N	5	5	5	5	5	100	EH				4	3	4	3	4	72	H	OHS Agent	
		17.2C Temporary or permanent Physical damage			Y	N	5	5	5	5	5	100	EH				4	3	4	3	4	72	H	Consulting Engineer	
		17.2D Civil Claims			Y	N	5	5	5	5	5	100	EH				4	3	4	3	4	72	H		
		17.2E Reputational Harm			Y	N	5	5	5	5	5	100	EH				4	3	4	3	4	72	H		
	17.1B Material falling from scaffolding	17.2A Fatalities			Y	N	4	5	4	5	5	92	EH	17.3B No loose redundant material on walkways.			4	3	4	3	4	72	H	Contractor	Ongoing
		17.2B Injuries			Y	N	4	5	4	5	5	92	EH	Platforms to be fitted with toe boards and kick plates and trapdoors to be closed.			4	3	4	3	4	72	H	OHS Agent	
		17.2C Temporary or permanent Physical damage			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
	17.1C Tools falling from scaffolding	17.2A Fatalities			Y	N	4	5	4	5	5	92	EH	17.3C All tools to be fitted with lanyards and to be worn around the wrists. If not possible, area underneath to be identified as a drop zone and spotter to be present to prevent unauthorised entrance underneath scaffolding.			4	3	4	3	4	72	H	Contractor	Ongoing
		17.2B Injuries			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2C Temporary or permanent Physical damage			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
	17.1D Scaffolding collapsing due to overloading or other factors	17.2A Fatalities			Y	N	4	5	4	5	5	92	EH	17.3D Ensure firm footing while climbing, standing and walking on scaffolding also refer to 17.3A above for additional comments.			4	3	4	3	4	72	H	Contractor	Ongoing
		17.2B Injuries			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2C Temporary or permanent Physical damage			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
	17.1E Untrained employee working on the scaffold	17.2A Fatalities			Y	N	4	5	4	5	5	92	EH	17.3E Employees working on scaffolding to be medically fit, competent trained for working at heights and to wear safety harness. If several employees are working in the same area on scaffolding, they are not to hook as to ensure safe and effective movement.			4	3	4	3	4	72	H	Contractor	Ongoing
		17.2B Injuries			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2C Temporary or permanent Physical damage			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2D Civil Claims			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2E Reputational Harm			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
	17.1F Employees falling from Scaffold	17.2A Fatalities			Y	N	4	5	4	5	5	92	EH	17.3F Employees to always ensure the scaffold has been declared fit safe to use before they began work on the scaffold. When working on scaffold that has been declared safe, employees does not need to wear harnesses, except where knee & hip rails are missing when pouring concrete.			4	3	4	3	4	72	H	Contractor	Ongoing
		17.2B Injuries			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2C Temporary or permanent Physical damage			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2D Civil Claims			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
		17.2E Reputational Harm			Y	N	4	5	4	5	5	92	EH				4	3	4	3	4	72	H		
18. Interfering with other contractors																									
	18.1A Poor communication	18.2A Fatalities	S OHS Act Section 15		Y	N	4	3	4	4	4	76	H	18.3A Supervisors and team leaders to communicate with each other at the start of shift to ensure all are familiar with activities in immediate and surrounding areas. Regular forums/ meetings to be conducted and joint toolbox talks to be conducted.			2	2	3	2	2	44	M	Contractor	Ongoing
	Interfering with other contractors	18.2B Injuries	H General Safety Regulation OHS Act Section 8		Y	N	4	3	4	4	4	76	H				2	2	3	2	2	44	M	OHS Agent	
	18.1B Employees outside their working area	18.2A Fatalities			Y	N	4	3	4	4	4	76	H	18.3B Employees to remain inside their respective workplaces or work areas.			2	2	3	2	2	44	M	Contractor	Ongoing
		18.2B Injuries			Y	N	4	3	4	4	4	76	H				2	2	3	2	2	44	M		
	18.1C Harm to contractor reputation if a incident occurs	18.2A Fatalities			Y	N	4	3	4	4	4	76	H	18.3C Should another contractors employee be injured, material, tool or equipment sustain damage the affected contractor is to be contacted and the contractor will attend to the matter. New Lessons learned to be shared.			2	2	3	2	2	44	M	Contractor	Ongoing
		18.2B Injuries			Y	N	4	3	4	4	4	76	H				2	2	3	2	2	44	M		
19. Concrete works																									
	19.1A Poor communication between personnel	19.2A Fatalities	S Construction Regulations		Y	N	5	4	5	4	5	92	EH	19.3A Supervisor to communicate risks of task at hand daily clearly to all before task commences. If supervisor has to leave area, he is to delegate his authority to another employee until he returns to the area. Employee handling holding discharge point of concrete truck to ensure effective communication with operator of pump.			2	2	3	2	2	44	M	Contractor	Ongoing
	Mixing of concrete	19.2B Injuries	H General Machinery Regulations		Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M	OHS Agent	
		19.2C Property Damage	E Environmental Workplace Regulations		Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M	Consulting Engineer	
		19.2D Reputational Harm	Q Regulations		Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
		19.2E Sub-Standard workmanship	OHS Act Section 8		Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
	19.1 Concrete truck driving unsafely	19.2A Fatalities			Y	N	5	4	5	4	5	92	EH	19.3B Concrete truck to be escorted into area by means of flagmen/ spotters. To adhere to speed limits as per Road traffic Act.			2	2	3	2	2	44	M	Contractor	Ongoing
		19.2B Injuries			Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
		19.2C Property Damage			Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
	19.1C Concrete truck driver untrained	19.2A Fatalities			Y	N	5	4	5	4	5	92	EH	19.3C Concrete truck driver to be licenced.			2	2	3	2	2	44	M	Contractor	Ongoing
		19.2B Injuries			Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
		19.2C Property Damage			Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
	19.1D Concrete truck unsafe	19.2A Fatalities			Y	N	5	4	5	4	5	92	EH	19.3D Concrete truck to be inspected daily before use. Daily checklist to be available upon request.			2	2	3	2	2	44	M	Contractor	Ongoing
		19.2B Injuries			Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
		19.2C Property Damage			Y	N	5	4	5	4	5	92	EH				2	2	3	2	2	44	M		
	19.1E Unsafe discharging of concrete	19.2A Fatalities			Y	N	5	4	5	4	5	92	EH	19.3E Employees not to stand within "line of fire "when discharging concrete.			2	2	3	2	2	44	M	Contractor	Ongoing

		21.1D No lock out procedure	21.2A Fatalities		Y	N	5	5	5	4	5	96	EH	21.3D Site specific lock out procedure to be drafted and implemented.	4	3	4	4	4	76	H	Contractor	Ongoing
			21.2B Injuries		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
			21.2C Electrical Shock and Burns		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
			21.2D Property Damage		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
			21.2E Reputational Harm		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
		21.1E No lock out done	21.2A Fatalities		Y	N	5	5	5	4	5	96	EH	21.3E All energized source to be locked out following the lock out procedure before work commences.	4	3	4	4	4	76	H	Contractor	Ongoing
			21.2B Injuries		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
			21.2C Electrical Shock and Burns		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
			21.2D Property Damage		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
		21.1F Incorrect design	21.2A Fatalities		Y	N	5	5	5	4	5	96	EH	21.3F Only newest revision drawings to be used. All installations to have certificates of compliance.	4	3	4	4	4	76	H	Contractor	Ongoing
			21.2B Injuries		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
			21.2C Electrical Shock and Burns		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
			21.2E Poor Quality Product		Y	N	5	5	5	4	5	96	EH		4	3	4	4	4	76	H		
22. Hand Tools		22.1A Unsafe hand tools	22.2A Injuries	S OHS Act Section 8	Y	N	4	4	4	4	5	84	EH	22.3A All hand tools to be inspected before use. All unsafe hand tools to be send for repairs or scraped.	2	3	2	2	2	44	M	Contractor	Ongoing
	Hand Tools Usage		22.2B Property Damage	H Construction Regulations	Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M	OHS Agent	
			22.2C Temporary or Permanent Disability		Y	N	4	4	4	4	5	84	EH	All hand tools to be inspected daily by trained, competent and Appointed employee(s).	2	3	2	2	2	44	M		
			22.2D Reputational Harm		Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M		
		22.1B Incorrect use	22.2A Injuries		Y	N	4	4	4	4	5	84	EH	22.3B Hand tools only to be used for their designed purpose. All hand tools to be inspected daily by trained, competent and Appointed employee(s).	2	3	2	2	2	44	M	Contractor	Ongoing
			22.2B Property Damage		Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M		
			22.2C Temporary or Permanent Disability		Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M		
			22.2D Reputational Harm		Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M		
		22.1C Home made tools	22.2A Injuries		Y	N	4	4	4	4	5	84	EH	22.3C No modified or home made tools to be used. Defective tools to be send for repairs and not to be used.	2	3	2	2	2	44	M	Contractor	Ongoing
			22.2B Property Damage		Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M		
			22.2C Temporary or Permanent Disability		Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M		
			22.2D Reputational Harm		Y	N	4	4	4	4	5	84	EH		2	3	2	2	2	44	M		
23. Use of electrical equipment		23.1A Unsafe equipment	23.2A Injuries	S OHS Act 85 of 1993	Y	N	5	4	5	5	5	96	EH	23.3A Equipment to be inspected monthly by a competent person. Pre use inspection to be done each time before use. Defective equipment to be send for repairs and not to be used.	4	3	3	3	4	68	H	Contractor	Ongoing
	General electrical work		23.2B Fatalities	H OHS Act CR 24	Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H	OHS Agent	
			23.2C Electric Shock and Burns	Electrical Installation Regulations	Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H	Consulting Engineer	
			23.2D Property Damage	Electrical Machinery Regulations	Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2E Tripping and Falling		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2F Third party claims		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2G Temp. or Perm. Disability		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
		23.1B Improper use	23.2A Injuries		Y	N	5	4	5	5	5	96	EH	23.3B Equipment only to be used for the designed purpose(s).	4	3	3	3	4	68	H	Contractor	Ongoing
			23.2B Fatalities		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2C Electric Shock and Burns		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2D Property Damage		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2G Temp. or Perm. Disability		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
		23.1C Electrical equipment being used in wet conditions	23.2A Injuries		Y	N	5	4	5	5	5	96	EH	23.3C Electrical equipment not to be used in wet conditions.	4	3	3	3	4	68	H	Contractor	Ongoing
			23.2B Fatalities		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2C Electric Shock and Burns		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2D Property Damage		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
		23.1D Electrical equipment not routed safely	23.2A Injuries		Y	N	5	4	5	5	5	96	EH	23.3D All cables to be routed safely away from walkways. All cables to be kept together when routed.	4	3	3	3	4	68	H	Contractor	Ongoing
			23.2B Fatalities		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2C Electric Shock and Burns		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2D Property Damage		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2G Temp. or Perm. Disability		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
		23.1E Untrained operator	23.2A Injuries		Y	N	5	4	5	5	5	96	EH	23.3E Operators of equipment to be trained in the operations and inspections and monitoring.	4	3	3	3	4	68	H	Contractor	Ongoing
			23.2B Fatalities		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2C Electric Shock and Burns		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2D Property Damage		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
			23.2G Temp. or Perm. Disability		Y	N	5	4	5	5	5	96	EH		4	3	3	3	4	68	H		
24. Mobile plant		24.1A Unsafe plant	24.2A Injuries	S Driven machinery regulations	Y	N	5	4	4	5	5	92	EH	24.3A All plant to be checked on a daily basis before work commence a competent, trained and qualified operator, and findings to be logged in a register.	3	3	3	3	3	60	M	Contractor	Ongoing
	Driving Operating		24.2B Fatalities	H OHS Act CR 20 and 23	Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M	OHS Agent	
			24.2C Third party claims		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
			24.2D Reputational Harm		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
		24.1B Improper use	24.2A Injuries		Y	N	5	4	4	5	5	92	EH	24.3B Plant only to be used for the designed purpose.	3	3	3	3	3	60	M	Contractor	Ongoing
			24.2B Fatalities		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
			24.2C Third party claims		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
			24.2D Reputational Harm		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
		24.1C No valid medical certificate	24.2A Injuries		Y	N	5	4	4	5	5	92	EH	24.3C All operators to have valid medical certificates. Medical Certificates to be evident on-site and to be available on request.	3	3	3	3	3	60	M	Contractor	Ongoing
			24.2B Fatalities		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
			24.2C Third party claims		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
			24.2D Reputational Harm		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
		24.1D No plant management plan	24.2A Injuries		Y	N	5	4	4	5	5	92	EH	24.3D Plant management plan to be drafted to indicate service intervals and travel routes.	3	3	3	3	3	60	M	Contractor	Ongoing
			24.2B Fatalities		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
			24.2D Reputational Harm		Y	N	5	4	4	5	5	92	EH		3	3	3	3	3	60	M		
		24.1E Untrained operator	24.2A Injuries		Y	N	4	5	5	5	5	96	EH	24.3E All operators to be trained and competent. Competency certificates to be evident on request.	3	3	3	3	3	60	M	Contractor	Ongoing
			24.2B Fatalities		Y	N	4	5	5	5	5	96	EH		3								

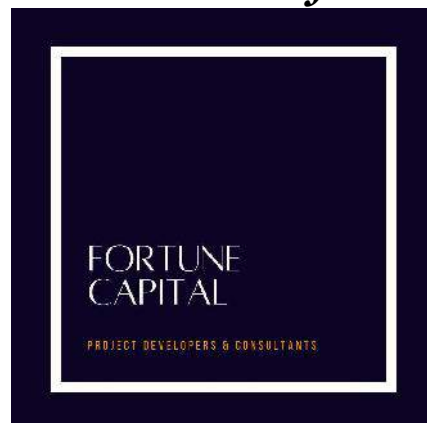
			25.2B Respiratory Problems			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M	Contractor	Ongoing
			25.2C Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
	25.1E Operator losing control over tool		25.2A Injuries			Y	N	4	5	5	5	5	96	EH	25.3E Ensure that competent personnel use tools.	3	3	3	3	3	60	M	Contractor	
			25.2B Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			25.2C Damage to existing services			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
	25.1F Poor housekeeping		25.2A Health problems			Y	N	4	5	5	5	5	96	EH	25.3F Ensure that structure is strong to support overhanging materials.	3	3	3	3	3	60	M	Contractor	Ongoing
			25.2B Slipping and tripping			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			25.2C Injuries			Y	N	4	5	5	5	5	96	EH	Practice safe housekeeping.	3	3	3	3	3	60	M		
26. Asbestos Work																								
	Employees incompetent on Handling Asbestos Materials Risk Assessments PPE	26A.1D Incorrect use of PPE.	26.2A Injuries			Y	N	4	5	5	5	5	96	EH	26.3A The contractor shall ensure that employees are provided with appropriate PPE, capable of handling asbestos.	3	3	3	3	3	60	M	Contractor	Ongoing
			26.2B Respiratory Problems		Asbestos Abatement Regulations	Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2C Fatalities		General Safety Regulations 2	Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2D Cancer			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
	Medical Surveillance																							
	Air Monitoring	26.1B Improper handling of asbestos material	26.2A Injuries			Y	N	4	5	5	5	5	96	EH	26.3B The contractor shall ensure that all employees are provided with information, instruction and training on handling of asbestos material.	3	3	3	3	3	60	M	Contractor	Ongoing
			26.2B Respiratory Problems			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2C Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2D Cancer			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
		26.1C Carrying out Asbestos work without a risk assessment	26.2A Injuries			Y	N	4	5	5	5	5	96	EH	26.3C The contractor shall ensure that an asbestos risk assessment is carried out by a competent person.	3	3	3	3	3	60	M	Contractor	Ongoing
			26.2B Respiratory Problems			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2C Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2D Cancer			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2E Reputational Harm			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
		26.1D Employees working in an area without air quality monitoring	26.2A Injuries			Y	N	4	5	5	5	5	96	EH	26.3D The contractor shall ensure that air monitoring of the concentration of regulated fibres to which employees may be exposed is carried out.	3	3	3	3	3	60	M	Contractor	Ongoing
			26.2B Respiratory Problems			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2C Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2D Cancer			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2E Reputational Harm			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
		26.1E No demarcation of asbestos areas	26.2A Injuries			Y	N	4	5	5	5	5	96	EH	26.3E The Contractor shall ensure that all asbestos regulated areas are clearly demarcated and identified.	3	3	3	3	3	60	M	Contractor	Ongoing
			26.2B Respiratory Problems			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2C Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2D Cancer			Y	N	4	5	5	5	5	96	EH	26.3F The contractor shall ensure that any asbestos contaminated soil or land contaminated with asbestos waste must be clearly demarcated and signposted using the asbestos warning signage.	3	3	3	3	3	60	M		
			26.2E Reputational Harm			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
		26.1F Improper disposal of asbestos	26.2A Injuries			Y	N	4	5	5	5	5	96	EH	26.3G The contractor shall ensure that all asbestos waste is placed in containers that will prevent exposure during handling.	3	3	3	3	3	60	M	Contractor	Ongoing
			26.2B Respiratory Problems			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2C Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2D Cancer			Y	N	4	5	5	5	5	96	EH	26.3H The contractor shall ensure that the premises, structure or area are thoroughly checked to ensure that all asbestos waste intended for disposal has been removed.	3	3	3	3	3	60	M		
			26.2E Reputational Harm			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
		26.1G Employees working without Medical Surveillance for handling asbestos	26.2A Injuries			Y	N	4	5	5	5	5	96	EH	26.3I The contractor must establish and maintain a system of medical surveillance of employees.	3	3	3	3	3	60	M	Contractor	Ongoing
			26.2B Respiratory Problems			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2C Fatalities			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2D Cancer			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		
			26.2E Reputational Harm			Y	N	4	5	5	5	5	96	EH		3	3	3	3	3	60	M		

ANNEXURE E

Environmental Management Plan

**ENVIRONMENTAL MANAGEMENT PLAN FOR A PROPOSED
MULTI-STOREY MULTIPURPOSE CENTRE CONSTRUCTION IN
BERTRAMS, CITY OF JOHANNESBURG METROPOLITAN
MUNICIPALITY, GAUTENG PROVINCE BY JOHANNESBURG
DEVELOPMENT AGENCY(GDARD REF:GAU 001/LD/21-22/0445)**

Prepared by
FORTUNE CAPITAL PROJECTS (PTY) LTD



Commissioned by



Report for



REPORT INFORMATION

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Report Reference:	EMP_REP/AUG' 2021		
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TERMS AND ABBREVIATIONS

Audit	Regular inspection and verification of implementation of the EMP/r
Bund	Enclosure under / around a storage facility to contain any spillage
BRT	Bus Rapid Transport
Batch plant	Concrete or plaster mixing facility and associated equipment and materials
BBH1	Bertrams Borehole 1
CoJ	City of Johannesburg
Contractor	Principal person / company undertaking the construction of the infrastructure.
Developer	The developer is the same person as the applicant.
Development site	Boundary and extent of development works and infrastructure
DWS	Department of Water and Sanitation
ECO	Environmental Control Officer: - Person tasked with implementing and controlling the environmental requirements during construction
EMP	Environmental Management Plan/Programme
Engineer	Person who represents the client and is responsible for enforcing the technical and contractual requirements of the project
ESA	Environmental Site Agent
HIA	Heritage Impact Assessment (Phase 1)
HDD	Horizontal directional drilling
JDA	Johannesburg Development Agency
MAP	Mean Annual Precipitation
NEMA	National Environmental Management Act, 1998
PET	Potential Evapotranspiration
RE	Resident Engineer: - Person representing the Engineer on site
ROD	Record of Decision
SANS	South African National Standards
SAHRA	South African Heritage Resources Act, 1999
WULA	Water Use Licence Application
WWTW	Waste Water Treatment Works

DEFINITIONS

- Affected environment:** Those parts of the socio-economic and biophysical environment impacted on by the development.
- Affected public:** Groups, organizations, and/or individuals who believe that an action might affect them.
- Alien Vegetation:** Alien vegetation is defined as undesirable plant growth which shall include, but not be limited to all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations.
- Alternative proposal:** A possible course of action, in place of another, that would meet the same purpose and need.
- Anthropogenic:** Change induced by human intervention.
- Authorities:** The national, provincial or local authorities, which have a decision-making role or interest in the proposal or activity. The term includes the lead authority as well as other authorities.
- Baseline:** Conditions that currently exist. Also called “existing conditions”.
- Baseline information:** Information derived from data which:
- Records the existing elements and trends in the environment; and
 - Records the characteristics of a given project proposal
- Best practical environmental option:** The option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.
- Construction Camp:** Construction camp (site camp) refers to all storage and stockpile sites, site offices, container sites, workshops and testing facilities, and other areas required to undertake construction activities.
- Contaminated:** The presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.
- Cumulative impact:** In relation to an activity, means the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts from similar or diverse activities or undertakings in the area.
- Development footprint:** In respect of land means any evidence of physical alteration as a result of the undertaking of any activity.
- Disposal:** Means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into or onto any land.
- Decision-maker:** The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal.
- Decision-making:** The sequence of steps, actions or procedures that result in decisions, at any stage of a proposal.
- Ecology:** The study of the inter relationships between organisms and their environments.
- Emergency situation:** An incident, which potentially has the ability to significantly impact on the environment, and which, could cause irreparable damage to sensitive environmental features. Typical situations amongst others are:
- Large spills of petroleum products and lubricants on site,
 - Potential damage, erosion and slumping of unstable slopes,
 - Indiscriminate dumping of construction waste on site, and accessing exclusion zones.

Environment: All physical, chemical and biological factors and conditions that influence an object and/or organism. The surroundings within which humans exist and that are made up of –

i. the land, water and atmosphere of the earth;

ii. micro-organisms, plant and animal life;

iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and

iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being. This includes the economic, cultural, historical, and political circumstances, conditions and objects that affect the existence and development of an individual, organism or group.

Environmental Assessment (EA): The generic term for all forms of environmental assessment for projects, plans, programmes or policies. This includes methods/tools such as EIA, strategic environmental assessment, sustainability assessment and risk assessment.

Environmental Authorisation: A written statement from the relevant environmental authority, with or without conditions, that records its approval of a planned development proposal, and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Environmental consultant / Assessment Practitioner: Individuals or firms who act in an independent and unbiased manner to provide information for decision-making.

Environmental Control Officer (ECO): A suitably qualified and experienced person or entity appointed for the Construction Works, to perform the obligations specified in the environmental authorisation.

Environmental Impact: An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project. An environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced.

Environmental Site Agent (ESA): An ESA is the site-based designated person responsible for implementing the environmental provisions of the Construction Contract and is appointed by the service provider that carries out construction activities. The ESA must be the designated responsible person, for implementing any remedial measures as required from time to time and for any authorizations/licenses that are required in terms of the service contract. The ESA must record and communicate environmental issues (as they occur) to the Contractor and maintain records thereof. The ESA must report concurrently to the contractor and the ECO.

Environmentally sound management: The taking of all practicable steps to ensure that waste is managed in a manner that will protect health and the environment.

Fatal flaw: Any problem, issue or conflict (real or perceived) that could result in proposals being rejected or stopped.

General waste: Waste that does not pose an immediate hazard or threat to health or to the environment, and includes domestic waste, building and demolition waste, business waste and inert waste.

Hazardous waste: Any waste that contains organic or inorganic elements or compounds that may owing to inherent physical, chemical or toxicological characteristics of that waste have a detrimental impact on health or the environment.

Independent: In relation to an EAP or a person compiling a specialist report or undertaking a specialised process or appointed as a member of an appeal panel, means – That such EAP or person has no business, financial, personal or other interest in the activity, application or appeal in respect of which that EAP or person is appointed in terms of these Regulations other than fair remuneration work performed in connection with that activity, application or appeal; or that there are no circumstances that may compromise the objectivity of that EAP or person in performing such work.

Impact: The positive or negative effects on human well-being and/or on the environment.

Interested and affected parties (I&APs): Individuals, communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. These may include local communities, investors, business associations, trade unions, customers, consumers and environmental interest groups. The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Lead authority: The environmental authority at the national, provincial or local level entrusted in terms of legislation, with the responsibility for granting approval to a proposal or allocating resources and for directing or coordinating the assessment of a proposal that affects a number of authorities.

Method Statement: A written submission by the Contractor in response to the Specification or a request by the Engineer, setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity, identified by the relevant specification or the IEC when requesting the Method Statement, in such detail that the ECO is enabled to assess whether the Contractor's proposal is in accordance with the EMP and associated specifications.

Mitigate: The implementation of practical measures to reduce the adverse impacts, or to enhance beneficial impacts of a particular action.

No-Go Area: Areas where construction activities are prohibited.

Proponent: Any individual, government department, authority, industry or association proposing an activity (e.g. project, programme or policy).

Pollution: According to the National Environmental Management Act, No. 107 of 1998, pollution can be defined as, "Any change in the environment caused by (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future"

Rehabilitation: To re-establish or restore to a healthy, sustainable capacity or state.

Role-players: The stakeholders who play a role in the environmental decision-making process. This role is determined by the level of engagement and the objectives set at the outset of the process.

Significant impact: An impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Site: The area in which construction is taking place.

Species of Special Concern: Those species listed in the Rare, Indeterminate, or Monitoring categories of the South African Red Data Books, and/or species listed in Globally Near

Threatened, Nationally Threatened or Nationally Near Threatened categories (Barnes, 1998).

Stakeholders: A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Stakeholder engagement: The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision making process. The term is considered to be more appropriate than the term "public participation".

Study area: Refers to the entire study area encompassing the total area as indicated on the study area map.

Sustainability: An attempt to provide the best social, environmental and economic outcomes for the human and natural environments both now and into the indefinite future.

Topsoil: The top 100-150mm of soil and may include top material e.g. vegetation and leaf litter.

Visual impact: Changes to the visual character of available views resulting from the development that include: obstruction of existing views; removal of screening elements thereby exposing viewers to unsightly views; the introduction of new elements into the viewshed experienced by visual receptors and intrusion of foreign elements into the viewshed of landscape features thereby detracting from the visual amenity of the area.

Waste: Any substance, whether or not that substance can be reduced, re-used, recycled and recovered.

Waste disposal facility: Any site or premises used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise.

BACKGROUND TO EMP

Fortune Capital Project Developers and Consultants (Pty) Ltd is an independent environmental consulting company appointed by Kgosihadi Consulting Engineers to compile an Environmental Management Plan for the proposed multi-storey multipurpose centre construction in Bertrams within City of Johannesburg Metropolitan Municipality, Gauteng Province by Johannesburg Development Agency.

The proposed project area is located at number 9 Bertrams Road in Johannesburg CBD S: 26°11'39.62" E: 28°03'56.53" within City of Johannesburg Metropolitan Municipality in Gauteng Province where a multipurpose centre occupying a total of 6 601m² will be constructed in place of the existing facility that's currently serve as a Community Agricultural training and development centre. This would achieved by demolishing the existing infrastructure and a new multi-storey facility with infrastructure upgrade to carry the proposed building needs will be constructed.

This document is the specific Environmental Management Plan/Programme (EMP) for the proposed construction to mitigate negative impacts associated with the demolish and construction of Bertrams Multi-purpose within the existing Training and Development Centre together with supporting infrastructure and enhance positive impact associated with the project.

The Environmental Management Plan identifies the three phases of development as:

- Pre-Construction Phase
- Construction Phase
- Operational Phase

The generic and specific provisions are included together under each phase for each environmental consideration. The generic provisions are the general environmental issues, procedures and controls that can be applied to the project and site as a whole. The specific provisions are those environmental issues, procedures and controls that are relevant to a particular section of the site.

The Pre-Construction and Construction Phases are comprised of three phases: –

- The Local Authority's responsibilities in terms of plan approvals,
- The Proponent/Developer responsibility for the development,
- The Contractor/ Engineer responsibility for the construction of the services and roads.

1.1 OBJECTIVES OF THE EMP

This EMP has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the construction of the proposed pipelines, as this EMP informs all relevant parties [the Applicant, the Contractor, the Environmental Control Officer (ECO) and all other staff Employed by the applicant at the site] as to their duties in the fulfillment of the legal requirements for the construction and operation of this proposed project, with particular reference to the prevention and mitigation of anticipated potential environmental impacts.

All parties should note that obligations imposed by the EMP are legally binding in terms of the environmental authorisation granted by the relevant environmental permitting authority.

The objectives of an EMP are to:

- Encourage good management practices through planning and commitment to environmental issues;
- Define how the management of the environment is reported and performance evaluated;
- Provide rational and practical environmental guidelines to:
 - Minimize disturbance of the natural environment;
 - Prevent or minimize all forms of pollution;
 - Protect indigenous flora and fauna;
 - Prevent soil erosion and facilitate re-vegetation of affected areas;
 - Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
 - Adopt the best practicable means available to prevent or minimize adverse environmental impacts.
 - Develop waste management practices based on prevention, minimization, recycling, treatment or disposal of wastes;
 - Describe all monitoring procedures required to identify impacts on the environment; and,
 - Train employees and Contractors with regard to environmental obligations.
 - Verify environmental performance through information on impacts as they occur;
 - Respond to unforeseen events;
 - Provide feedback for continual improvement in environmental performance;
 - Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels;
 - Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project;
 - Identify measures that could optimize beneficial impacts;
 - Create management structures that addresses the concerns and complaints of I&APs with regards to the development (see Appendix C);
 - Establish a method of monitoring and auditing environmental management practices during all phases of the activity;
 - Specify time periods within which the measures contemplated in the final EMP must be implemented, where appropriate.

2.3.4.9

The Project Engineer, Contractor and Consultant (Auditor) appointed to install services or to construct the structures shall be responsible for ensuring that the provisions contained within the EMP are implemented and adhered to, and shall be held accountable in terms of the EMP.

The ultimate responsibility for compliance rests with the Authority.

2.3.4.4

Duties and Powers of the Project Engineer

The Project Engineer is responsible for ensuring that the Developer's responsibilities within the EMP are implemented and adhered to (i.e. during the Construction Phase).

During the Construction Phase the engineer should:

- Arranges information meetings for or consults with I&APs about the impending construction activities where necessary;
- Ensures that requirements are provided for and adhered to;

- Maintains a register of complaints and queries by members of the public at the site office. This register is forwarded to the Environmental Consultant (Auditor) on a bimonthly basis.
- Enforces the EMP on site;
- Monitors implementation of the requirements of the EMP;
- Assesses the Contractor's environmental performance in consultation with the Environmental Consultant;
- Documents in conjunction with the Contractor, the state of the site prior to construction activities commencing. This documentation will be in the form of, photographs or video record.

Environmental Consultant

The Environmental Consultant: during the Construction Phase would:

- Briefs the Project Engineer and the Contractor about the requirements of the Environmental Management Plan (EMP), and holds a meeting with all primary suppliers and contractors to discuss the EMP prior to start of construction;
- Advises the Project Engineer about the interpretation, implementation and enforcement of the Environmental Specification and other related environmental matters;
- Undertakes site induction and staff training on the EMP and general environmental matters in accordance with ISO 14001 requirements;
- Attends site meetings, as necessary;
- Monitors the Contractor's compliance with the EMP during the construction phase;
- Monitors, in a very general nature, the construction activities of the Contractor where there is such construction during the construction phase and, where required, shall report instances of non-compliance to the Authority, and, where necessary, to the Proponent/Developer;
- Undertakes environmental audits at least once a month (the frequency dependant upon the nature, extent and amount of work in progress during each particular month) on the effectiveness of the environmental specifications on the site as well as compliance with SHE and ISO Requirements.
- Audit reports are to be submitted to the Client, Engineer and Authorities. The Environmental Consultant must schedule audit dates and ensure that all necessary parties are made aware of these dates, and consult with GDARD compliance officer to ensure officer can attend some audits;
- Reports on the performance of the project, during the Construction Phase, in terms of environmental compliance with the EMP, to the Project Engineer and the Authority; and
- Provides technical advice relating to environmental issues to the Project Engineer.

Contractor

The Contractor is required to:

- Supply method statements for all activities requiring special attention as specified and/or requested by the Project Engineer or Environmental Consultant during the duration of the Contract;
- Be conversant with the requirements of the EMP;
- Comply with Proponent Requirements;
- Comply with requirements of the Environmental Consultant in terms of this EMP;
- Ensure any sub-contractors/ suppliers who are utilised within the context of the contract comply with the environmental requirements of the EMP. The Contractor will be held responsible for non-compliance on their behalf;
- Bear the costs of any damages/ compensation resulting from non-adherence to the EMP or written site instructions;
- Comply with all applicable legislation;
- Ensure that the Project Engineer is timeously informed of any foreseeable activities that will require input from the Environmental Consultant. The Contractor will conduct all activities in a manner that minimises disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment.

Environmental Control Officer (ECO)

An ECO for all sites is required to be appointed by the Proponent or Contractor and is responsible for:

- Be conversant with the relevant and applicable requirements of the EMP;
- Train construction staff about the requirements of the EMP;
- Comply with requirements of the EMP;

- Ensure that any contractors/sub-contractors/suppliers who are utilised within the context of the contract comply with the environmental requirements of the EMP. The Contractor will be held responsible for non-compliance of the EMP;
- Comply with all applicable legislation;
- Ensure that the Project Engineer and Environmental Consultant, if during the construction phase, or the Local Authority and Authority if after the construction phase, are timeously informed of any foreseeable activities that will have an impact on the surrounding;
- Submit regular audit reports to the Authority.

1.2 COMPLIANCE WITH APPLICABLE LAWS

The supreme law of the land is “The Constitution of the Republic of South Africa”, which states: “Every person shall have the right to an environment which is not detrimental to his or her health or well being”.

Laws applicable to protection of the environment in terms of Environmental Management (and relating to construction activities) include but are not restricted to:

- Atmospheric Pollution Prevention Act, No 45 of 1965
- Conservation of Agricultural Resources Act, No 43 of 1983
- Environmental Conservation Act, No 73 of 1989
- Explosives Act, No. 26 of 1956
- Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, No 36 of 1947
- Forest and Veld Conservation Act, Act No 13 of 1941
- Hazardous Substances Act, No 15 of 1973
- Land Survey Act, No 9 of 1921
- Machinery and Occupational Safety Act, No. 6 of 1983
- National Environmental Management Act, No. 107 of 1998
- National Environmental Management: Biodiversity Act, No. 10 of 2004
- National Forests Act, No 84 of 1998
- National Heritage Resources Act, No. 25 of 1999
- National Water Act, No 36 of 1998
- Occupational Health and Safety Act, No 85 of 1993
- Provincial and Local Government Ordinances and Bylaws
- Soil Conservation Act, Act No 76 of 1969
- Sub-division of Agricultural Land Act Repeal Act 64 of 1998 (re: soil conservation)
- Water Services Act No 108 of 1997
- and all regulations framed thereunder and amendments there to.

1.3 COMPLIANCE WITH THE EMP

Contractor

The Contractor is deemed not to have complied with the EMP if:

- Within the boundaries of the Project Area, during the construction phase adjacent areas and haul/access roads there is evidence of contravention of clauses;
- If environmental damage ensues due to negligence;
- The Contractor fails to comply with corrective or other instructions issued by the Local Authority, Authority, Project Engineer or Environmental Consultant within a specified time;
- The Contractor fails to respond adequately to complaints from the public.

Application of a penalty clause will apply for incidents of non-compliance. The penalty imposed will be per incident. Unless stated otherwise in the project specification, the penalties imposed per incident or violation will be:

- Failure to demarcate wetland buffer zones (R10 000.00);
- Failure to demarcate working areas (R5 000.00);
- Working outside of the demarcated area (R5 000.00);
- Failure to strip topsoil with intact vegetation (R 1 000.00);
- Failure to stockpile topsoil correctly (R 1000.00);

- Failure to stockpile materials in designated areas (R1 000.00);
- Pollution of water bodies (including increased suspended solid loads) (R10 000.00);
- Any construction activities within wetland area (R10 000.00);
- Failure to control stormwater runoff (R1 000.00);
- Downstream erosion (R5 000.00);
- Silting of township stormwater systems (R5 000.00);
- Failure to provide adequate sanitation (R5 000.00);
- Failure to erect temporary fences where required (R5 000.00);
- Failure to provide adequate waste disposal facilities and services (R5 000.00);
- Nuisance to neighbours by Construction staff outside designated working time (R 5000.00);
- Failure to reinstate disturbed areas within the specified time-frame (R5 000.00);
- Failure to rehabilitate disturbed areas within the specified time-frame (R10 000.00);
- Any other contravention of project specific specification (R1 000.00); and
- Any other contravention of particular (general) environmental specification (R1 000.00).

Such fines will be paid to the Proponent and will be used in rehabilitation, landscaping or to remedy/rectify any issues of the development.

1.4 EMP COMPLIANCE

The EMP is a condition of the Record of Decision as set provided by the Authority in terms of Section 21 of the Environment Conservation Act. This EMP is a key component of the management and implementation of the Bertram New Multipurpose Centre. Non-compliance with the EMP will constitute non-compliance with the requirements of the Authority and therefore of the law.

The EMP will be made binding on all contractors operating within the Project Area and will be included within the Contractual Clauses. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance. It should be noted that in terms of the Environment Conservation Act, and the National Environmental Management Act No 107 of 1998 (Section 28) those responsible for Environmental Damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The polluter pays principle). The Authority is responsible for ensuring compliance with the EMP.

INTRODUCTION TO THE PROJECT

The City of Johannesburg-Social Development Department (Client) has appointed Johannesburg Development Agency (Proponent) to manage the planning, design and implementation of a social development programme for Bertrams New Multipurpose Centre project. The Client wishes to improve the existing Bertrams Training and Development Centre facility into a Multi-storey multipurpose centre (hereafter refer to as Bertrams New Multipurpose Centre) by producing a high quality community mixed purposes facilitation centre; the existing facility is currently used for Agricultural Training and Development purposes. Therefore, the Proponent's intentions are to demolish the existing facility and re-built a three storey with underground parking bay multipurpose facility. The new facility is aimed to meet and align with the City of Johannesburg Growth Development Strategy that will produce a high quality community infrastructure that compliments the agricultural or any youth and community training/development aspects previously associated with the existing facility mandate; and many more in an advance structural settings.

The scope of the work includes demolishing the existing structure completely to make space for an approximately 2000 metre square (m²) floor area for a multi-storey building with double entrance access in addition upgrade the water and sewer infrastructure to meet the demands and capacity of the new building.

The project site currently named Bertrams Agricultural Development and Training Facility is located at number 9 Bertrams Road in Johannesburg Central Business District 26°11'39.62"S 28°03'56.53"E along the Bertrams Bus Rapid Transport (BRT famously known as Rea Vaya) route and the significant landscape in the area is Ellis Park Stadium that is proudly situated west of the proposed project site.

2.1. CURRENT LAND USE

The existing facilities are brick and mortar structures that serves as offices and community related activities or events venue. These structures have roofs covered by corrugated roof sheets, concrete tiles and a section with asbestos roof sheets. There are greenhouse structures used for farming purposes some in a dilapidated form where vegetables are ploughed.

In light of the above, the proponent wants to demolish everything in that piece of plot and rebuild a 3 storey multipurpose facility with underground parking area and change the existing site access entrance from Bertrams Road as the current access poses a serious risk to motorists wanting to access the facility to a double entrance that will allow a safe access. Furthermore, a portable water equivalent to the needs of the proposed new facility will be achieved by assessing the adequacy of the existing reticulation and necessary upgrades will be done; similarly, the sewer network will also be upgraded to meet the new building requirements. All these upgrades will be simulated into the existing networks and upon compliance an approval by City of Johannesburg Water department (refer to as Johannesburg Waters) will be granted.

The infrastructure will be serviced with stormwater drainage system which will drain all surface water runoffs around the facility. Since the proposed construction is earmarked in an already developed site the pre-development and post development impact on stormwater is expected to be similar or any difference minimised thus the proposed facility will be serviced by a conventional stormwater drainage system consisting of pipe network; the proposed paved parking area will also act as a detention system for surface flow towards the existing networks.

Although the proposed activity is not a listed activity and does not require an Environmental Impact Assessment authorization; a NEMA QUERY was lodged with GDARD for an official exemption. However, the proponent is aware that certain environmental aspects will be impacted thus the following studies were conducted to assess the present environment prior to the proposed construction. The studies allowed to ascertain which negative impact would be triggered and how they can be mitigated whilst enhancing the positive impacts; the results/findings of these studies together with the recommendations were used to compile this Environmental Management Plan. The regulatory regime under section 54 of the Environmental Impact Assessment Regulations of 2014 as amended stipulates that an environmental audit be conducted as in Chapter 5 part 3 under section 34 where the objective is to evaluate the ability of the measures contained in the EMP in order to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the project activities.

Environmental compliance auditing and reporting is a requirement that the holder of an environmental authorization must adhere to; it is also a tool that allows the Competent Authority to keep track of the environmental issues on all environmental aspects at project site. Environmental Performance Reporting is regarded as The Environmental Monitoring and Auditing Protocol (EM&AP) part of the Integrated Environmental Management Series (IEMS), initiative to ensure that the organization has factored in all aspects of environmental management in its business functions either as a Developer and/ or Operator of schemes (Operations and Maintenance) with an impacting function on the environment or as a Regulator, with a management function, to control activities that may have an impact on the environment.

2.2. ENVIRONMENTAL IMPACT ASSESSMENT SPECIALIST STUDIES CONDUCTED

Bertrams Geotech Investigation Report (Igneous Soil Laboratory)

A soil analysis was conducted at the proposed project site where six (6) pits (TP1-TP6) were excavated to a maximum depth of a TLB; the pits depth ranged from 2.9-3.6 metre. During excavation TP5 and TP6 were least deep due to the exposure of drainage system in the study area.

The investigation method applied was as follow:

- In-situ soil profiling;
- DCP testing;
- Soil profile sampling; and
- Laboratory testing

The investigation results shows that the water table was hit at 3.5m below the natural ground surface. Groundwater seepage was observed in all test pit except TP4. Groundwater was seeping in TP1 from the transition of imported fill layer and the transported silty clay sand. The test pit excavation was terminated at 2.9m below the surface due to the high volume of water seeping in the test pit. It was observed that water was standing on the farming side some from the watering hose pipe and some from high water table. Groundwater observed in test pit 2 & 3 was dripping from the floor of the transported clay material at 3.5m below existing ground level. Groundwater Monitoring Borehole adjacent to test pit 3 has water tale at 4.2m deep, gauge using a survey Aluminium 5m Staves. Excavation was terminated at 200mm deep at TP5 and at 800mm deep at TP6 after exposing bidim geotextile filter blanket covering +20mm crushed stones.

The succession of soil layers exposed within the test pits were logged and a series of detailed photographs were taken of the different soil layers (see the Preliminary Geotech Investigation

Report). Disturbed samples of material deemed to be important for the proposed development were taken for laboratory testing. Six (6) Dynamic Cone Penetrometer (DCP) tests were conducted adjacent to the test pits along the study area in order to measure the penetration per blow into the soil profile. This penetration measure is a function of the in-situ shear strength of the material and the profile gives an indication of the in-situ properties of the materials in all the soil profiles. A correlation exists between DCP measurements and California Bearing Ratio (CBR) of granular materials. The maximum penetration depth reached by DCP was generally to 1 m from ground level although at TP1 the cone refused at shallower depths probably on a very dense concrete layer encountered just below the pavement blocks. The analysis of the DCP results are based on assumption that the depth of the soil profile is 150mm. Further DCP test were done inside of TP2 at a depth on 3.5m, TP3 at 3.6m and TP4 at 3.4m below existing ground level, to study the in-situ shear strength at a greater depth.

Bertrams Geohydrological Assessment (Kimopax (Pty) Ltd)

The proposed Bertrams Multipurpose Centre geology is underlain by the Basaltic lava, agglomerate and turf rocks of Alberton Westonia formation. Borehole and aquifer pumping testing were done to provide a background understanding of the hydraulic performance and boundaries of the borehole in the study area; to determine the aquifer parameters in water strata by defining the distribution of aquifer and determine sustainable borehole yields. The aquifer test was conducted in the existing borehole BBH1 at the study site; prior to a pumping test, a static groundwater levels were measured to enable draw down calculations.

Step draw down test was performed to assess the productivity of the borehole and more clearly to define the optimum yield at which the borehole can be subjected to during constant discharge test. This involves pumping of the borehole at three (3) increased sequentially pumping rates each maintained for an equal length of time that does not exceed 60 minutes (An Hour). The magnitude of the draw down on the water level in the borehole in response to each pumping rate was measured and recorded on a time schedule as well as the actual pumping rate maintained during each step. Constant discharge rate test was subjecting the borehole to a discharge rate of up to 12 hours to assess the productivity of the aquifer according to its response to the abstraction of the water.

The aquifer response was analysed to provide information regarding the hydraulic properties and to determine the optimum yield for long term utilization. Recovery test was conducted to provide an indication of the ability of a borehole and aquifer system to recover from the stress of abstraction. Water level measurements were recorded during the recovery period following the end of discharge tests. The data was processed, interpreted and managed using Microsoft Excel based Flow chart for recommended safe and sustainable yield of the borehole and Aquabase database for graphical representation of the pumping test data.

The results showed that in providing a sustainable water supply even during prolonged periods when the annual rainfall is below average and are based on well established methodologies using mathematical relationships between abstraction rates and the draw back of water levels during pumping the borehole (BBH1) is able to deliver the yield of 3.05 l/s over 12 hours duty cycle. The pump should be installed at 50 mbgl with the critical water level not to drop below 16mbgl.

The groundwater sample collected to obtain the a representative elementary volume sample and submitted in an accredited SANAS Water laboratory Services for hydrochemical. The elements selected were those in accordance with SANS 241:1:2015 for drinking water and DWS guidelines for Quality of domestic supplies (Assessment guide 2nd Ed, 1998) were both used to classify the

water quality. The water quality results of BBH1 shows the Nitrate levels to be slightly high and exceeding Class 1 limit of 10 mg/l for domestic water thus the sampled water is considered a type 2 which means that the water can or may be used without health effects by majority of users but may cause health effects in some sensitive types thus precaution must be taken.

According to SANS the water type may pose an immediate unacceptable health risk therefore the water is considered marginal and unacceptable for human consumption. The elevated nitrate found in the sample can be attributed to the fertilizers since the borehole is located near the farm field.

Table 1: Groundwater Quality within Bertram BBH1 borehole sample.

	Parameters	Units	SANS241:2015	BBH1
Physical / Aesthetic Determinants	pH	pH units	≥5 to ≤9.7	7
	TDS	mg/l	≤1 200	328
	EC	mS/m	≤170	37.6
	Total Alkaline	mg/l	-	64
	Total Hardness	mg/l	-	148
Macro Determinants	Ca	mg/l	≤150	33
	Mg	mg/l	≤70	16
	NO ₃ as N	mg/l	≤11	12
	SO ₄	mg/l	≤500	22
	F	mg/l	≤1.5	<0.2
	N	mg/l	≤0.9	<0.05
	Cl	mg/l	≤300	31
	Na	mg/l	≤200	10
	K	mg/l	≤50	1.1
	Zn	mg/l	≤5	<0.025
Micro Determinants	Cu	mg/l	≤0.03	0.082
	Fe	mg/l	≤2	0.045
	Pb	mg/l	≤0.01	<0.001
	Mn	mg/l	≤0.4	<0.025
	As	mg/l	≤6	<0.001
	Al	mg/l	≤0.3	<0.100
	NH ₃	mg/l	≤1.5	0.1
	Cd	mg/l	≤0.003	<0.001
	Ni	mg/l	≤0.07	<0.025
Water quality	SANS 241 2015			Acceptable
	DWS Water Quality Class			Class 2

It is recommended that the borehole and pump must be protected by fencing and the latter be in a house designed for such and equip them with water monitoring and sampling facility. The borehole abstraction must not exceed critical levels of 45mbgl. Once the levels are reached daily abstraction rates must be reduced. Water levels and abstraction should be monitored and recorded monthly. Monthly water quality monitoring of the borehole water samples must be analysed of chemicals as well as bacteriological by an accredited laboratory to determine if the water is suitable for human consumption.

Wetland Assessment Report (ZEN Environmental Consultants)

The proposed construction site falls within a Grassland Biome characterised by Soweto Highveld Grassland vegetation type which is a listed threatened ecosystem. The land type is considered to be a BA 35; due to the current land use which is characterised by agricultural activities there were

areas within the sites that mimicked wetland areas and a wetland delineation was conducted. The results showed that the occurrence of wetland is ruled out and the mimicking is due to overwatering and stagnant water as a result.

Biodiversity Assessment Report (ZEN Environmental Consultants)

The study site is within a Grassland Biome which is the second largest biome in South Africa and is the mostly impacted and transformed biome. The site vegetation unit should be the Soweto Highveld Grassland which is a listed threatened ecosystem; however looking at the present land use of the site which is a residential area (i.e. development area) the vegetation unit is severely transformed. The clearing of the vegetation for the buildings and transformation due to agricultural activities has completely wiped out the original natural vegetation types and associated floral species.

The site is used for subsistence farming of vegetables and besides the building structures and greenhouse facilities there are ornamental palm trees planted as form of windbreakers and for aesthetics there are no Orange or Red list species observed and recorded for the site. Overall ecological status of the site is considered transformed and disturbed.

No fauna species of conservation importance occupied the area; however, random occurrence is not ruled out where fauna is concern. As an agricultural site, some of the vegetables attract rats which in turn attract snakes and owls that prey on them thus when it comes to fauna the element of surprise is never ruled out.

The overall biodiversity significance of the site is disturbed thus the site sensitivity classification was considered to be Class 1.

The proposed project aim to utilise a previously developed area for site setting during construction and pose no risk in terms of impacting any sensitive area if there was any recorded. No fauna species and flora species of ecological and conservation importance were sighted and recorded at the proposed Multipurpose Centre construction site.

Heritage Impact Assessment Report (Mafuka Duvha Enviro-Tech)

The building is not architecturally outstanding, there are no architect elements representative of a particular period in the proposed development location. The existing buildings project the history of CoJ efforts to look after underprivileged children and segments of society it is not associated with a prominent person or events that would deem it a historical site. Therefore, it is recommended that the existing building structures may be demolished and the new multipurpose centre be build as a replacement.

Removal of Asbestos Report (Nkateko Health and Safety)

Asbestos is a group of six naturally occurring minerals composed of soft and flexible fibers that are heat resistant. Exposure to Asbestos causes cancer and other diseases including mesothelioma and asbestosis. The most common way for asbestos fibers to enter the body is through breathing.

The proponent wants to remove the section of the building roof which are asbestos panel, the removal of the asbestos roof sheets must be carried with caution as the health of the community must be protected. It is recommended that only an asbestos registered removal company or service provider listed by Department of Labour and have a valid registration certificate should perform the task of removing the asbestos roof sheets.

No dry removing should take place thus the use of water from the taps around the facility will be helpful during the removal. The removed sheets should be double wrapped and labeled as asbestos waste, standard practise would be to use a red inner bag with asbestos warning and a clear outer bag with hazardous label.

It is recommended that:

- A registered and accredited asbestos removing service provider be appointed;
- Submission of PLAN OF WORK by the contractor seven (7) days prior to commencement with asbestos roof removal;
- Employee medical certificate of fitness and asbestos training records be submitted;
- The area be isolated when the work begins;
- Proper PPE (Respiratory masks, full body disposable covering suits, gloves, eye protection, hard hats etc) be used and worn at all times during the work;
- METHOD STATEMENT by the contractor and risk assessment for the removal of the asbestos sheets;
- The asbestos sheets must not be removed dry, the sheets should always be watered prior to removal;
- Breaking of large sheets pieces should be avoided at all costs;
- Double wrap the removed sheets with suitable polythene sheeting (1000 gauge) and label accordingly;
- Appointment of accredited waste carrier to transport the asbestos waste; and
- A waste disposal certificate to be submitted upon disposal of the asbestos waste in an authorize asbestos suitable landfill.

Traffic Impact Assessment (KUMBA infrastructure projects)

The traffic impact study was motivated by the need to determine the impact of the proposed additional land use rights on traffic operations on the surrounding external road network. In this report a consolidated approach has been taken. The full and final development has been considered in order to determine the extent of the required road network requirements and the phasing of the implementation of road network upgrades where necessary.

The current access to this development is off Bertrams Road adjacent to the Rea Vaya Bus Station. This is an unsafe point as Bertrams is a busy BRT route which creates significant conflict between pedestrians, passing vehicles and turning vehicles. As such an alternative access point has been investigated off Liddle Street. This would have to be a shared access with the Joburg Cricket Club. The current access configuration does not conform to access spacing standards and therefore pose significant road safety challenges. It should however be noted that these access points are historical and there prior to the realisation of the BRT. It is suggested that the access point be kept as long as it is safe to do so. There must be some monitoring for any safety incidents that may trigger the closure of this access and the full use of Liddle Street at the back.

The capacity analyses carried out indicates the following:

The current traffic operations (background traffic) at all intersections during the morning and afternoon peak hours are acceptable. The traffic volumes are significantly low and even the addition of the development traffic has very little impact on the surrounding network. It is however noted that the growth in background traffic might impact the north approach on Bertrams Road at the intersection of Bertrams and Erin/Derby. It is mostly due to turning restrictions as both the left and right turning lanes are shared with the through movements.

Based on the capacity analyses, optimising the traffic signal will improve the operations at the intersection of Bertrams and Erin/Derby Road. The rest of the intersections in the network indicates there are no road upgrades identified for implementation. The current access to this development is off Bertrams Road adjacent to the Rea Vaya Bus Station. This is an unsafe point as Bertrams is a busy BRT route which creates significant conflict between pedestrians, passing vehicles and turning vehicles. As such an alternative access point has been investigated off Liddle Street. This would have to be a shared access with the Joburg Cricket Club.

The current configuration has the access to the Bertrams Centre characterised by a left in and left out geometric layout. In accordance with the TRH26 (South African Roads Classification and Access Management Manual) marginal intersections (left in/left out) may only be provided when:

- It can be shown that such intersections will be of benefit to the general road user in terms of capacity and road safety considerations;
- The intersection will attract a left-in traffic volume of 150 or more vehicles during a peak hour;
- The intersection does not attract such large volumes of pedestrians or cyclists that a pedestrian crossing (signalised or unsignalised) becomes warranted;
- Easily identifiable (by means of road signs) and safe egress/exit routes are available for traffic to leave the area and travel in the direction not served by the marginal intersection;
- A raised constructed median is available that prevents undesirable turning movements. The median must be provided over a distance extending 30 m beyond the length of the longest auxiliary turning lane that may be required on an approach to the intersection, even if such auxiliary lane is currently not provided or warranted.

If left in the same position, all the development traffic (95 peak hour trips) would have to come off Bertrams Road in one direction (from the north) and leave the development in the same direction (towards the south). The discussion below analyses the veracity of allowing the access point to remain as is.

• Advantages:

- o This is a historical access point and there will be little if any, additional costs to improve the access point;
- o It provides the shortest direct path to this property.

• Disadvantages:

- o The access' proximity to the Rea Vaya bus station implies a significant pedestrian volume. From a road safety perspective, there will be significant conflict with pedestrians accessing the bus station;
- o There are no alternative egress/exit routes for traffic to leave this development in a direction not served by this intersection. All traffic goes back onto Bertrams and is anticipated to make U-turns at Miller Street;
- o For U-turns to be made safely there must be a distance long enough to enable merging and weaving movements for turning traffic. The next intersection downstream is approximately 60m at Thames Road/Miller Street. Vehicles intending to go back to the north along Bertrams will have to drive southwards for a distance of 60m, cross two lanes on Bertrams road and wait to make the U-turn at Miller Street. In accordance with the TRH26, where U-turn movements are expected, there must be an auxiliary right turning lane. At Miller Street, there is no right turning lane implying a capacity reduction as vehicles queue to make the turn. Instead of a median, there are two bus lanes (BRT bus lanes) which are operating on a different signal phase increasing the chances of a

conflict between the bus and private vehicles making U-turns. There is a marked pedestrian crossing at the intersection of Bertrams and Thames/Miller.



Figure 1: Bertrams New Multipurpose Centre proposed new access road.

The discussion above indicates that while the existing access has adequate capacity to cater for development traffic, it has several shortcomings as far as safety requirements are concerned. A few suggestions can therefore be made based on the discussion above:

- This access point can be kept only for pedestrians, non-motorised transport and emergency vehicles with the full-time access to be considered off Liddle Street to the North of this development. This ensures all new trips are kept off a busy Class 3 arterial and this development gains safe accessibility;
- Since the existing access has a historical significance of being in use even before the BRT was realised, the developer can be allowed its continued use but with close monitoring of safety around the access. If any incidents are recorded it is imperative that consideration be made for the use of Liddle Street as suggested in the first point above.

In terms of the National Land Transport Act (NLT) of 2009, Section 35, it is a requirement that an assessment of the public transport be included in a traffic impact assessment. The following comments are relevant in respect of the public transport of the application site:

- Public transport activities have been observed along Bertrams Road in the north to south direction past the planned development. This is in the form of the City of Johannesburg's Rea Vaya bus service. A bus station has been constructed opposite this development's existing access and can be easily accessed by all users. Combi taxis were also observed to be operating along the same route and surrounding roads. The furthest distance where a passenger can access public transport is approximately 10m from the pedestrian entrance to the planned development.
- From the traffic impact investigation and discussions in the report the following conclusions can be made:

- The proposed development and the resultant increase in traffic due to the development has very little impact and can be accommodated on the surrounding road network with minimal change to the status quo.
- While the existing access point has adequate capacity, it has several safety deficiencies that cannot be ignored. It is proposed that the access to this development be considered off Liddle Street through the township of Bertrams and the existing access be kept only while it is safe to do so (the JRA to monitor for any safety incidents around this access point).

In view of the traffic impact investigation and discussion in the report, it is recommended that the proposed development be approved from a Traffic Engineering point of view, subject to the developer implementing the upgrading proposals summarised above.

From a traffic engineering point of view, it is recommended that the City of Johannesburg approve this development.

IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The design team must identify any likely impacts of the material, product or system selection during the design phase.

The contractor must identify likely aspects before commencing with any construction activity. Examples of environmental aspects include:

- waste generation
- chemical use operations
- energy use operations
- water use operations
- use of natural resources
- noise and dust generation

Thereafter the contractor must programme his/her work in such a way that each cause and effect of a construction activity is also identified and the activity planned so as to prevent any impact from happening. If prevention is not practicable, or in the event of mishap or misapplication, the contractor must provide plans and measures for the Principal Agent's and ECO's approval, which will limit and contain the magnitude, duration and intensity of the impact. The contractor must demonstrate that he is capable of carrying out any repair and reinstatement of the damaged environment. These requirements must be concurrent with the time constraints to produce an approved construction programme according to the Principal Building Agreement.

Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

- Pollution of atmosphere, soil or water
- Destruction or removal of fauna and flora and effect on biological diversity
- Destruction/pollution of the wetlands
- Deformation of the landscape
- Soil erosion
- Destruction of historical/heritage sites
- Effect on the built environment
- Effect on wetlands
- Effect on health and safety of residents and pedestrians in the area.
- Disruption of traffic for business owners and residents in the area.

Examples of identified key environmental impacts that will primarily occur during the construction and operation phases are:

No	Impact Agent / Activity	Issue	Impact
Construction Phase			
1	Site Preparation (Clearing, grading, excavation, levelling, truck hauling)	Dust generation from construction activities. Noise creation. Vegetation cover. Natural organic debris. Domestic waste. Road traffic. Vehicle and equipment maintenance and storage.	Air quality deterioration and noise generation. Impact of biodiversity and habitat. Disruption to road traffic. Construction vehicle emissions. Waste can impact ecosystem.
2	Impact Agent / Activity Excavation, refilling, loading and transportation of materials. Operation of construction equipment and vehicles.	Issue Dust generation from construction activities. Noise and vibration creation and generation. Air quality deterioration, ground and water pollution.	Impact Air quality deterioration and noise generation. Disturbance to local households and wildlife species. Impact of biodiversity and habitat. Possible loss of productive topsoil. Potential pollution of the wetlands by construction methods. Domestic and construction waste will occur. Dust and debris created during transportation of materials.
3	Horizontal Direction Drilling underneath	Hardening of surfaces within wetland catchment;	Erosion potential in to wetlands, siltation and

	wetlands	Sediment movements into the wetland system due to steep access sides of the valley; Pollution by hydrocarbons and other oils used during the drilling process;	pollution of wetlands
4	Site office creation	Sediment movements into the wetland system due to steep access sides of the valley	Increased demand for building materials. Installation requirement for sanitation services. Noise and dust creation. Domestic waste. Change in area routine.
Operation Phase			
5	Site rehabilitation with indigenous planting.	Steep access sides Litter pollution	Changes to local species and introduction of new species.
6	Potential leakage of the sewer line pipeline	Alien vegetation	Decrease in water quality of the wetlands and health risk to residents.

LEGAL REQUIREMENTS

Construction will be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the Contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The Contractor should note that obligations imposed by the EMP are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail. This contradiction must be discussed with the Applicant and ECO immediately so that the situation can be rectified to the satisfaction of all with the emphasis on protecting the environment.

The Contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

The Contractor must provide proof of compliance to environmental legal requirements such as licenses, permits etc.

4.1. STATUTORY AND OTHER APPLICABLE LEGISLATION

4.1.1 National context

The following legislature is closely linked to the Environment in the National context and will be discussed in more detail in the following table:

Other legislative procedures that have been considered or need to be taken into account for the proposed project are the following:

- The National Water Act, 1998 (Act No. 36 of 1998)
- The National Water Act, 1998 (Act No. 36 of 1998) General Notice 1199 - development within 500 meters of a wetland
- The National Water Act, 1998 (Act No. 36 of 1998) General Notice 1198
- National Environmental Management: Biodiversity Act, (Act No. 10 of 2004)
- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
- Gauteng Transport Infrastructure Act 2001, (Act 8 of 2001) Section 7
- EMM Bioregional Plan (2011)
- The South African Heritage Resources Act (SAHRA), 1999 (Act No. 25 of 1999) protects the cultural resources on a proposed development site.
 - o National Environment Management Protected Areas Act, 2003 (Act No. 57 of 2003);
 - o National Environment Management Waste Act, 2008 (Act No. 59 of 2008);
 - o National Veld and Forest Fire Act, 1998 (Act No.101 of 1998);
 - o Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983);

MANAGEMENT ACCOUNTABILITY AND ENVIRONMENTAL CONTROL

5.1 ADMINISTRATION

Copies of the EMP must be kept at the site office and will be distributed to all senior contract personnel. All senior personnel must be required to familiarize themselves with the contents of this document.

5.2 ROLES AND RESPONSIBILITIES

The implementation of this EMP requires the involvement of several stakeholders, each fulfilling a different, but vital role to ensure sound environmental management during the construction phase.

5.3 APPLICANT AND PROJECT CO-ORDINATOR

The applicant remains ultimately responsible for ensuring that implementation of this EMP complies with the relevant legislation, and that the development is implemented according to the requirements of the EMP.

Although the applicant has appointed the Contractor to undertake the contract on a design and construct basis, the responsibility still remains with the applicant. The applicant must ensure that sufficient resources (time, financial, labour, equipment, etc.) are available to the other role players (e.g. the Environmental Control Officer (ECO), and contractor, to efficiently perform their tasks in terms of the EMP. The applicant will be held responsible for restoring the environment in the event of negligence leading to damage to the environment.

- ✚ The applicant must ensure that the EMP is included in tender documentation so that the contractor who is appointed is bound to the conditions of the EMP.
- ✚ The applicant must be familiar with the recommendations and mitigation measures of this EMP and implement these measures.
- ✚ Monitor the site activities on a daily basis for compliance.
- ✚ Conduct internal audits of the construction site against the EMP.
- ✚ Confine the construction site to the demarcated area.
- ✚ Rectify transgressions through the implementation of corrective action.

5.4 CONTRACTOR

The contractor acts as the applicant's agent on site and is bound to the EMP conditions through his/her contract with the developer. The contractor is responsible for ensuring that he/she adheres to all the conditions of the EMP. The contractor must thoroughly familiarise him/herself with the EMP requirements before coming onto site and must request clarification on any aspect of these documents, should they be unclear. The contractor must ensure that he/she has provided sufficient budget for complying with all EMP conditions at the tender stage.

The contractor must comply with all orders (whether verbal or written) given by the ECO, project manager or site engineer in terms of the EMP.

5.5 ENVIRONMENTAL SITE AGENT

The Contractor must appoint a nominated representative of the contractor as the Environmental Site Agent (ESA) for the contract. The ESA will be site-based and must be the responsible person for implementing the environmental provisions of the construction contract.

There must be an approved ESA on the site at all times. It may be necessary to have more than one ESA. The ESA's duties will include, inter alia, the following:

- Ensuring that all the environmental authorizations and permits required in terms of the applicable legislation have been obtained prior to construction commencing.
- Reviewing and approving construction method statements with input from the ECO and Engineer, where necessary, in order to ensure that the environmental specifications contained within the construction contract are adhered to.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Keeping accurate and detailed records of all activities on site.
- Keeping a register of complaints on site and recording community comments and issues and the actions taken in response to these complaints.
- Ensuring that the required actions are undertaken to mitigate the impacts resulting from non-compliance.
- Reporting all incidences of non-compliance to the ECO and Contractor.

The ESA must have:

- The ability to manage public communication and complaints.
- The ability to think holistically about the structure, functioning and performance of environmental systems, and
- The ESA must be fully conversant with the Environmental impact Report and Environmental Management Plan for the Project and all relevant environmental legislation.
- The ESA must have received professional training, including training in the skills necessary to be able to amicably and diplomatically deal with the public as outlined above.

The ECO must be in the position to determine whether or not the ESA has adequately demonstrated his/her capabilities to carry out the tasks at hand and in a professional manner. The ECO must therefore have the authority to instruct the contractor to replace the ESA if, in the ECO's opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the construction contract. Such instruction will be in writing and must clearly set out the reasons why a replacement is required and within what timeframe.

5.6 ENVIRONMENTAL CONTROL OFFICER

The Environmental Control Officer (ECO) is the person involved with the development project and is responsible for the implementation of the environmental management programme. It may be different parties during the different phases of the project.

This person may be someone from the developer or appointed by the developer. The ECO must, however, be a person with adequate technical and environmental knowledge to understand and implement this management programme. The ECO may not be someone appointed by the contractor or the engineer. The ECO must report to the developer.

The ECO has the authority to stop works during construction if in his/her opinion there is a serious threat to, or impact on the environment caused directly from the construction operations. This authority is to be limited to emergency situations (see definitions) where consultation with the engineer or developer is not immediately available. In all such work stoppage situations the ECO is to inform the engineer and developer of the reasons for the stoppage as soon as possible.

Upon failure by the contractor or his employees to show adequate consideration to the environmental aspects of this contract, the ECO may recommend to the engineer to have the contractor's representative or any employee(s) removed from the site or work suspended until the matter is remedied. No extension of time will be considered in the case of such suspensions and all costs will be borne by the contractor.

5.7 ENVIRONMENTAL AUDITS

The ECO will conduct monthly environmental monitoring audits during the construction period of the development to ensure that the contractor adheres to the requirements of the Environmental Management Plan. After the environmental audit, the ECO will provide the developer and contractor with a written report with a dated photographic record and the findings of the audit. The ECO must also keep records of non-compliance and how this was rectified and include it in the monthly report. These audits will be available to GDARD or any competent authority on request.

5.8 ENVIRONMENTAL AWARENESS TRAINING FOR SITE PERSONNEL

The Applicant will implement an Environmental Awareness Plan (EAP). The material of information used to compile the EAP will be the approved NEMA EMP, as well as other relevant specialist reports. The documents will be utilised to compile a database, which will contain all medium to high significant environmental aspects and issues. The environmental issues and aspects will be entered into the database with associated mitigation measures and responses, along with the specific legislation that governs such an impact or aspect. All full time staff and Contractors are required to attend induction sessions. Employees should be inducted when they start at the site and when they return from leave. Any Contractor, who works on the site for a period of 24 hours or more, shall be required to undergo the respective induction training. Environmental issues and aspects related to the operations must be addressed in induction sessions. All environmental impacts and aspects and their mitigatory measures will be discussed, explained and communicated to employees. The induction sessions will be modified according to the level of employee attending the induction session, so that all employees gain a suitable understanding of environmental issues and pollution.

The following must be addressed during the Environmental Awareness Training (construction and operational phases) of the development:

- Hazardous materials handling and storage and disposal
- Housekeeping and waste management
- Alien and invasive species management
- Water resource use and management
- Noise management
- Stormwater and erosion control
- Blasting
- Environmental emergencies (fire, spillages)

All Contractor teams involved in work on the development are to be briefed on their obligations towards environmental controls and methodologies in terms of this EMP prior to work commencing. The briefing will usually take the form of an on-site talk and demonstration by the ECO. The education / awareness programme should be aimed at all levels of management within the Contractor team.

The Applicant must ensure that the construction team and all-Contractor/s and employees (operational phase) are familiar with the EMP requirements and have a basic level of environmental awareness training. The Applicant must undertake basic environmental awareness induction training prior to the start of construction activities on site. Topics to be covered by the training should include inter alia:

- What is meant by “environment”?
- Why the environment needs to be protected and conserved.
- How construction and operational activities can impact on the environment.
- What measures can be taken to mitigate against these impacts.
- Prevention of pollution and litter control and the minimization of disturbance to sensitive areas.
- The need for a “clean site” policy also needs to be conveyed to construction workers.
- Worker conduct on site which encompasses a general regard for the social and ecological well-being of the site and adjacent areas.

5.9 RECORD KEEPING

All records related to the implementation of this management plan (e.g. environmental site audits) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for two years and should at any time be available for scrutiny by any relevant authorities.

The EMP must be kept on site for easy reference at all times and must be accessible to all the construction workers on site.

5.9.1 Method Statements

Method statements from the Contractor will be required for specific sensitive actions on request of the authorities or ECO. A method statement forms the base line information on which sensitive area work takes place and is a “live document” in that modifications are negotiated between the Contractor and ECO / Engineer, as circumstances unfold. All method statements will form part of the EMP documentation and are subject to all terms and conditions contained within the EMP main document. Method statement describes the scope of the intended work in a step-by-step description in order for the ECO and Principal Agent to understand the Contractor’s intentions. This will enable them to assist in devising any mitigation measures, which would minimize environmental impacts during these tasks. For each instance wherein it is requested that the Contractor submit a method statement to the satisfaction of the ECO, the format should clearly indicate the following:

- o What: a brief description of the work to be undertaken;
- o How: a detailed description of the process of work, methods and materials;

- o Where: a description/sketch map of the locality of work (if applicable); and
- o When: the sequencing of actions with due commencement dates and completion date estimates.

The Contractor must submit the method statement before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the Principal Agent in consultation with the ECO.

5.9.2 Photographs

It is recommended that photographs be taken of the site prior to, during and immediately after construction as a visual reference. These photographs should be stored with other records related to this EMP.

INSTITUTIONAL MATTERS

Penalties predetermined between the ECO and any other contractors working on the site will be enforced if a contractor does not comply with this EMP.

6.1 NON COMPLIANCE

According to Appendix 4 of GN R 982, an environmental management programme must include:

A description of the impact management objectives, including management statements identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –

- o Planning and design;
- o Pre-construction activities;
- o Construction activities; and
- o Rehabilitation of the environment after construction and where applicable post closure; and operation activities.

A description and identification of impact management outcomes required for the aspects contemplated above. A description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved.

A copy of the EMP must be kept on site at all times during the construction period. The EMP will be binding on all contractors operating on the site and must be included within the Contractual Clauses.

The Contractor must comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the ECO to impose a penalty. In the event of non-compliance the following recommended process must be followed:

- o The ECO must issue a notice of non-compliance to the Contractor, stating the nature and magnitude of the contravention.
- o The Contractor must act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- o The Contractor must provide the ECO with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- o In the case of the Contractor failing to remedy the situation within the predetermined time frame, the ECO must impose a monetary penalty based on the conditions of contract.
- o In the case of non-compliance giving rise to physical environmental damage or destruction, the ECO must be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
- o In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMP.

Disagreement regarding the implementation or method of implementation of conditions of the EMP or any party must be entitled to require that the issue be referred to specialists for determination.

The ECO must at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

The Contractor is deemed not to have complied with the EMP if:

- There is evidence of contravention of the EMP specifications within the boundaries of the construction site ,site extensions and roads;
- There is contravention of the EMP specifications which relate to activities outside the boundaries of the construction site.
- Environmental damage ensues due to negligence;
- Construction activities take place outside the defined boundaries of the site; and/or the Contractor fails to comply with corrective or other instructions issued by the Engineer within a specific time period.

It is recommended that the engineers/contractors institute penalties for the following less serious violations and any other determined during the course of work as detailed below:

- Littering on site.
- Lighting of illegal fires on site.
- Persistent or un-repaired fuel and oil leaks.
- Any persons, vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas.
- Excess dust or excess noise emanating from site.
- Possession or use of intoxicating substance on site.
- Any vehicles being driven in excess of designated speed limits.
- Removal and/or damage to fauna, flora or cultural or heritage objects on site.
- Urination and defecation anywhere except at designated facilities.

6.1.1 Offences and penalties

Any avoidable non-compliance with the conditions of the EMP must be considered sufficient ground for the imposition of a penalty. Possible offences, which should result in the issuing of a contractual penalty, include, but are not limited to:

- **Unauthorized entrance into no-go areas.**
- **Unauthorized damage to natural vegetation.**
- **Unauthorized camp establishment (including stockpiling, storage, etc.).**
- **Hydrocarbons / hazardous material: negligent spills / leaks and insufficient storage.**
- **Ablution facilities: non-use, insufficient facilities, insufficient maintenance.**
- **Late method statements or failure to submit method statements.**
- **Insufficient solid waste management (including clean-up of litter, unauthorized dumping, etc.).**
- **Erosion due to negligence / non-performance.**
- **Excessive cement / concrete spillage / contamination.**
- **Insufficient fire control and unauthorized fires.**
- **Preventable damage to water courses or pollution of water bodies; and**
- **Non-induction of staff.**

6.1.2 Spot fines

The ECO must be authorised to impose spot fines (to the value of R5 00.00) for any of the transgressions detailed below:

- Littering on site.
- Lighting of illegal fires on site.

- Any persons, vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas.
- Excess dust or excess noise emanating from site.
- Possession or use of intoxicating substances on site.
- Any vehicles being driven in excess of designated speed limits.
- Unauthorized removal and/or damage to fauna, flora or cultural or heritage objects on site.
- Urination and defecation anywhere other than using the toilet facilities that have been provided.

6.1.3 Penalty fines

Where environmental damage is caused or a pollution incident, and/or failure to comply with any of the environmental specifications contained in the EMP, the Contractor must be liable to pay a penalty fine. The ECO must recommend to the Contractor the issuing of penalties for contravention of the **EMP, Environmental Authorisation, Contract, or environmental legislation**. The following transgressions must be penalized:

- **Hazardous chemical/oil spill.**
- **Damage to sensitive environments.**
- **Damage to cultural and historical sites.**
- **Unauthorized removal/damage to indigenous trees and other vegetation, particularly in identified sensitive areas.**
- **Uncontrolled/unmanaged erosion.**
- **Unauthorized blasting activities.**
- **Violation of environmental authorization conditions.**

6.1.4 Verbal instructions

Verbal instructions are likely to be the most frequently used form of corrective action and are given in response to transgressions that are evident during routine site inspections by the ESA and/or ECO. Verbal instructions are also used to create further awareness amongst employees as often transgressions are a function of ignorance rather than vindictiveness. Workers must obey verbal instructions through formally recording the actions taken to resolve the matter so that the instruction could be successfully finalized and recorded. **Maximum allowable response time: 2 working days.**

6.1.5 Written instructions

Written instructions will be given following an audit. The written instructions will indicate the source or sources of the problems identified on site and propose solutions to those problems. The implementation of solutions will be assessed in a follow-up audit and further written instructions issued if required. **Maximum allowable response time: 4 working days.**

6.1.6 Conclusion

This Environmental Management Plan should be used as an on-site reference document during all phases (Planning & Construction) of this development, and auditing should take place in order to determine compliance with this EMP. Parties responsible for environmental degradation through irresponsible behavior/negligence should receive penalties.

In order to have records of environmental and Health & Safety incidents and the handling thereof, **it is recommended that incident logs be filled in by the Environmental Control**

Officer. The applicant needs to be informed of such incidents and further actions need to be taken, should the need arise.

6.2 ENVIRONMENTAL EMERGENCY PLAN

The construction camp area must be monitored for oil and fuel spills and such spills must be cleaned and remediated to the satisfaction of the ECO. Cleaning and remediation must be done with products that are in line with best environmental practice.

The Contractor must be in possession of an emergency spill kit that must be complete and available at all times on site. The Contractor must ensure that senior and other relevant members of the workforce are trained in dealing with spills by using emergency spill kits.

The following must apply:

- o All contaminated soil / yard stone must be removed and disposed of as hazardous waste at a registered facility or placed in containers to be taken to one central point where bio-remediation can be done (Bio-remediation should only be an option if an Environmental Authorisation has been issued).
- o A specialist Contractor must be used for the bio-remediation of contaminated soil where the required remediation material and expertise is not available on site. All spills of hazardous substances must be reported to the ESA or ECO. The Contractor must comply with the regulations of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).
- o The Contractor must keep the necessary materials and equipment to deal with spills / fire in the vicinity of the site and in an easily accessible place, should they occur.
- o The Contractor must set up a procedure for dealing with spills / fire, which will include notifying the ECO and/or Applicant the relevant authorities prior to commencing with construction. These procedures must be developed with consultation and approval of the appointed ESA and ECO as applicable.
- o A record must be kept of all spills and the corrective action taken (See Appendix B for the Incident log sheet and Appendix C of Complaints record sheet).

6.2.1 Safety and emergency procedures, risk management and training

The application of the OHS Act and regulations must be ensured. This includes the distribution and use of protective clothing and equipment to at least include safety shoes, overalls, gloves, dust masks, and where appropriate ear muffs and eye/face protection shields.

Handout and use of safety and protective equipment must be recorded. Staff who fails to use the protective equipment provided by site staff must not be allowed to work at the facility.

The Contractor's Safety Officer is to present emergency procedures during the mandatory Health and Safety Induction presented to all new site staff.

Emergency procedures for fire, adverse conditions due to inclement weather, spillages, stoppage of operations due to refusal to work by employees, etc. must be included in the emergency procedures.

All relevant firefighting equipment should be kept on site.

The Site Manager must be assigned as the Safety Officer for the facility and the Site Manager must assign a person as deputy to act when appropriate.

The Contractor must after occupation of the construction site ensure that appropriate SHE signs (symbolic safety signs) are displayed on site.

The Contractor's employees must comply with all SHE signage posted at various locations.

The following requirements would be the minimum for the safety program:

- o Orientation of new employees including safety training and emergency contingency planning.
- o Accident reporting procedures for notification to the Employer and thereafter appropriate agencies.
- o Thorough investigation and documentation of all accidents to ascertain the cause and future methods of preventing recurrence.
- o Mandatory first aid instruction for all staff members.
- o Regularly scheduled safety meetings.
- o Fire prevention and firefighting instruction.
- o Routine inspection and testing procedure for all safety and emergency equipment and protective devices, and routine walk through inspections conducted by the Operator through all areas to identify and correct potential unsafe conditions.
- o Posting of safety bulletins and posters required by regulatory agencies and other materials concerning accident prevention and hazardous conditions.
- o The Contractor must abide by all local, provincial and national safety requirements.
- o The Contractor must provide for a first aid station and emergency medical response for injured staff.
- o All plant/equipment failure must be repaired or replaced by the Contractor without any undue delay or adverse effect to the operation of the site.
- o This includes all mechanical equipment and tools, safety and warning systems.
- o The Operator will ensure that all equipment is maintained in a safe operating condition.

6.2.2 Accident and incident control and reporting

All accidents must be recorded irrespective of the severity or seriousness of injuries and damage. Data about the accident must be provided within 24 hours after occurrence.

Appropriate recording documents must be available on site and a person must be designated as the Health and Safety Officer.

Appropriate authorities and law enforcement officers must be included in investigations into accidents.

Steps to avoid recurrence of similar accidents must be identified and implemented. The steps must be recorded and monitored.

Incidents must be recorded in an incident register noting the time, date and place where the incident occurred, who and what was involved and a detailed description of the incident must be included in the report (see Appendix B).

Actions taken to address the occurrence of the incident, as well as the avoidance of recurrence of the incident must be recorded.

6.2.3 Chemical fuel spill

The site must have a supply of absorbent material readily available to absorb any emergency hydrocarbon (fuel / oil) spills, and where possible be designed to encapsulate minor hydrocarbon spillage. The quantity of such materials must be able to absorb / deal with a minimum of 200 l of hydrocarbon liquid spill.

The source of the spill must be isolated and the spillage contained.

The area should be cordoned off and secured.

Treatment and remediation of spill areas must be undertaken to the satisfaction of the Contractor and the ECO.

Material stockpiles and equipment are to be kept outside of potential flood zones after heavy rains.

GENERAL SITE ISSUES

7.1 INTRODUCTION

The following section of the EMP should be read with the construction and design specifications for the development. It focuses on the significant issues to be addressed and mitigated during the construction phase and specifies monitoring and auditing criteria for this phase.

Johannesburg Development Agency is proposing a demolition and re-building of the existing Bertrams Training and Development facility to a Bertram New Multipurpose Centre. The project area is an existing development plot confined within the residential area. The findings shows that the proposed project will have low impact on most environmental parameters however as requirements of the Environmental Authority, an Environmental Management Plan/Programme (EMP) has to be prepared for the proposed development. The ROD from competent authorities will make the requirements binding and the final conditions will be included in this report.

7.2 PERSONNEL

- ❖ Working hours will be from 07h00-17h00 Monday to Friday, unless specified in the contract no work should be undertaken on Saturdays; Sundays and public holidays.
- ❖ Where special circumstances require the contractor to work later hours, special arrangements must be made with adjacent landowners before such activities.
- ❖ Warning signs must be placed on and around the site.
- ❖ No trees or other vegetation may be permitted to be removed, especially for the making of fires.

- ❖ Where there is a particular fire hazard at any point in the construction works the contractor must ensure that his employees are properly trained in the use of the appropriate firefighting equipment and that such equipment is on hand at all times.
- ❖ The contractor must refrain from harming or clearing trees, timber and shrubs to any extent other than that indicated by the Engineer for the execution of the contract.
- ❖ The contractor must take all measures necessary to prevent his staff from hunting, capturing or destroying animals and birds in the vicinity of the construction camp and local surroundings.
- ❖ The contractor must take all necessary precautions against trespassing on adjoining properties and must take care that all livestock, game or vegetation are not interfered with.
- ❖ The contractor must comply with all safety regulations regarding the electricity supply and he shall take every precaution to ensure the safety of all the people on site where needed.
- ❖ The contractor must ensure that as far as practical, suitable arrangements are made on the site for the maintenance of health, the prevention and overcoming of outbreaks of disease and of adequate first aid services.
- ❖ The contractor must be responsible for his own security arrangements and must comply with any security instructions, which the Engineer may issue from time to time.
- ❖ The contractor must ensure that suitable safety regulations and precautions are established and brought to the attention of the personnel. Approved safety helmets and other protective clothing shall be worn at all times whilst on site.

- ❖ The contractor must at his own cost provide for a constant supply of potable water for human consumption to the site offices and other domestic use on site. The contractor must allow for chemical testing of water samples on a monthly basis.
- ❖ The contractor is responsible for the behavior and discipline of all personnel while they are present on the site and must exercise strict supervision over them at all times of the day and night.
- ❖ The contractor must employ local labour as far as possible and establish a skills transfer scheme to train local labour.
- ❖ If possible, contractors should assist their labourers with transport to and from the site to reduce loitering in the area.
- ❖ Workers should be discouraged to venture into the neighborhood, and the perimeter fencing will ensure that labourers do not overstep their boundaries.
- ❖ Labourers may not be allowed to sleep on site, except for the purposes of security of the building site.

7.2.1 Personnel Education

- i. The contractor shall ensure that his personnel are educated and informed as to the requirements of this EMP.
- ii. The contractor must ensure that his personnel have a clear understanding of the Health and Occupational Safety aspects of the contract works.
- iii. The contractor must endeavor to ensure that his staff complies with this EMP's requirements for best practice as described (See Do's and don't's in appendix D).

7.3 GUIDELINES FOR ENVIRONMENTALLY SENSITIVE AREAS

Sensitive areas deemed to be exclusion zone or Environmentally Sensitive Area include the following:

- o Wetland area as well as the associated buffers.

In order to minimize adverse impacts to the sensitive areas during construction activities these sensitive areas may not be entered or used for any purpose unless a written motivation has been submitted to the ECO by the responsible person and a written approval has been received from the ECO.

The Contractor must exercise special care when working close to the Environmental Sensitive Areas in order to avoid physical disturbance or pollution of these areas. The ECO may instruct the responsible person to restrict the number of construction personnel and equipment operating near these areas. In addition to this precaution it is important to note that the wetland area occurring in the project location will not be affected by the proposed project and an assigned specialist buffer of 32m applies and should be treated as a NO-GO area and should there be an interference a penalty and a fine will be issued to the contractor by the ECO.

The Contractor must note the proximity to the site of any designated Environmental Sensitive Areas. He must fence any sensitive areas as described under the exclusion zones above, if so instructed by the ECO due to non-compliance.

ENVIRONMENTAL MANAGEMENT PLAN – CONSTRUCTION PHASE

This section describes mitigation measures and is partly prescriptive, identifying specific people to undertake specific tasks, in order to ensure that impacts on the environment are minimized during the construction and operational phases.

8.1 SITE ESTABLISHMENT – CONSTRUCTION CAMP AND PIPELINE ROUTE

The location of the construction camp must be established outside any wetland areas and their associated buffers, on a piece of land where the least disturbance will be caused. **No indigenous vegetation may be disturbed if at all possible without the permission of the ECO.**

- All Exotic plants must be removed from the site and indigenous trees shall be included in the landscaping of the site where possible.
- Access to the site must be controlled at all times and no harvesting of resources shall be allowed on site.
- Clearing of areas for the construction shall be kept to the minimum. All siteworks required for the development will be confined to the footprint of the construction.
- Noise reduction and dust suppression will be incorporated in all construction activities.

Noise reduction techniques must include the maintenance of the vehicles and plant used on site to an acceptable level to reduce engine noise (as well as emissions) and low frequency blasts when blasting is required.

The following mitigation measures will be implemented during site establishment:

8.1.1 Dust suppression

Dust dispersion from construction activities, unsurfaced roads, spoil dumps and other construction locations must be limited and suppressed to the maximum extent practical.

The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-

- ✓ Allaying agents.
- ✓ Regular dust monitoring and reporting to be undertaken.
- ✓ Dust control must be implemented by wetting all bare surfaces with a water bowser.

Water may not be taken from the wetland but must be sourced from a registered water source.

Agreements with local authorities are required for the water source. No water may be extracted from streams in the vicinity of the site. The contractor must wet down all bare surfaces at least once per day and in windy, dry conditions, more than once where necessary. Care must be taken not to over-water the areas and cause erosion and structural damage to the soil.

- ✓ Topsoil stockpiles should be seeded with a grass mix to protect the soil from blowing away if the stockpile will not be used within 3 months.
- ✓ Other stockpiles and building material should be wetted down if they are prone to dust blowing off these items. Where spraying of water on stockpiles is not adequate for dust control, environmentally benign binding agents shall be used to limit wind-blown dust.
- ✓ Site traffic control on temporary haul roads to be implemented. The speed of construction vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.

- ✓ Construction roads must be sprayed with water to limit dust generation by construction vehicles. Where spraying of water on roads is not adequate for dust control, environmentally benign binding agents must be used to limit dust generation by construction vehicles.
- ✓ Construction vehicles to be covered when transporting construction materials from and to the site.

8.1.2 Temporary fencing around the construction camp

Fencing must be kept neat at all times, so as not to cause any unnecessary visual influence. The contractor must be responsible for the maintenance of all fences.

- ✓ Breaches in the fencing must be repaired immediately.

The purpose of the fenced areas is to control construction and personnel activities within the designated areas, and to contain construction camp activities.

- ✓ Fencing must be established and maintained around sensitive area/exclusion zones until construction activities are finished.
- ✓ All exclusion areas are strictly out of bounds.
- ✓ No clearing or grubbing shall be allowed outside fenced areas to reduce the footprint of the development.

When the construction phase is complete, the temporary fencing around the construction camp will be removed and the area rehabilitated as described in further sections.

8.1.3 Clearing and Grubbing

- ✓ Topsoil must be cleared of woody vegetation and specifically exotic vegetation before ripping and removing.
- ✓ All alien plant material will be removed from the site and be disposed of at a permitted waste disposal facility.
- ✓ The topsoil is regarded as the top 100 mm of the soil profile irrespective of the fertility appearance.
- ✓ Topsoil is to be stripped when it is in a dry condition in order to prevent compaction.
- ✓ The topsoil, including the existing grass cover is to be shallowly ripped (only the depth of the topsoil) before removal. This is to ensure that organic plant material, and the natural seed base is included in the stripping process.
- ✓ The topsoil is to be stripped and stockpiled at a suitable pre-selected site, away from any of the construction activities. This base will be used in the rehabilitation and decommissioning of the construction activities.
- ✓ Soil stockpiles shall not be higher than 2.5m or stored for a period longer than one year. The slopes of soil stockpiles shall not be steeper than 1 vertical to 2.5 horizontal.
- ✓ No vehicles shall be allowed access onto the stockpiles after they have been placed.
- ✓ Stockpiles shall not be allowed to become contaminated with oil, diesel, petrol, garbage or any other material, which may inhibit the later growth of vegetation.
- ✓ The contractor must apply soil conservation measures to the stockpiles to prevent erosion. This can include the use of erosion control fabric or grass seeding.

The contractor will not move or remove anything from the area and will notify the ECO.

8.1.4 Site Buildings

All site buildings shall be founded on a platform, which will be compacted sub-soil or screed slab. The screed slab and compacted sub-soil will be removed from site on decommissioning of the structures.

- ✓ All buildings will be soundly built and will not pose a danger to personnel.
- ✓ All wet services to site buildings shall be checked with installation to ensure that no leakages occur that could impact on the wetland, watercourses and soils in the area.
- ✓ All structures are to be of a matt color (same as the surrounding area) finish to mitigate the visual impact of the structures on the surrounding environment.

8.1.5 Initial Earthworks - Platform (If needed)

The platform is to be established per the specifications of item 2 'Clearing and Grubbing' above.

The construction platform for the construction camp, as well as the platform for the materials storage camp must be appropriately planned.

Sumps must be provided for activities that would cause soil erosion and significant environmental damage (volatile substances, including oil and petroleum products.).

Sedimentation ponds are to be provided to allow for the temporary detention of drainage water prior to discharge into a natural watercourse. Construction of the ponds shall take place prior to topsoil stripping or any other construction activity.

8.1.6 Initial Earthworks - Vehicle Park (If needed)

- ✓ All vehicles and plant will be allocated a dedicated parking bay area.
- ✓ No storage of plant and vehicles will be allowed outside of the designated area.
- ✓ All vehicles and plant must be maintained to ensure that there are no oil or fuel leakages.
- ✓ All vehicles and plant must be provided with effective mufflers and adhere to SABS noise reduction standards.

8.1.7 Initial Earthworks - Washing Bay

A dedicated wash bay will be allocated for the washing of vehicles and plant. The wash bay must be upon a screed platform to prevent erosion and infiltration of the ground water.

- ✓ All run-off from the platform must be channeled into a sump and oil skimming tank system before it is released into a dedicated settling / sedimentation pond.
- ✓ Contaminants and oil must be recovered from the system at least once a week, and if necessitated more regularly.
- ✓ Contaminants must be stored in drums and removed from site to a permitted waste disposal site.
- ✓ All recovered oil must be stored in drums and collected by a ROSE Foundation agent for recycling.

The contractor shall provide and maintain bund walls around the wash bay within the site. Drainage from the wash bay platform will firstly be channeled into the skimming tank before being released by drain to the sedimentation pond. Where the drain passes through or across the bund wall the contractor must provide a means of preventing flow so that in event of a leak or overflow from the skimming tanks all liquids can be contained by the bund walls.

8.1.8 Initial Earthworks - Service Area

The contractor will provide sufficient bunding to prevent erosion and infiltration of the ground water by petroleum products.

The slab must drain into the conservancy tank / skimming tank.

The contractor must provide bunded walls around the maintenance/ service area.

Drainage from the service area will be channeled into a sump or oil-skimming tank, where it must be treated to remove oil and/or fuel.

Where the drain passes through or across the bund wall the contractor must provide a means of preventing flow so that in the event of a leak or overflow from the skimming tank all liquids can be contained by the bund walls. Drainage from the wash bay platform will firstly be channeled into the skimming tank before being released by drain to the sedimentation pond.

Soil contaminated by oil, fuel or chemical leakages must be removed and disposed of at a permitted landfill site. To be collected by an appropriate recycle company for decontamination and recycling. The contractor must educate workers on the appropriate methods for workshop maintenance and fuel points to prevent fuel and oil being washed out of containment areas.

Contaminants and oil must be recovered from the system at least once a week, and if necessitated more regularly. Contaminants recovered must be stored in drums and removed from site to a permitted toxic waste disposal site.

- ✓ All recovered oil must be stored in drums and collected by a ROSE Foundation agent for recycling.
- ✓ Effluent discharge from the settling ponds shall not exceed the Department of Water Affairs quality standards.
- ✓ All spillage of oil onto concrete surfaces shall be controlled by the use of an approved absorbent material such as Drizit.
- ✓ All old oil shall be retained for re-use by the supplier.
- ✓ All major servicing of plant and vehicles will be done off site, at the contractor's premises.

8.1.9 Grease Traps (If needed)

The contractor must provide grease and oil skimming tanks at all areas where oil spillage or collection will occur, i.e. workshops, oil storage, vehicle wash areas and fuel points. The contractor must provide a method for oil recovery. Recovered oil shall be collected in drums for collection by a ROSE Foundation agent.

The contractor will test effluent discharged from the oil skimming tanks. Effluent discharge must conform to DWS standards.

8.1.10 Storage areas

Heavy vehicles delivering construction materials will only be allowed onto the site if they are maintained properly.

- ✓ The heavy vehicles must be kept to a limited number and drive a maximum of 30km on site.
- ✓ Drivers of these delivery vehicles must be educated on their environmental responsibility and made aware of conservation areas on site that are off bounds.
- ✓ All materials shall be stored in areas earmarked for storage or other construction activities in order to reduce the footprint of the construction activity.

Oil, paint and chemicals that are kept in smaller containers must be kept in a locked room such as the site office with a sign-out register and records of quantities kept to ensure no losses occur.

8.1.11 Batching Plant

Concrete shall only be mixed in areas, which have been specifically demarcated for those purposes.

- ✓ All concrete spilt must be promptly removed by the contractor to an approved disposal site.
- ✓ After mixing is complete all waste shall be removed from the batching area and disposed of at an approved disposal site.
- ✓ No storm water is permitted to flow through the batching site.
- ✓ All residue water from concrete batching plants or the surface run-off from them will be led to specially constructed collection ponds.
- ✓ Batching plant is to be enclosed by a bunded wall with dedicated divisions and compartments for the various types of materials.
- ✓ Air filters are to be monitored, cleaned and replaced on a regular basis.

8.1.12 Cement/Concrete Washing bay

Concrete shall only be washed from vehicles or equipment in a designated area.

This designated area can be a hole in the ground (or similar type of scenario) and when full, the hardened concrete must be taken out and disposed of at a landfill site. Water from this area must be allowed to settle all sediments/cement particles and only clean water is allowed to leave this designated area. Care must be taken to divert stormwater around this area to ensure that it does not flow through this area and become contaminated.

8.1.13. Site Roads and Access Roads

No new permanent site roads other than as detailed by the RE and ECO as agreed upon in terms of the site layout plan shall be developed by the contractor. Topsoil shall be removed as described under 'Clearing and Grubbing' prior to the construction of the road.

- ✓ All temporary site roads must be approved by the RE and ECO and where possible kept on existing roads that are already disturbed.
- ✓ All temporary site roads must be decommissioned by the contractor and rehabilitated using the stockpiled topsoil.
- ✓ During construction the contractor must protect all areas susceptible to erosion by installing all necessary temporary and permanent drainage works as soon as possible.
- ✓ Any runnels or erosion channels developing during the construction period or during the operational and maintenance period shall be backfilled and consolidated immediately and the area restored to the proper condition. All erosion damage shall be repaired as soon as possible. Displaced topsoil shall be replaced.
- ✓ No waste or polluted soil or any material containing pollutants should be used for backfilling.
- ✓ All surface run-off shall be diverted at designated intervals and discharged down-slope.
- ✓ Down slope discharge will be protected by stone pitching until a point where the velocity of the runoff has been dissipated to such an extent that no erosion will occur.
- ✓ All stormwater control measures shall be implemented

8.1.14. Sedimentation Ponds

The purpose of the sedimentation ponds is the temporary detention of drainage water prior to discharge into the natural environment.

- ✓ Construction of the sedimentation ponds shall take place prior to topsoil stripping or any other construction activity upstream.
- ✓ The contractor must construct, maintain and operate settlement ponds at each point where contaminated water is discharged from the site.

The separation of oils, fuel and solvents must have taken place at the respective identified high-risk spill areas. All spills outside of these areas will require the speedy containment of the spill, and removal of the contaminated soil. The minimum amount of petroleum products will be allowed to pass in to the sedimentation ponds.

Settlement ponds shall be sized by the contractor for approval by the Supervisory Engineer. The outflow from each of the settlement ponds shall be designed so as to prevent any floating oil from leaving the pond.

- ✓ Ponds shall be constructed with suitable materials and shall be watertight.
- ✓ Sedimentation ponds must be kept empty as long as possible.

Natural surface flow of uncontaminated storm water across the site must be separated from the drainage channeled into the sedimentation ponds. This shall be achieved by instituting diversion berms and drains to deflect run-off from these structures.

Sedimentation and settlement ponds shall be constructed and positioned to collect surface water run-off from spoil areas. The contractor must remove sediment from the ponds when in the opinion of the Supervising Engineer; the effectiveness of the ponds are compromised through sediment build-up. Removed sediment will be disposed-off at an approved landfill site. Run-off and water released from the sedimentation ponds into the natural wetland environment shall meet DWA discharge license requirements. Measures shall be implemented at these areas to ensure that no erosion takes place that could cause sedimentation into the wetland areas.

8.1.15. Sanitation

Adequate chemical latrines must be provided for all staff at the construction camp and along the pipeline route where construction activities may take place. **They shall be serviced once a week to prevent spillages.** All latrine accommodation provided by the contractor must be efficient, sanitary and non-offensive. All sanitary fees payable to any local authority must be paid by the contractor.

8.1.16. Cooking Facilities

No fires will be allowed outside the construction camp area and no gathering of firewood will be allowed.

8.1.17. Waste Management Procedures

The contractors must provide and maintain a method statement for "solid waste management". The method statement must provide information on proposed licensed facilities to be utilized and details of proposed record keeping for auditing purposes.

During the construction phase, waste should be managed according to the following:

- ✓ Waste Disposal Management Plan:

The following procedures must be adhered to, in order to control and manage builder's wastes generated on the premises:

- ✓ Rubble material will be removed from the construction site frequently and disposed of a registered Landfill site.
- ✓ Sufficient containers will be available on the construction site to handle the amount of litter, wastes, and rubbish, debris and builders wastes generated on site.

These containers will be emptied frequently to avoid rodents, insects or any other organisms accumulating on the site and becoming a health hazard to adjacent properties.

- ✓ No waste will remain on the construction site for more than two (2) weeks.

- ✓ Material to be used as backfill during a later building phase will be covered with a layer of soil to prevent litter from flying away and unhygienic conditions developing on the rubbish dumps.
- ✓ Waste must be separated into recyclable and non-recyclable waste, and must be separated as follows:
 - Hazardous waste – including (but not limited to) old oil and paint;
 - General waste - including (but not limited to) construction rubble, reusable construction material.
 - Recyclable waste shall preferably be deposited in separate bins. The contractor is advised that “Collect-a-Can” collect tins, including paint and chemical tins, and “Consol” collect glass for recycling.

Any illegal dumping of waste will not be tolerated, this action will result in a fine and if required further legal action will be taken. This aspect will be closely monitored and reported on.

- ✓ Proof of legal dumping must be able to be produced on request.
- ✓ Bins must be clearly marked for ease of management. All refuse bins must have a lid secured so that animals cannot gain access.
- ✓ Sufficient closed containers must be strategically located around the construction site to handle the amount of litter, waste, rubbish, debris and builders waste generated on the site.

Subcontractors must contain a clause to the effect that the disposal of all construction generated refuse / waste to an officially approved landfill site is the responsibility of the subcontractor in question and that the subcontractors are bound to the management activities stipulated in this EMP.

Proof of this undertaking must be issued to the ECO. All solid and chemical wastes that are generated must be removed and disposed of at a licensed waste disposal site. The contractor is to provide proof of such to the ECO. Chemical containers and packaging brought onto the site must be removed for disposal at a suitable site.

8.1.18. Construction/Hazardous Waste

Temporary storage of construction spoil will be limited on the site, and within the designated areas. The contractor will be responsible to remove and transport all waste material off site to an approved landfill site.

- ✓ All hazardous wastes will be stored in sealed and suitably marked containers for removal to a hazardous waste landfill site by the contractor.
- ✓ Hazardous waste could include used oils and fluorescent light tubes.
- ✓ The contractor should refer to the relevant Department of Water and Sanitation guidelines for the classification of hazardous waste.

8.1.19. Domestic Waste

No littering will be allowed on site.

The contractor will conduct regular site cleanups to keep the site litter free.

All domestic waste from the bins in the construction camp and that collected on site will be stored in a covered skip in the construction camp for removal to a municipal solid waste dumpsite by the contractor on a weekly basis.

Domestic waste such as paper, glass, tins and plastic should be collected for recycling.

8.2 CONSTRUCTION

8.2.1 Earthworks

All earthworks for the establishment of the sewer pipeline are to be followed as per section 8.1.4 of SITE ESTABLISHMENT.

8.2.2 Construction activities in and around wetlands

Temporary storm water management on site must take cognizance of possible pollution arising from the site, with emphasis on hydrocarbon pollution. This must also include the mitigation of speeds of storm water entering the wetland from the study site, especially during the construction phase. Signage must be included to increase awareness of the wetland found on site. Specific training of construction crews must take place to inform them about the sensitivity of the wetland. An Aquatic Environmental control officer must be appointed for the duration of the construction phase to mitigate the impact of the construction phase.

8.2.3 Mucking and Trenching Operations

Excavations and trenches shall be undertaken in a safe manner in compliance with the Occupational Health and Safety Act (Act 85 of 1993). Safety operations to be observed by the contractor must include the sloping, stepping or benching or shoring, timbering or otherwise supporting the sides of the excavations or any other provision as stipulated in Regulation 13 of the afore mentioned act, with which the contractor declares himself to be conversant.

Maintaining the sides of the excavations and trenches in a safe condition shall at all times be the sole responsibility of the contractor. No under-cutting of the sides will be allowed.

Natural surface drainage shall be deflected around the trenches by the placement of berms and interception drains. All clean storm water shall be kept separate from water soiled from construction activities.

Water and runoff collected in the trenches will be pumped out of the excavation and released through a sump system into one of the sedimentation ponds before being released into the natural environment. Trenched areas shall be fenced with diamond mesh fencing or netting and filled as soon as possible to ensure that no animals or people fall into the trenches and drown. Warning signage must be placed at these excavations warning people to stay clear.

8.2.4 Blasting (If applicable)

Blasting shall only be used in extreme cases if there are no other means of reaching prescribed depths for the sewer pipeline. If possible, blasting will be kept to a minimum.

All blasting shall be conducted in terms of the relevant South African safety regulations where blasting will take place, neighbors should be notified of this at least 24 hours in advance of the blasting operations.

Blasting shall be limited to a specific period of the day so as to minimize disturbance. This time schedule is to be determined and approved with the RE. It is recommended that blasting take place between 12h00 and 15h00. All surrounding communities must be informed of the blasting time schedule. The blasting time period must be announced prior to blasting by siren.

Where blasting is required every precaution shall be exercised to protect the works and people, animals and properties in the vicinity of the site. The contractor must complete pre- and post-blast surveys in the vicinity of the site with the assistance of the RE.

In his survey he will check for injured people, injured animals, damaged property and damaged vegetation identified earlier as being of conservation significance and will take note of fly rock that has exceeded the influence sphere. The contractor must be responsible, and compensate for all injury and damage occasioned by any blasting operations.

All workmen engaged on blasting at the site must be experienced in this work and must be familiar with any explosives regulations. The contractor must take measures to limit fly rock. This may be achieved by matching the charge to the rock type, by using milli-second delay detonators or by using rubber blasting mats etc.

No blasting shall be carried out until permission has been obtained in writing from the Engineer; who may prohibit the use of explosives near pipelines, cables, roads and concrete already placed and who may restrict the size of charges.

At all times blasting shall be carried out such that ground vibration, air blast and scatter are kept within such limits as to avoid damage to adjacent structures or concrete already placed at the works. Peak particle velocity may be restricted to 50 mm/sec or less at the discretion of the Engineer. Where there is a possibility of shattering rock, the Engineer may order the contractor to cease blasting and continue to excavate the rock without the use of explosives, by barring, breaking, wedging, line drilling or other approved methods.

8.2.5 Stock Piling

- ✓ All possible suitable materials excavated shall be used in the construction of the works.
- ✓ Suitable material shall be stockpiled on a sub-base platform, which has been cleared of topsoil as per above. The sub-soil will be compacted to accommodate the spoil stockpile.
- ✓ All spoil rock shall be removed from the site to a landfill site, to be negotiated by the contractor and approved by the Engineer, dumped, spread and leveled, all to the satisfaction of the Engineer.
- ✓ No spoil material shall be stockpiled in violation of any Statute or ordinance or to obstruct any watercourse or drainage channel.

The top surface of all permanent spoil dumps shall be left smooth and even and side-slopes, where required, are to be stable for the material concerned. Adequate drainage to the top surface and side-slopes shall be provided to prevent future erosion.

8.2.6 Concrete Construction

All cement and concrete batching shall take place within the designated batching plant area. Smaller sites for concrete/cement mixing must be done on platform areas, on plastic sheeting or within steel cement troughs.

Concrete and cement products shall be transported to the construction site with due care. Any spills will be removed and stockpiled on the construction waste area to be removed from site to an approved landfill site. Temporary storage of construction spoil will be limited on the site, and within the designated areas.

The contractor will be responsible to remove and transport all waste material off site to an approved landfill site.

8.2.7 Backfilling

No waste or polluted soil or any material containing pollutants should be used for backfilling.

All material remaining after backfilling has taken place will be removed from site to an approved landfill site or used for rehabilitation of the dumping areas / erosion channels situated on the site.

8.2.8 Topsoil Placement

Topsoil shall be placed to a minimum depth of 100 mm over all areas that have been disturbed by the construction activity. This will include all areas where it has been stripped and stockpiled, access and site roads, platforms, storage platform areas, batching plant, and sedimentation ponds. Topsoil placement shall follow as soon as construction in an area is finished.

- ✓ All compacted areas shall be ripped parallel to the contours to a minimum depth of 300mm.
- ✓ All areas onto which topsoil is to be spread shall be graded to the approximate original landform with minimum slopes of 1:2.5 and shall be ripped prior to placement.

Topsoil shall be placed in the same soil zone from which it had been stripped. If there is insufficient topsoil available for a particular soil zone, additional topsoil may be brought from other soil zones at the approval of the Supervisory Engineer.

Where topsoil that has been stripped by the contractor is insufficient to provide the minimum depth, the contractor shall obtain suitable substitute material from other approved source. No vehicles shall be permitted access onto the topsoil after it has been placed.

After topsoil placement is complete, cleared and stockpiled vegetative material shall be spread over the topsoil area.

8.2.9 Revegetation

Indigenous plant species must be used to revegetate the pipeline to enhance the biodiversity and the large indigenous trees conserved on site. Flat and gently sloping areas shall be ripped in lines 300mm centre to centre and to a depth of at least 300mm parallel to the contours, and seeded.

The contractor must add fertilizers to the soil in the topsoil placement process. The application will be determined by the existing soil fertility. The contractor must be solely responsible for the cost of replanting or re-seeding, outside formal landscape areas, where acceptable cover is not obtained. Rehabilitation – Indigenous seeding and grasses.

8.3 ACCESS AND SITE ROADS

No access or site roads shall go through sensitive wetland areas and their associated buffer areas.

8.3.1 Earthworks

No new permanent access roads other than as detailed by the RE and ECO as agreed upon in terms of the site layout plan shall be developed by the contractor. Existing access roads will be used as far as possible.

Topsoil shall be removed as described under 'Clearing and Grubbing' prior to the construction of the road.

- ✓ All temporary roads shall be decommissioned by the contractor and rehabilitated using the stockpiled topsoil.
- ✓ All cut and fill slopes are to be revegetated with plant species as per the general specifications for revegetation / landscaping.
- ✓ Areas of the access road requiring cut and fill will be contoured and sharp crests of cut and fill will be contoured and smoothed-off to an acceptable landscape form.

8.3.2 Stormwater Management

Stormwater channels and berms shall be constructed to allow for easy vehicular crossing. During construction the contractor must protect all areas susceptible to erosion by installing all necessary temporary and permanent drainage works as soon as possible.

Any runnels or erosion channels developing during the construction period or during the operational and maintenance period shall be backfilled and consolidated immediately and the area restored to the proper condition. All erosion damage shall be repaired as soon as possible. Displaced topsoil shall be replaced.

No waste or polluted soil or any material containing pollutants should be used for backfilling.

All surface run-offs shall be diverted diagonally across the road at 30-60m intervals and discharged down slope. Down-slope discharge will be protected by stone pitching until a point where the velocity of the run-off has been dissipated to such an extent that no erosion will occur.

8.3.3 Surfacing and Maintenance

The road surface shall be constantly monitored. All surfaces cracking and perishing shall be reported to the Engineer immediately and repaired to prevent further degradation of the surface.

The contractor must be liable for all unnecessary and unreasonable damage caused by his equipment and/or transport to the permanent roads. The cost of repair and reinstatement of unnecessary and unreasonable damage to these roads will be deducted from moneys due to the contractor should the roads not be repaired.

8.3.4 Traffic Numbers

8.3.4.1 Plant (Machinery)

Adequate and appropriate traffic warning signage will be placed along the route to be used by the construction vehicles.

All plant will be maintained in perfect working condition to prevent accidental spillage of fuel and oil products.

8.3.4.2 Deliveries

Adequate and appropriate traffic warning signage will be placed along the route to be used by the construction vehicles.

All vehicles delivering materials to the site shall have said material covered by tarpaulins to prevent the delivery operations from producing dust in amounts damaging to property, or causing a nuisance to persons in the vicinity.

Construction vehicles must adhere to all road regulations and the safety of the public must be a priority during construction. Construction vehicles must adhere to a 40km/h maximum speed at all times.

Any damage to the road surface around the access point must be repaired as soon as it occurs. No speeding may take place and public safety must be of utmost importance.

8.3.4.3 Spoils Removal

All trucks and vehicles removing spoil from the site shall comply with national regulations and the load areas shall be covered by a tarpaulin to prevent rocks and spoil from falling out of the load onto the road surfaces, or causing a nuisance to persons in the vicinity.

Adequate and appropriate traffic warning signage will be placed at the junction with public roads to be used by the construction vehicles.

EMP – OPERATIONAL PHASE

This section describes mitigation measures and is partly prescriptive, identifying specific tasks, in order to ensure that impacts on the environment are minimized during the operational phase. These specific guidelines have to be adhered to by the landowners to ensure that the sensitive environment on site is protected from degradation and pollution.

9.1 MONITORING OF THE PIPELINE ROUTE FOR ANY LEAKAGES

The pipeline route will be monitored on a monthly basis for any potential leakages, breaks in the pipeline. Any problems will be reported to the maintenance section of JDA and the problems rectified immediately to reduce the risk of health and safety impacts to residents and pedestrians in the area.

9.2 PRESERVATION OF THE WETLAND AREAS

The wetland areas around and on the pipeline route shall be cleaned of any domestic waste on a regular basis. Care shall be taken to reduce impacts from stormwater run-off into the wetland areas to reduce potential for erosion or pollution of the wetlands.

9.3 REHABILITATION

Indigenous plant species shall be used in the rehabilitation of the proposed development as far as possible to enhance the biodiversity and the large indigenous trees conserved on site. Forage and host plants required by pollinator species in the area should also be used in landscaped areas.

The area shall be monitored for at least 3 years after construction to ensure that the rehabilitation measures were successful and any area where revegetation was not successful will be revegetated again as prescribed above to ensure that erosion is minimized.

ENVIRONMENTAL COMPLETION STATEMENT

An Environmental Completion Statement is a report by the ECO to the relevant authorities stating completion of the project and compliance with the EMP and conditions. This statement replaces the final audit that is normally required for large development projects.

APPENDIX A: METHOD STATEMENT SHEET

METHOD STATEMENT

CONTRACT: DATE:

WHAT WORK IS TO BE UNDERTAKEN (provide a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date: End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much details as possible, including annotated sketches and plans where possible):

DECLARATIONS FOR METHOD STATEMENT

ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

(Signed)

(Print name)

Dated:

CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval of the Engineer, and thus the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

(Signed)

(Print name)

Dated:

APPENDIX B: ENVIRONMENTAL INCIDENT LOG SHEET

ENVIRONMENTAL INCIDENT LOG SHEET

Date	Environmental Condition	Comments (Explanation for current condition and responsible parties)	Corrective Action Taken	Signature

APPENDIX C: COMPLAINTS RECORD SHEET

Complaint	Name and Contact details of person lodging complaint	Signature

APPENDIX D: ENVIRONMENTAL TRAINING

BASIC RULES OF CONDUCT

The following list represents the basic Do's and Don'ts towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid.

NOTE: ALL new site personnel must attend an environmental awareness presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ESA.

DO:

USE THE TOILET FACILITIES PROVIDED – REPORT DIRTY OR FULL FACILITIES.

CLEAR YOUR WORK AREAS OF LITTER AND BUILDING RUBBISH AT THE END OF EACH DAY – use the waste bins provided and ensure that litter will not blow away.

REPORT ALL FUEL OR OIL SPILLS IMMEDIATELY & STOP THE SPILL CONTINUING.

DISPOSE OF CIGARETTES AND MATCHES CAREFULLY. (Littering is an offence.)

CONFINE WORK AND STORAGE OF EQUIPMENT TO WITHIN THE IMMEDIATE WORK AREA.

USE ALL SAFETY EQUIPMENT AND COMPLY WITH ALL SAFETY PROCEDURES.

PREVENT CONTAMINATION OR POLLUTION OF STREAMS AND WATER CHANNELS.

ENSURE A WORKING FIRE EXTINGUISHER IS IMMEDIATELY AT HAND IF ANY

“HOT WORK” IS UNDERTAKEN e.g. Welding, grinding, gas cutting etc.
REPORT ANY INJURY OF AN ANIMAL.

DRIVE ON DESIGNATED ROUTES ONLY.

PREVENT EXCESSIVE DUST AND NOISE.

DO NOT:

REMOVE OR DAMAGE VEGETATION WITHOUT DIRECT INSTRUCTION.

MAKE ANY FIRES.

INJURE, TRAP, FEED OR HARM ANY ANIMALS – this includes birds, frogs, snakes, lizards etc.

ENTER ANY FENCED OFF OR MARKED AREA.

ALLOW CEMENT OR CEMENT BAGS TO BLOW AROUND.

SPEED OR DRIVE RECKLESSLY.

ALLOW WASTE, LITTER, OILS OR FOREIGN MATERIALS INTO THE STREAM.
SWIM IN THE DAM.

LITTER OR LEAVE FOOD LAYING AROUND.

Notes:

Should any animals such as tortoises, chameleons or snakes be encountered then do not harm them. The ESSO or RE should be contacted to remove these safely. The harming of any animal will result in disciplinary action.

Construction and heavy machine operators must be particularly sensitive to staying within access routes and prevention of unnecessary damage. Dust and noise is also of particular concern. Ensure that vehicles and machinery do not leak fuel or oils. Re-fuelling or maintenance must be done within the maintenance camp area only.

Alien plant clearing and control work teams must be closely supervised.

ANNEXURE F

Geotech Report

Crossman, Pape & Associates

Consulting Geotechnical Engineers & Engineering Geologists

P.O. Box 3557 Cramerview 2060. Tel: (011) 465-1699. Cell: 082 556 7302. E-mail: mark@crossmanpape.co.za

REPORT NO 21/70/WK

SEPTEMBER 2021

GEOTECHNICAL INVESTIGATION FOR THE PROPOSED BERTRAMS COMMUNITY CENTRE, BERTRAMS, JOHANNESBURG

1. INTRODUCTION AND TERMS OF REFERENCE

At the request of Mr. M. Malungana of Kgosihadi Consulting Engineers, acting on behalf of Mr. S. Mbanjwa of Pace Property Group (Pty) Ltd., we have carried out a geotechnical investigation for the proposed multi-storey development in Bertrams, Johannesburg. Confirmation of our appointment to proceed with the investigation was received via a Letter of Appointment from Mr. Malungana on 29 July 2021.

An initial geotechnical investigation for the development was conducted by Igneous Soil Laboratory (Report QOJ 078/2 Final Geotechnical Site Investigation Report for Bertrams Multi-Purpose Centre Project in Bertrams, City of Johannesburg Metropolitan Municipality, Gauteng Province, South Africa) during February 2021. Laboratory test results as well as other pertinent information, as presented in the initial report, are included in this report. In addition to the initial geotechnical report, a pile layout drawing as well as architectural plans were received to facilitate the investigation.

The proposed development is to comprise a triple-storey structure with a single-level basement. The development is to also include access roads and parking areas. Structural loads as well as earthworks details for the development are currently unknown.

The terms of reference for the investigation are as follows:

- i) to establish the nature and relevant engineering properties of the upper soil and rock strata underlying the site.
- ii) to comment on suitable excavation procedures for the installation of services and for the basement cut excavations, inclusive of stability to cut faces.
- iii) to present comments on the use of the on-site soils in the construction of bulk fill terraces, access roads and parking areas.
- iv) to give foundation recommendations for the proposed development.
- v) to comment on any other geotechnical aspects that may affect the development.

2. SITE DESCRIPTION

The area of investigation is situated at the existing Bertrams Skills Centre in Bertrams, Johannesburg. The total area of investigation covers approximately 1.0 hectare in size, while the proposed structural footprint is of the order of 0.3 hectares in size. The site currently comprises a number of single-storey buildings. In terms of vegetation, lawn grass as well as large trees are present. Topographically, the site dips to the southeast with an elevation difference of approximately 5.0m. A site locality plan is presented in **Figure 1** below.



Figure 1: Site Locality Plan - Proposed Bertrams Community Centre, Johannesburg.

3. NATURE OF INVESTIGATION

3.1 Fieldwork

Three rotary-cored boreholes (BH1 to BH3) were drilled beneath the proposed structural footprint from 6 August 2021 to 21 August 2021. The boreholes were drilled to depths ranging between 13.5m and 35.1m below present ground surface (average termination depth of 24.2m), which was considered suitable for the nature of the development. Logging of the boreholes was undertaken by an engineering geologist / geotechnical engineer using recognized practice. The positions of the boreholes are shown on the site plan enclosed in **Appendix A**. Copies of the recorded borehole logs are presented in **Appendix B**.

3.2 Laboratory Testing

The following laboratory tests were previously carried out by MS Mabuya Civil Laboratory (Pty) Ltd on soil samples recovered from the test pits during the near-surface field investigation undertaken by Igneous Soil Laboratory.

- i) Atterberg limits and particle size distribution analyses to determine basic engineering properties and to effect classification.
- ii) Moisture / density and California Bearing Ratio (CBR) tests to evaluate compaction and related strength characteristics.
- iii) Chemistry (pH&EC) tests in order to assess corrosivity of the in-situ soils.

Copies of the laboratory test results are presented in **Appendix C**.

4. SITE GEOLOGY / SOIL PROFILE

Available geological maps (see **Figure 2** below) indicate that the area of investigation is underlain by **andesite lava** of the Klipriviersberg Group, Ventersdorp Supergroup. This was confirmed during the present investigation. Residual soils have developed from the weathering of the andesite bedrock. A layer of fill material constitutes the upper soil horizon across the site and is underlain by transported alluvial soils. The general soil and rock profile encountered across the site is described below.

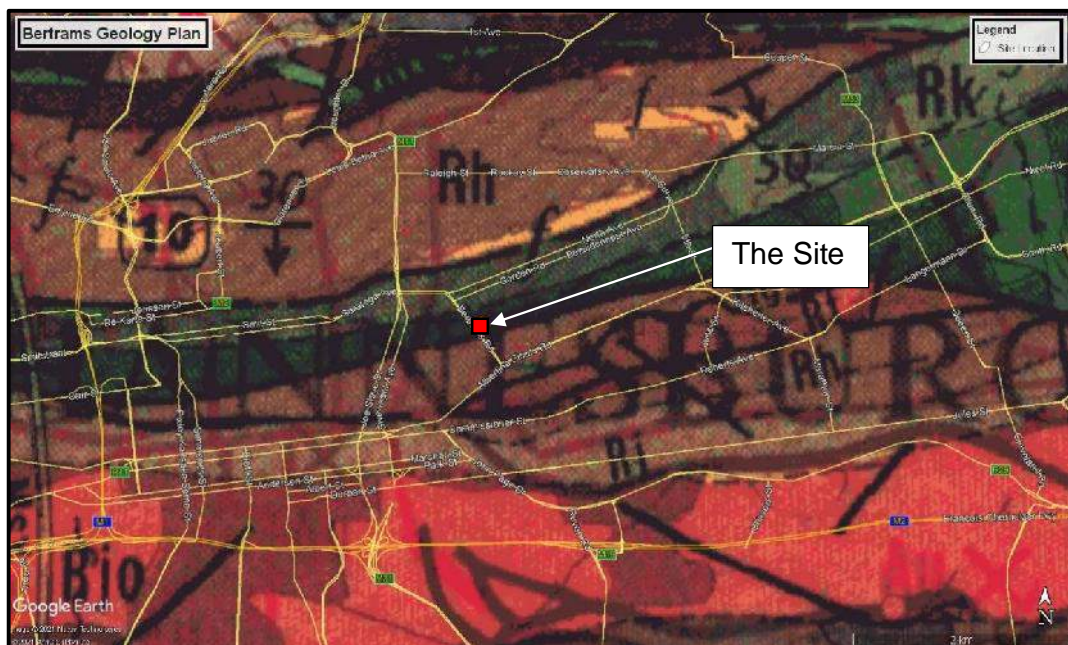


Figure 2: Site Geological Plan - Proposed Bertrams Community Centre, Johannesburg.

The upper soil layer across the entire site comprises loose to medium dense silty sand / silty gravelly sand. This material is of **fill** origin, and extends to depths ranging between 0.3m and 1.0m below present ground surface (average depth of 0.8m).

The upper fill horizon is underlain **transported alluvial** material. The alluvium varies in terms of composition across the site. In the vicinity of borehole BH1 the alluvium comprises stiff to very stiff fine sandy silty clay or clayey silt whereas a loose to medium dense silty sand or clayey sand is present in the vicinity of boreholes BH2 and BH3. The alluvial horizon extends to depths ranging between 2.6m and 6.1m below present ground surface (average depth of 3.85m).

Reworked residual andesite occurs below the transported alluvial horizon across the site, and comprises firm to stiff / stiff to very stiff fine sandy silty clay with scattered friable gravels. The reworked zone was noted to extend to depths varying between 7.95m and 10.0m below present ground surface (average depth of 8.85m). Below these depths, very stiff to very soft rock slightly clayey silt with scattered friable gravel was encountered. This horizon is of **residual andesite** origin. The residual horizon extends to depths varying between 8.75m and 22.4m below present ground surface (average depth of 16.7m).

The residual horizon grades into completely to highly weathered closely jointed fine-grained **very soft rock andesite**, extending to depths of between 10.1m and 25.0m below present ground surface (average depth of 18.7m).

Soft rock andesite occurs beneath the very soft rock andesite, and comprises highly weathered closely jointed fine-grained rock. The soft rock horizon extends to depths varying between 10.8m and 34.0m below present ground surface (average depth of 22.9m). Borehole BH3 was terminated at a depth of 24.0m below present ground surface in soft rock andesite. In boreholes BH1 and BH2 however, moderately weathered medium to widely jointed medium-grained **medium hard rock andesite** was encountered beneath the soft rock andesite, which extended to termination depths of 13.5m in borehole BH1, and 35.1m in borehole BH2, respectively.

Rest water levels ranging between 2.43m and 3.91m were recorded in the boreholes (average rest water level depth of 3.11m). In addition to the above, shallow perched water tables were also mentioned in the near-surface geotechnical report at depths ranging between current ground surface and 1.4m below current ground surface.

A summary of the various borehole soil horizons and rock thicknesses is presented in **Table 1** below.

Table 1: Average soil and rock horizon thicknesses (m): Proposed Bertrams Community Centre, Johannesburg.

Soil / Rock Layer →	Topsoil / Fill (m-m)	Transported Alluvium (m-m)	Reworked Residual Andesite (m-m)	Residual Andesite (m-m)	Very Soft Rock Andesite (m-m)	Soft Rock Andesite (m-m)	Medium Hard Rock Andesite (m-m)	Rest Water Levels (mbgl)
BH No. ↓								
BH1	0-0.3	0.3-2.8	2.8-7.95	7.95-8.75	8.75-10.1	10.1-10.8	10.8-13.5	2.43
BH 2	0-1.0	1.0-2.6	2.6-10.0	10.0-19.0 / 20.8-22.4	19.0-20.8 / 22.4-25.0	25.0-31.8 / 32.7-34.0	31.8-32.7 / 34-35.1	3.91
BH 3	0-1.0	1.0-6.1	6.1-8.6	8.6-19.0	19.0-21.0	21.0-24.0	-	2.98
Average Layer extent (m)	0.8	3.85	8.85	16.7	18.7	22.9	24.3+	3.11

5. BULK EARTHWORKS

5.1 Excavation Procedures

Excavation procedures for earthworks and for the installation of services have been evaluated according to the South African National Standards standardized classification for excavations (SANS 1200D, DA & DB). According to this classification, the site classifies as **soft excavation** to depths in excess of those required for cuts for the basement, and for services installation.

5.2 Lateral Support

All cut slopes on this site render an inherent stability risk which needs to be addressed using either appropriate batter angles or suitable lateral support techniques.

Where space permits, stability can be provided by battering the cut faces to suitable slope angles, which should provisionally not exceed 1H:1V in the short term, and 3H:2V in the long term for the general soil profile.

Where space constraints do not permit the recommended cut batter slopes, lateral support techniques would have to be employed to support all cut faces and to facilitate safe bulk earthworks operations and future structural stability.

Shear strength parameters are provided in **Table 2**, below, which we consider to be appropriate for this site.

Table 2: Recommended shear strength parameters for various materials

Material	Recommended Peak Strength	
	ϕ' (°)	C' (kPa)
Transported Alluvium	28	2
Reworked Residual Andesite	30	5
Residual Andesite	30	2
Soft Rock Andesite	35	5

As per the drawings provided to us, Kgosihadi Consulting Engineers propose a reinforced concrete retaining wall for the basement. This, in our considered opinion, would be a suitable retaining system for the basement cut earthworks.

As alternatives the following solutions may be considered.

- A temporary soil nailing and gunite retaining system. In the long-term it is assumed that the gunite wall will be propped by the basement and ground floor slabs. In the case of the temporary nails, wayleaves would be required should design lengths of the nails impinge into the neighbouring properties.

- Perimeter piles with temporary tie-back anchors. This system has an advantage in that the perimeter piles could be incorporated as part of the permanent structure.

6. MATERIAL USAGE

Laboratory testing was previously carried out as part of the near-surface geotechnical investigation on the upper soil horizons to determine their suitability for use as construction material in the construction of layerworks for access roads and parking areas. From the laboratory test results, the following comments are considered pertinent to the on-site soils for use in these operations.

- The upper 150mm of in situ soil across the site contains abundant organic matter and is unsuitable for use as construction material. This material should be removed to spoil. In areas of large trees, the upper 0.5m of in situ soils contain abundant organic matter in the form of tree roots. These materials would similarly need to be removed to spoil. The depths given above would however need to be confirmed on an ad-hoc basis at the time of carrying out the bulk earthworks.
- The existing **fill** material is considered suitable for use as **general fill** as well as **lower selected layer** material. Should these soils be required for use as upper selected layer material then they would have to be stabilized. Further laboratory testing would however have to be carried out to establish suitable stabilizing agents and to optimize mix ratios.
- A **mixture of the various transported alluvial** soils is considered to be suitable for use as **general fill**, only.
- The **reworked residual andesite** is considered to be moderately plastic and as such is considered unsuitable for use in bulk fills and / or layerworks. This material should be removed to spoil where intercepted during earthworks.

7. EVALUATION OF FOUNDING CONDITIONS AND FOUNDATION RECOMMENDATIONS

The proposed development is to comprise a triple-storey structure with a single-level basement. The development is to also include access roads and parking areas. Structural loads as well as earthworks details for the development are currently unknown.

Owing to the assumed high column loads for the structure, and considering the nature of the soil profile below the site, we are of the opinion that special foundation procedures would be required for the proposed development. In this instance, **suitably-designed piled foundations** would be the optimal foundation solution. Ground beams would have to be designed to span

between the piles to carry all brickwork. Details of suitable pile types are presented in **Table 2**, in **Appendix D**.

8. SURFACE BEDS

Lightly-loaded surface beds could be constructed directly on top of the final terrace platform with the following provisos:

- The surface beds could be placed conventionally on top of the in situ soil within areas of cut. The upper 150mm of soil should however be ripped and recompacted without vibration to 93% of Mod AASHTO density at optimum moisture content.
- Within areas of engineered fill, the fill should be compacted in 150mm thick layers to a minimum of 93% of Mod AASHTO density at optimum moisture content.
- Care should be taken when laying the damp proof membrane (DPM) and the damp proof course (DPC) so as to ensure that these are not damaged in any way during placing, thereby avoiding problems in the future with rising damp.
- The surface beds should be kept free of all vertical structural members, that is, the surface beds should be allowed to “float”.
- Blanket drains should be placed below all surface beds constructed in areas of cut of more than 1.0m.
- A herringbone drainage system should be placed below all surface beds constructed in areas of cut of less than 1.0m.

9. ACCESS ROADS AND PARKING AREAS

The following comments are pertinent to the design and construction of the access roads and parking areas.

- For pavement design purposes, it is our considered opinion that the upper in situ **fill** material would have a CBR of the order of 5.0 to 7.5 percent if compacted to 90% of Mod AASHTO density at optimum moisture content and of the order of 10.0 to 12.5 percent if compacted to 93% of Mod AASHTO density at optimum moisture content.
- If access roads and parking areas are to comprise brick paving, then it is recommended that the layer immediately below the brick paving and bedding sand be stabilised. The purpose of the stabilised layer immediately below the bedding sand would be to seal the layer works from storm water ingress from ground surface.

10. SUB-SURFACE DRAINAGE

Rest water levels ranging between 2.43m and 3.91m were recorded within the boreholes. In addition to this perched water tables varying between current ground surface and 1.4m were mentioned in the near-surface geotechnical report. The following comments are therefore considered pertinent to the design and construction of the development in terms of sub-surface drainage.

- Pumping will be required in constructing the basement for the proposed development. These would require the excavation of temporary cut-off trenches, sumps and pumps of adequate capacity.
- Conventional drainage should be provided behind all retaining structures.



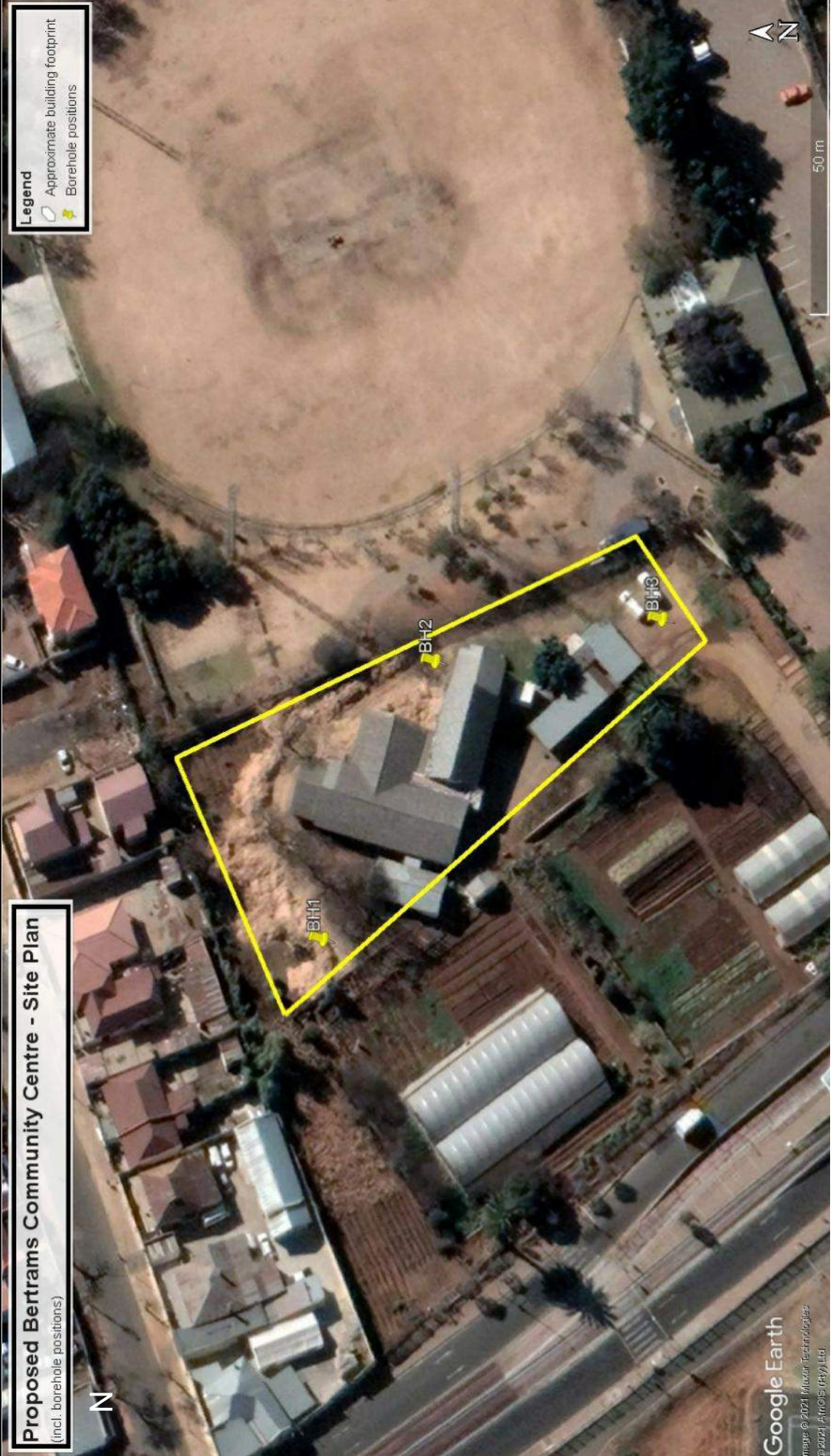
M CROSSMAN Pr. Eng
CROSSMAN, PAPE & ASSOCIATES



W KRETZINGER Pr. Sci. Nat

APPENDIX A:

**Site Plan
(incl. borehole positions)**



Proposed Bertrams Community Centre - Site Plan
(incl. borehole positions)

Legend

- Approximate building footprint
- Borehole positions

North Arrow

50 m

Google Earth
Image © 2021 Maxar Technologies
© 2021 Airphoto Pty Ltd.

REPORT 21/70/WK
GEOTECHNICAL INVESTIGATION:
PROPOSED BERTRAMS COMMUNITY CENTRE,
BERTRAMS, JOHANNESBURG

SITE PLAN INDICATING APPROXIMATE LOCATIONS OF ROTARY-CORED BOREHOLES.

Crossman, Pape & Associates
Geotechnical Engineers and Engineering Geologists
Tel: (+27) 11 486 1859
Cell: (+27) 82 550 7302

SCALE:
NOT TO SCALE

DATE:
SEPTEMBER 2021

APPENDIX B:
Rotary-Cored Borehole Logs

HOLE No: BH-1
Sheet 1 of 1

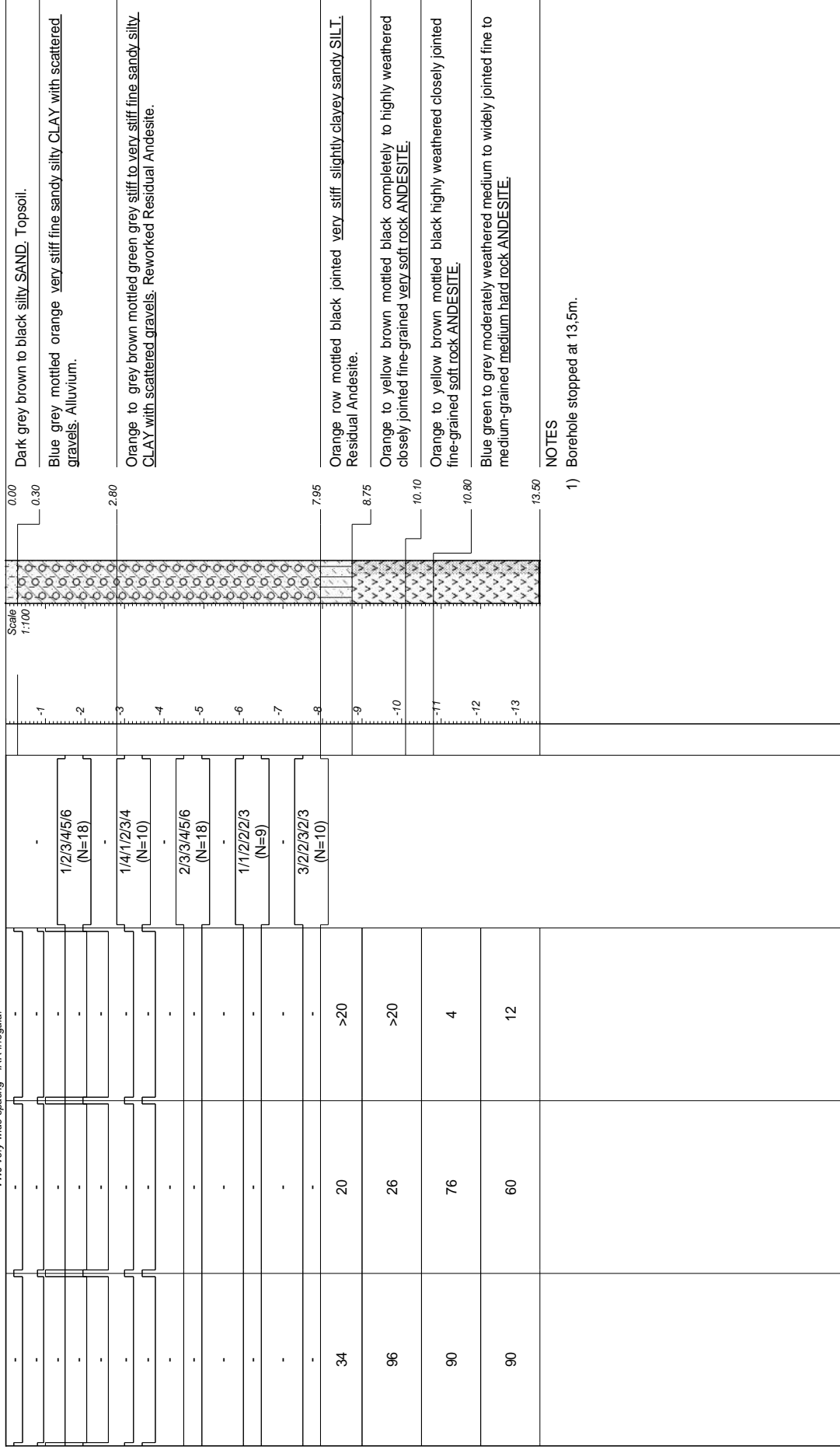
JOB NUMBER: 21/70/BH

Pace Project Management
Bertrams Social Housing



HOLE No: BH-1
Sheet 1 of 1

JOB NUMBER: 21/70/BH



CONTRACTOR: Shiram Geotechnical Consultants (Pty) Ltd
MACHINE: YWE D90R
DRILLED BY: Tshepo
PROFILLED BY: Warren
DATE: 05-23/08/2021
DATE: 29/08/2021 11:27
TEXT: ...70BHBertramsDrilling.txt

ELEVATION:
X-COORD:
Y-COORD:

HOLE No: BH-1

NOTES
1) Borehole stopped at 13.5m.

HOLE No: BH-2
Sheet 2 of 2

JOB NUMBER: 21/70/BH

Pace Project Management
Bertrams Social Housing



HOLE No: BH-2
Sheet 2 of 2

JOB NUMBER: 21/70/BH

ROCK FABRIC
MF - massive
FB - bedded
CF - cleaved
SF - schistose
GF - gneissose
LF - laminated

GRAIN SIZE
FG - fine grained
MG - medium grain
CG - coarse grain

JOINT SPACING
VCJ - very close spacing
CJ - close spacing
MJ - medium spacing
WJ - wide spacing
VWJ - very wide spacing

JOINT ROUGHNESS
SL - slickensided
SU - smooth
RU - rough

JOINT SHAPE
CUR - curvilinear
PLA - planar
UND - undulating
STE - stepped
IRR - irregular

ROCK HARDNESS
EHR - extremely hard rock
HR - very hard rock
MHR - medium hard rock
SR - soft rock
VSR - very soft rock

REDUCED LEVEL	% Core Rec	% RQD	Fract No./ Metre	SPT 'N60'	DESCRIPTION
60		10			
90	44		>20		Grey brown to yellow brown completely weathered closely jointed fine-grained <u>very soft rock ANDESITE.</u>
100	0		>20		Grey brown to yellow brown highly weathered closely jointed fine-grained <u>soft rock ANDESITE.</u>
100	40		>20		
100	50		>20		
100	0		>20		
100	20		>20		Blue to green grey mottled white moderately weathered closely jointed fine-grained <u>medium hard rock ANDESITE.</u>
90	20		>20		Grey brown to yellow brown highly weathered closely jointed fine-grained <u>soft rock ANDESITE.</u>
100	60	12			Blue to green grey mottled white moderately weathered closely jointed fine-grained <u>medium hard rock ANDESITE.</u>

NOTES

1) Borehole stopped at 35,1m.

CONTRACTOR: Shiram Geotechnical Consultancy (Pty) Ltd.
MACHINE: YWE D90R
DRILLED BY: Tshapo
PROFILED BY: Wairren

DATE: 05-23/08/2021
DATE: 29/08/2021 11:27

TEXT: ...70BHBertramsDrilling.txt

ELEVATION:
X-COORD:
Y-COORD:

HOLE No: BH-2

HOLE No: BH-3
Sheet 1 of 2

JOB NUMBER: 2170/BH

Pace Project Management
Bertrams Social Housing

HOLE No: BH-3
Sheet 1 of 2

JOB NUMBER: 2170/BH



ROCK FABRIC
MF -massive
FB -bedded
EF -cleared
SF -schistose
GF -gneissose
LF -laminated

GRAIN SIZE
FG -fine grained
MG -medium grain
CG -coarse grain

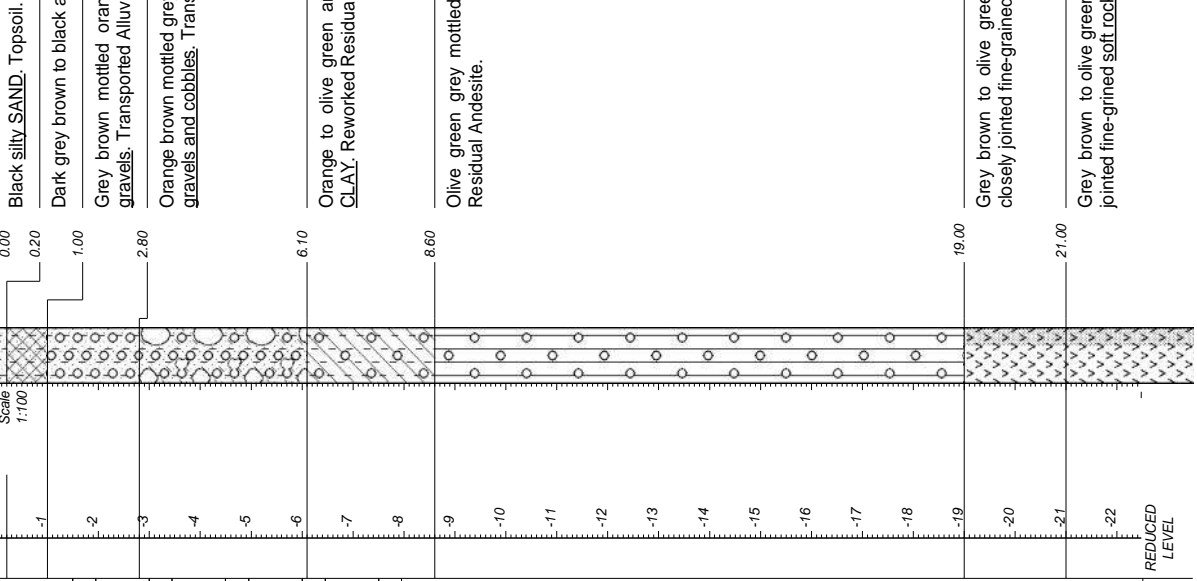
JOINT SPACING
VCJ -very close spacing
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ -very wide spacing

JOINT SHAPE
CUR -curvilinear
PLA -planar
UND -undulating
STE -stepped
IRR -irregular

JOINT ROUGHNESS
SLI -slickensided
SU -smooth
RU -rough

ROCK HARDNESS
EHR -extremely hard rock
HR -very hard rock
MHR -medium hard rock
SR -soft rock
VSR -very soft rock

REDUCED LEVEL	SPT 'N60'	Fract No./ Metre	% ROD	Core Rec
-1	-	-	-	-
-2	2/5/5/5/5/5 (N=20)	-	-	-
-3	3/4/3/2/3 (N=11)	-	-	-
-4	-	-	-	-
-5	2/3/3/3/4/5 (N=15)	-	-	-
-6	3/3/3/6/6/10 (N=25)	-	-	-
-7	-	-	-	-
-8	5/5/6/10/11/13 (N=40)	-	-	-
-9	-	-	-	-
-10	-	-	-	-
-11	-	-	-	-
-12	-	-	-	-
-13	-	-	-	-
-14	-	-	-	-
-15	-	-	-	-
-16	-	-	-	-
-17	-	-	-	-
-18	-	-	-	-
-19	-	-	-	-
-20	-	>20	25	100
-21	-	>20	0	94
-22	-	>20	44	93



0.00
0.20
1.00
2.80
6.10
8.60
19.00
21.00

Scale 1:100

Black silty SAND, Topsoil.
Dark grey brown to black and orange silty SAND, Fill.
Grey brown mottled orange medium dense silty SAND with scattered gravels, Transported Alluvium.
Orange brown mottled grey medium dense slightly clayey silty SAND with gravels and cobbles, Transported Alluvium.
Orange to olive green and grey medium very stiff friable gravelly silty CLAY, Reworked Residual Andesite.
Olive green mottled brown very stiff jointed friable gravelly SILT, Residual Andesite.
Grey brown to olive green completely weathered very closely jointed to closely jointed fine-grained very soft rock, ANDESITE.
Grey brown to olive green and grey and orange highly weathered closely jointed fine-grained soft rock, ANDESITE.

HOLE No: BH-3
Sheet 2 of 2

JOB NUMBER: 21/70/BH

Pace Project Management
Bertrams Social Housing

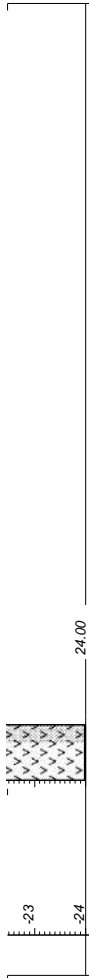


HOLE No: BH-3
Sheet 2 of 2

JOB NUMBER: 21/70/BH

- ROCK FABRIC**
MF -massive
FB -bedded
FF -fractured
CF -cleared
SF -schistose
GF -gneissose
LF -laminated
- GRAIN SIZE**
FG -fine grained
MG -medium grain
CG -coarse grain
- JOINT SPACING**
VCJ -very close spacing
CJ -close spacing
MJ -medium spacing
WJ -wide spacing
VWJ -very wide spacing
- JOINT ROUGHNESS**
SL -slickensided
SU -smooth
RU -rough
- JOINT SHAPE**
CUR -curvilinear
PLA -planar
UND -undulating
STE -stepped
IRR -irregular
- ROCK HARDNESS**
EHR -extremely hard rock
HR -very hard rock
MR -medium hard rock
SR -soft rock
VSR -very soft rock

% Core Rec	% RQD	Fract No./ Metre	SPT 'N60'
100	34	>20	



NOTES

- 1) Borehole stopped at 24.0m.

REDUCED LEVEL












ELEVATION:
X-COORD:
Y-COORD:

HOLE No: BH-3

CONTRACTOR: Shiram Geotechnical Consultancy (Pty) Ltd.
MACHINE: YWE D90R
DRILLED BY: Tshepo
PROFILLED BY: Warren
DATE: 05-23/08/2021
DATE: 29/08/2021 11:27
TEXT: ...70BHBertramsDrilling.txt

DIAM: 63mm to 75mm
DATE: 05-23/08/2021
DATE: 29/08/2021 11:27
TEXT: ...70BHBertramsDrilling.txt

JOB NUMBER: 21/70/BH

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	GRAVELLY	{SA03}
	SAND	{SA04}
	SANDY	{SA05}
	SILT	{SA06}
	SILTY	{SA07}
	CLAY	{SA08}
	CLAYEY	{SA09}
	ANDESITE	{SA19}{SA41}
	FILL	{SA32}
	COBBLES	{SA68}

CONTRACTOR :
 MACHINE :
 DRILLED BY :
 PROFILED BY :
 TYPE SET BY : Warren
 SETUP FILE : BHPG-A3.SET

INCLINATION :
 DAM :
 DATE :
 DATE :
 DATE :

ELEVATION :
 X-COORD :
 Y-COORD :

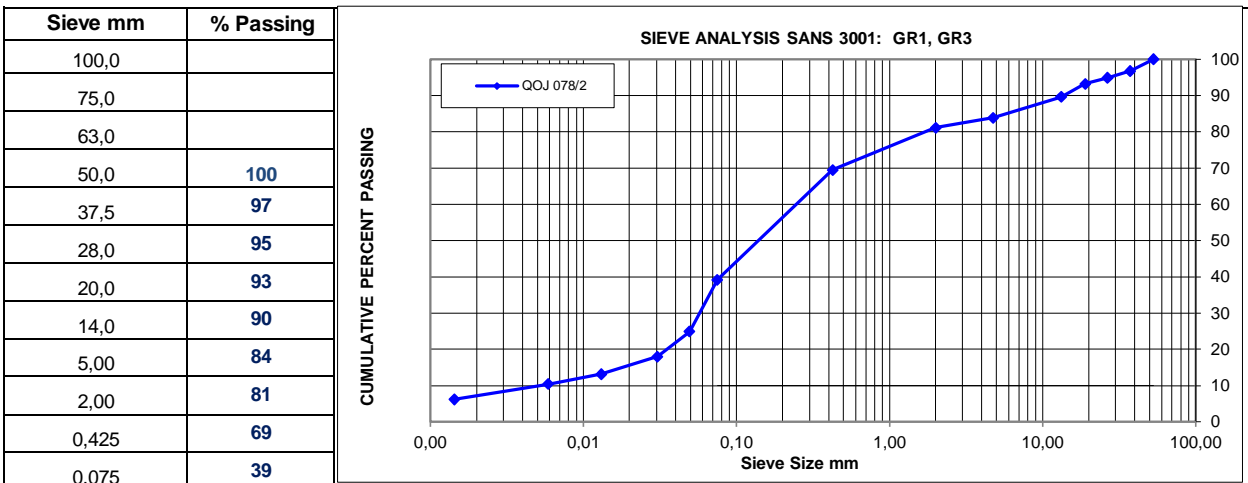
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 SUMMARY OF SYMBOLS

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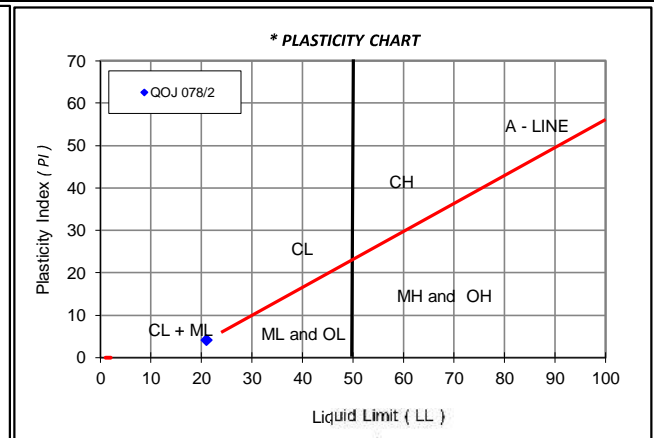
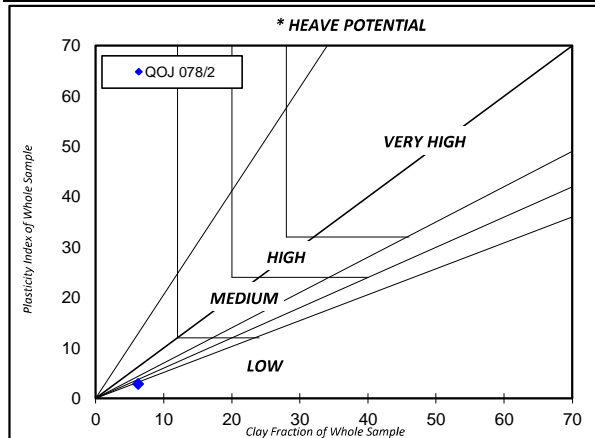
APPENDIX C:
Laboratory Test Results

Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
Attestion:	Moses Malungana	Date reported:	13/02/2021
Project:	Geotechnical Investigation for Betrains Multi purpose centre project	Report No:	QOJ 078/2
Description:	Material sampled by Client	Sample No.:	QOJ 078/2
Description:	dusky Blue Silty/Clayey sand	Job Number:	QOJ 078
TP :	TP 1	Depth (m):	0.6 - 1.4m below EGL



*Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,049	25	Clay	6	Grading Modulus	1,10	USCS	sm/sc
0,031	18	Silt	19	SANS 3001:GR12		COLTO (1998)	<G9
0,013	13	Sand	56	Liquid Limit (%)	21	US Highway	A-4
0,006	10	Gravel	19	Plasticity Index (%)	4	Group Index	1
0,001	6			Linear Shrinkage (%)	2,0		



Remarks

Technical Signatory: _____

V Kasambarare
V Kasambarare

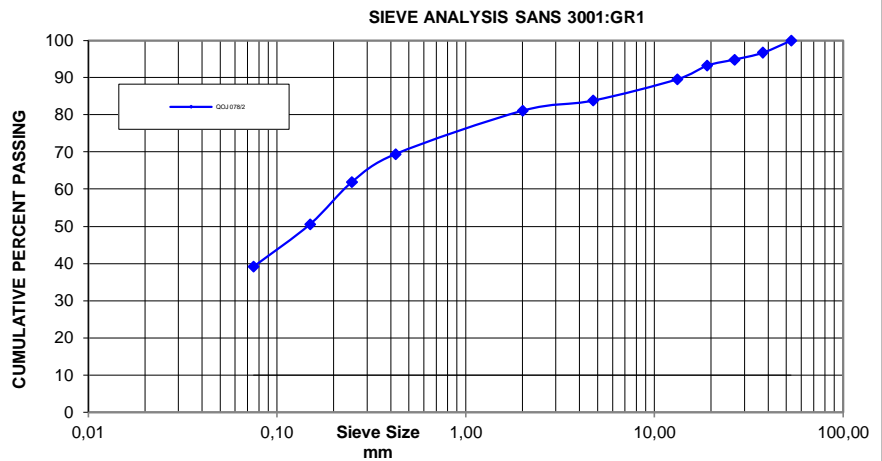
The above test results are only relevant to samples delivered and tested at the laboratory. This report shall not be reproduced or altered without the prior consent of the laboratory, except copied in full. * Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.

Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

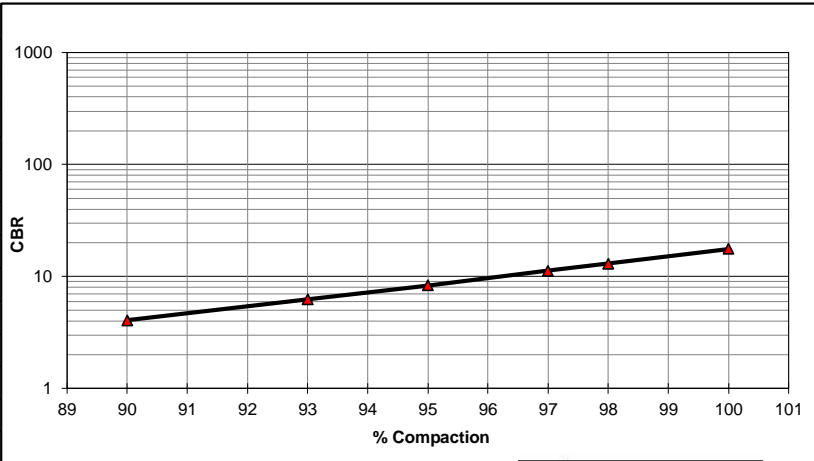
CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street, Treesbank	DATE TESTED:	04/02/2021
	Midrand 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/2
ATT:	Moses Malungana		
PROJECT:	Geotechnical Investigation for Betrums Multi purpose centre project		
DESCRIPTION:	Material sampled by Client	SAMPLE NO:	QOJ 078/2
MATERIAL DESCR.	dusky Blue Silty/Clayey sand	JOB NUMBER:	QOJ 078
TP :	TP 1	DEPTH (m):	0.6 - 1.4m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	100
37,5	97
28,0	95
20,0	93
14,0	90
5,00	84
2,00	81
0,425	69
0,250	62
0,150	51
0,075	39



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand 14	Grading Modulus 1,10	Unified Soil Classification sm/sc
Coarse Fine Sand 9	Soil Constants SANS 3001:GR12	COLTO (1998) <G9
Medium Fine Sand 14	Liquid Limit (%) 21	US Highway A-4
Fine Fine Sand 14	Plasticity Index (%) 4	Group Index 1
Silt and Clay 48	Linear Shrinkage (%) 2,0	

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	1982		
OMC %	10,5		
Comp. Moisture %	10,2		
Dry Density kg/m ³	1975	1877	1778
Compaction %	99,7	94,7	89,7
% Swell	0,52	0,66	1,23
CBR @ % MDD			
@ 100% comp. :	18		
@ 98% comp. :	13		
@ 97% comp. :	11		
@ 95% comp. :	8		
@ 93% comp. :	6		
@ 90% comp. :	4		



Remarks

Technical Signatory:

V Kasambarare

V Kasambarare

The above test results are only relevant to samples delivered and tested at the laboratory. This report shall not be reproduced or altered without the prior consent of the laboratory, except copied in full. * Opinions and interpretations expressed herein are outside the scope of SANAS accreditation. Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

No 52 Bester Street, Nelspruit, 1200
P. O. Box 2814, Nelspruit 1200
Tel: 013 753 2370, Fax : 013 753 2370
Email: madoda@msmabuya.co.za, www.msmabuya.co.za
Reg:2007/034872/07, Vat no 4920255686



Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/2

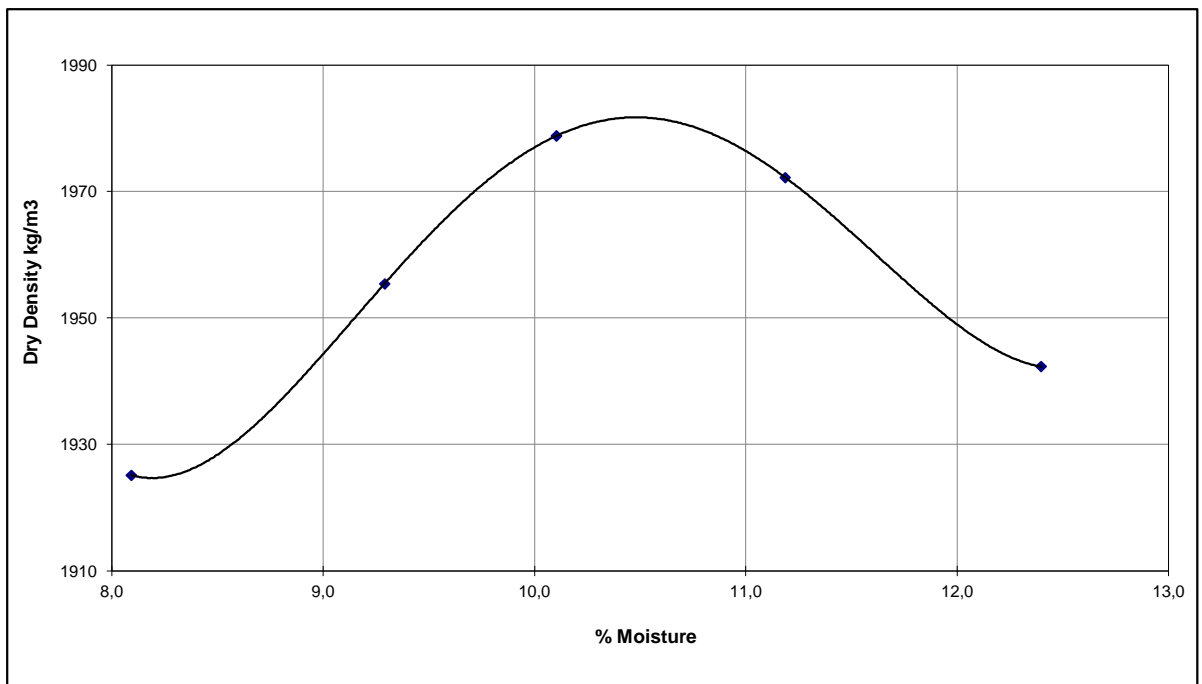
ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION: Material sampled by Client
DESCRIPTION: dusky Blue Silty/Clayey sand
TP : TP 1
DEPTH (m): 0.6 - 1.4m below EGL

SAMPLE NO: QOJ 078/2
JOB NUMBER: QOJ 078
PREPERATION METHOD: Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	1979	1972	1942	1955	1925	
Moisture Content OMC %	10,1	11,2	12,4	9,3	8,1	



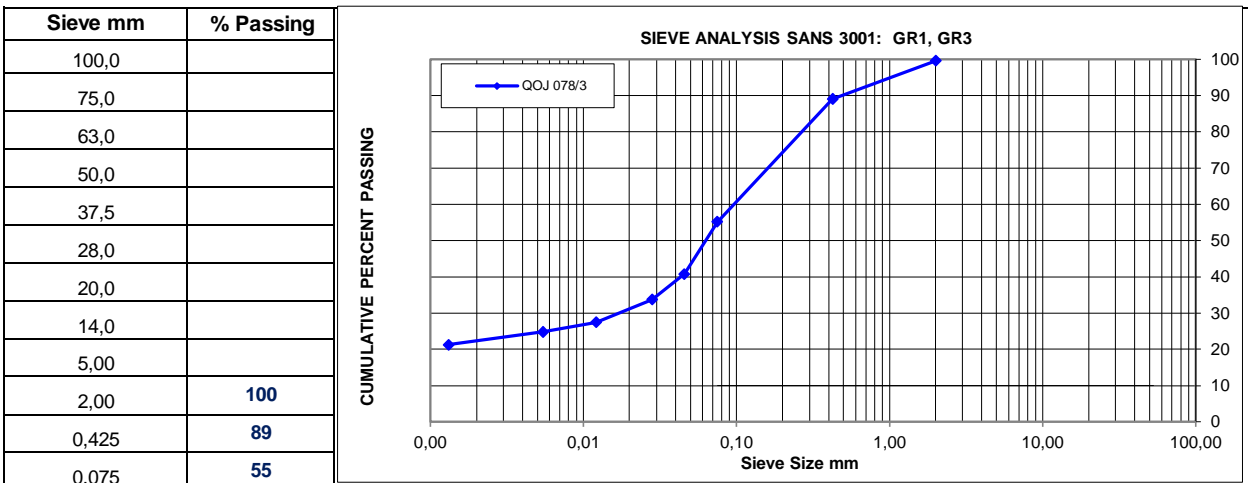
Maximum Dry Density MDD kg/m ³	1981,5
Optimum Moisture Content OMC %	10,45

Technical Signatory: V Kasambarare
V Kasambarare

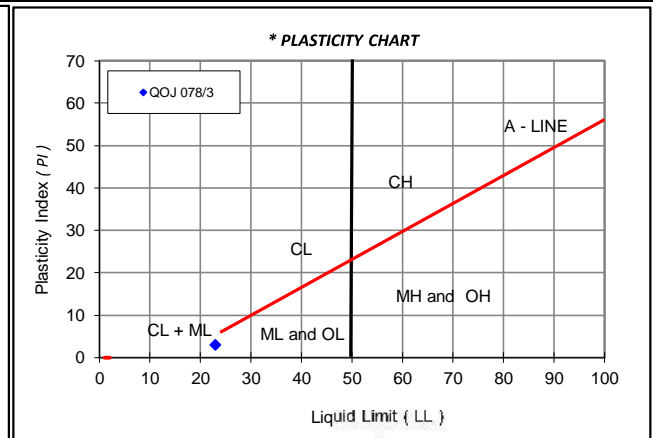
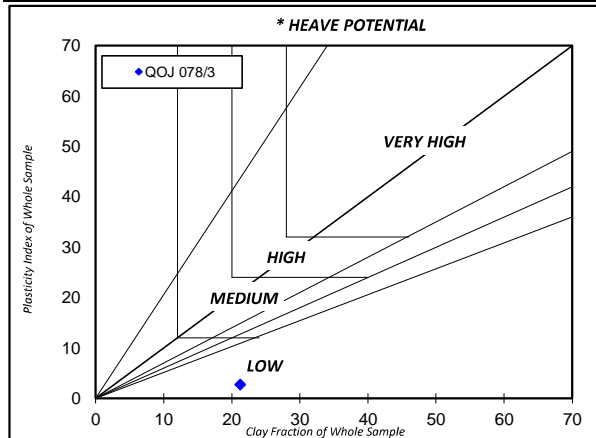
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Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.*

Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
		Date reported:	13/02/2021
		Report No:	QOJ 078/3
Attention:	Moses Malungana		
Project:	Geotechnical Investigation for Betrams Multi purpose centre project		
Description:	Material sampled by Client	Sample No.:	QOJ 078/3
Description:	It Olive Inorganic clay	Job Number:	QOJ 078
TP :	TP 1	Depth (m):	1.4 - 2.9m below EGL



*Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,046	41	Clay	21	Grading Modulus	0,56	USCS	CL
0,028	34	Silt	19	SANS 3001:GR12		COLTO (1998)	<G9
0,012	27	Sand	59	Liquid Limit (%)	23	US Highway	A-4
0,005	25	Gravel	0	Plasticity Index (%)	3	Group Index	4
0,001	21			Linear Shrinkage (%)	1,5		



Remarks

Technical Signatory: _____

V Kasambarare

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Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/3

ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

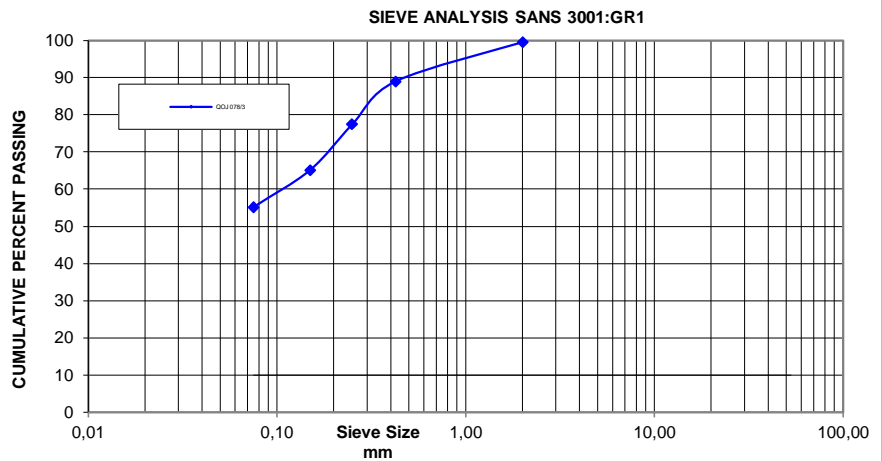
DESCRIPTION: Material sampled by Client

MATERIAL DESCR.: lt Olive Inorganic clay

TP : TP 1

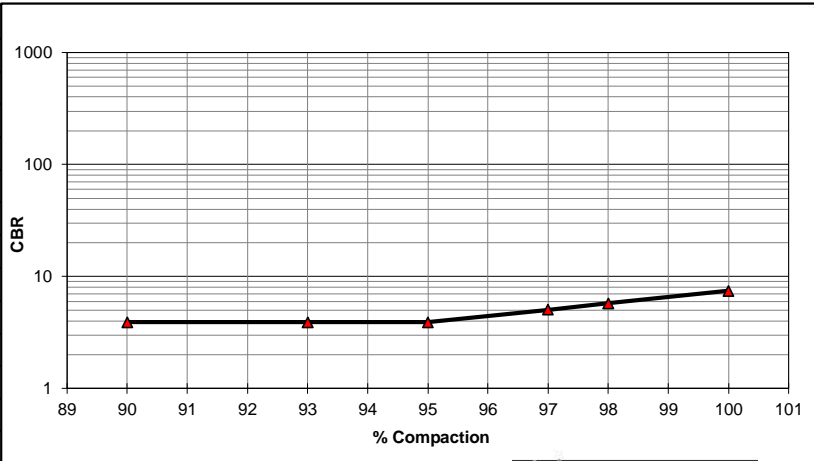
SAMPLE NO: QOJ 078/3
JOB NUMBER: QOJ 078
DEPTH (m): 1.4 - 2.9m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	
37,5	
28,0	
20,0	
14,0	
5,00	
2,00	100
0,425	89
0,250	77
0,150	65
0,075	55



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand 11	Grading Modulus 0,56	Unified Soil Classification CL
Coarse Fine Sand 12	Soil Constants SANS 3001:GR12	COLTO (1998) <G9
Medium Fine Sand 12	Liquid Limit (%) 23	US Highway A-4
Fine Fine Sand 10	Plasticity Index (%) 3	Group Index 4
Silt and Clay 55	Linear Shrinkage (%) 1,5	

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	2038		
OMC %	8,3		
Comp. Moisture %	8,3		
Dry Density kg/m ³	2036	1936	1832
Compaction %	99,9	95,0	89,9
% Swell	0,43	0,91	1,23
CBR @ % MDD			
@ 100% comp. :	7		
@ 98% comp. :	6		
@ 97% comp. :	5		
@ 95% comp. :	4		
@ 93% comp. :	4		
@ 90% comp. :	4		



Remarks

Technical Signatory:

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Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/3

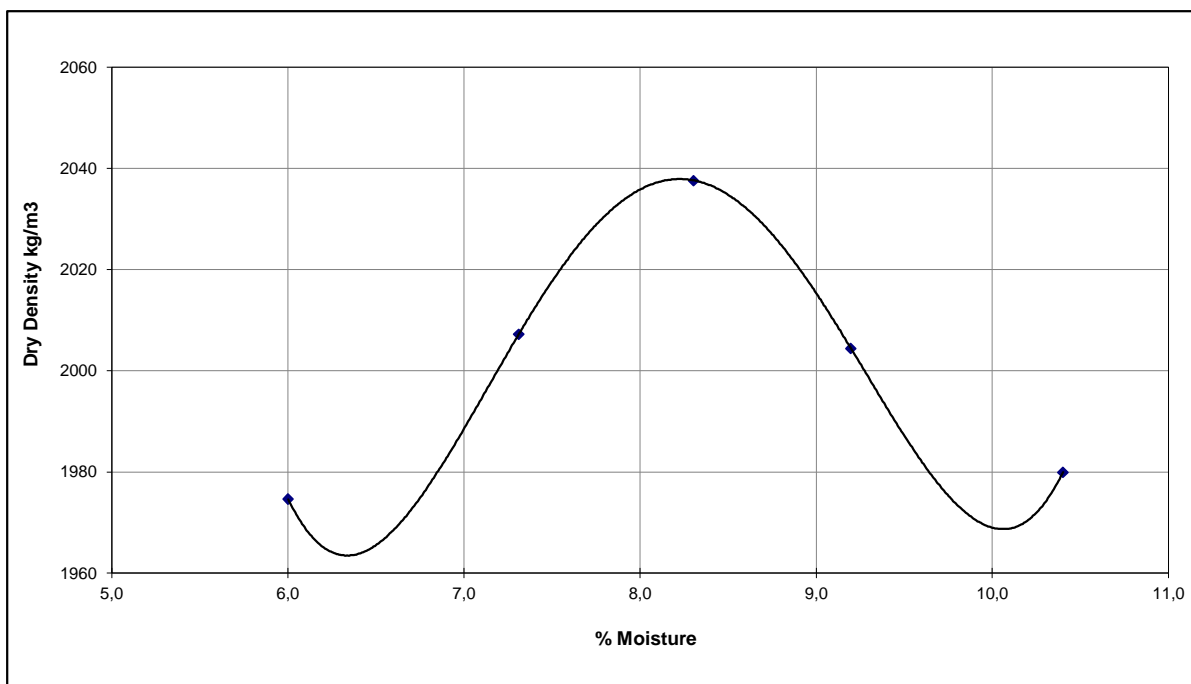
ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION: Material sampled by Client
DESCRIPTION: lt Olive Inorganic clay
TP : TP 1
DEPTH (m): 1.4 - 2.9m below EGL

SAMPLE NO: QOJ 078/3
JOB NUMBER: QOJ 078
PREPERATION METHOD: Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	2038	2004	1980	2007	1975	
Moisture Content OMC %	8,3	9,2	10,4	7,3	6,0	



Maximum Dry Density MDD kg/m ³	2038
Optimum Moisture Content OMC %	8,3

Technical Signatory: V Kasambarare
V Kasambarare

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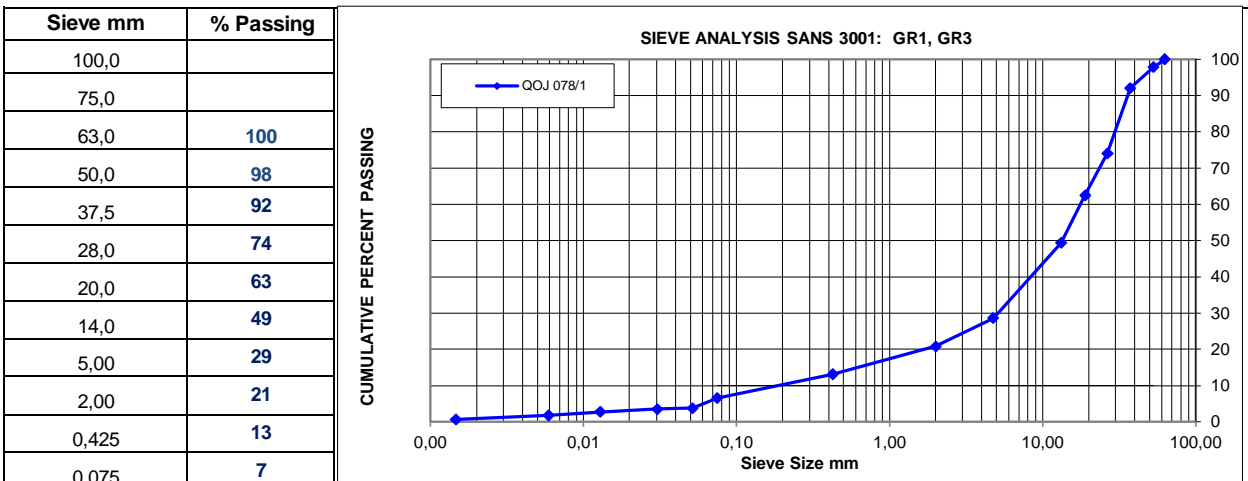
Test Report for Foundation Indicator

Client Name: Kgosihadi Consulting Engineers **Date received:** 20/01/2021
Client Address: 5 Lynx street, Treesbank **Date Tested:** 04/02/2021
Midrand, 1683 **Date reported:** 13/02/2021
Report No: QOJ 078/1

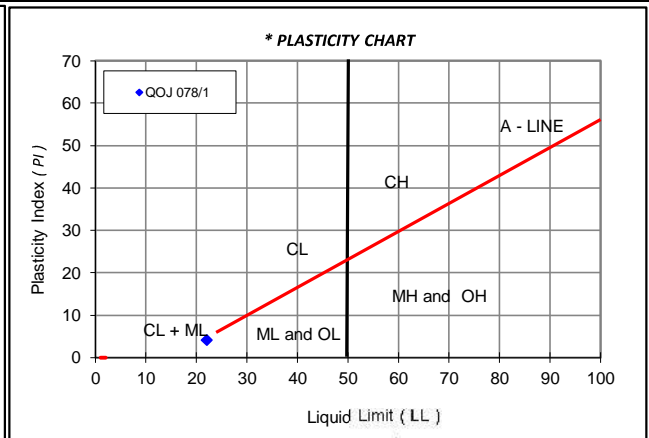
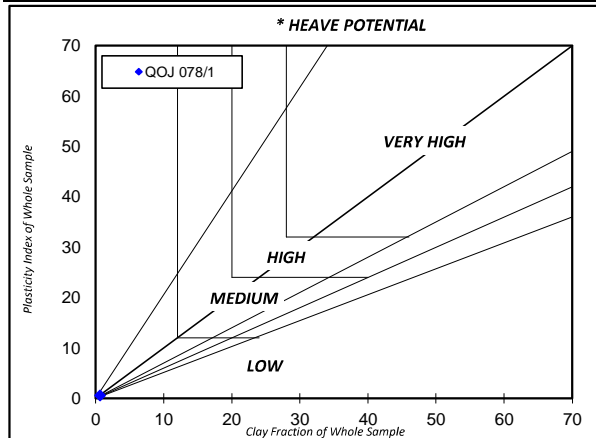
Attention: Moses Malungana

Project: Geotechnical Investigation for Betrams Multi purpose centre project

Description: Material sampled by Client **Sample No.:** QOJ 078/1
Description: drk Olive Poorly graded silty/clayey gravel **Job Number:** QOJ 078
TP : TP 1 **Depth (m):** 0.134 - 0.6m below EGL



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,052	4	Clay	1	Grading Modulus	2,60	USCS	GP/GM/GC
0,030	4	Silt	3	SANS 3001:GR12		COLTO (1998)	G6
0,013	3	Sand	17	Liquid Limit (%)	22	US Highway	A-1-a
0,006	2	Gravel	79	Plasticity Index (%)	4	Group Index	0
0,001	1			Linear Shrinkage (%)	1,5		



Remarks

Technical Signatory: V Kasambarare
V Kasambarare

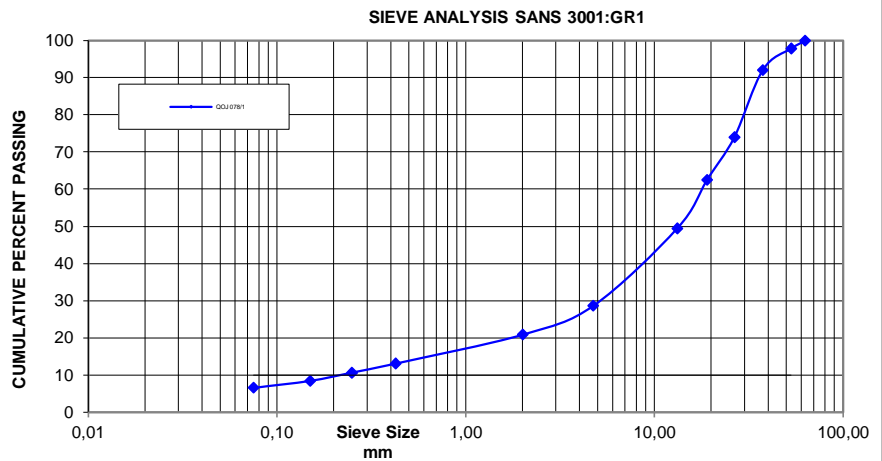
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Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

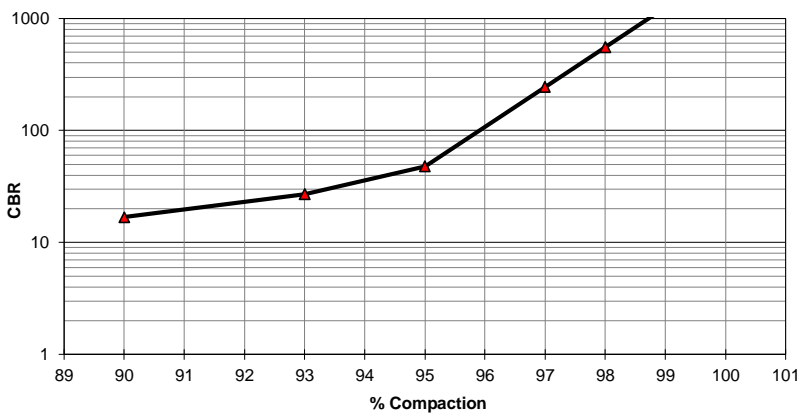
CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street, Treesbank	DATE TESTED:	04/02/2021
	Midrand, 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/1
ATT:	Moses Malungana		
PROJECT:	Geotechnical Investigation for Betrums Multi purpose centre project		
DESCRIPTION:	Material sampled by Client	SAMPLE NO:	QOJ 078/1
MATERIAL DESCR.	drk Olive Poorly graded silty/clayey gravel	JOB NUMBER:	QOJ 078
TP :	TP 1	DEPTH (m):	0.134 - 0.6m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	100
50,0	98
37,5	92
28,0	74
20,0	63
14,0	49
5,00	29
2,00	21
0,425	13
0,250	11
0,150	8
0,075	7



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand	37	Grading Modulus: 2,60
Coarse Fine Sand	12	Soil Constants SANS 3001:GR12
Medium Fine Sand	11	Liquid Limit (%): 22
Fine Fine Sand	9	Plasticity Index (%): 4
Silt and Clay	31	Linear Shrinkage (%): 1,5
		Unified Soil Classification: GP/GM/GC
		COLTO (1998): G6
		US Highway: A-1-a
		Group Index: 0

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	2291		
OMC %	4,4		
Comp. Moisture %	4,3		
Dry Density kg/m ³	2186	2168	2053
Compaction %	95,4	94,6	89,6
% Swell	0,12	0,16	0,27
CBR @ % MDD			
@ 100% comp. :	2839		
@ 98% comp. :	555		
@ 97% comp. :	245		
@ 95% comp. :	48		
@ 93% comp. :	27		
@ 90% comp. :	17		



Remarks

Technical Signatory:

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V Kasambarare

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Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand, 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/1

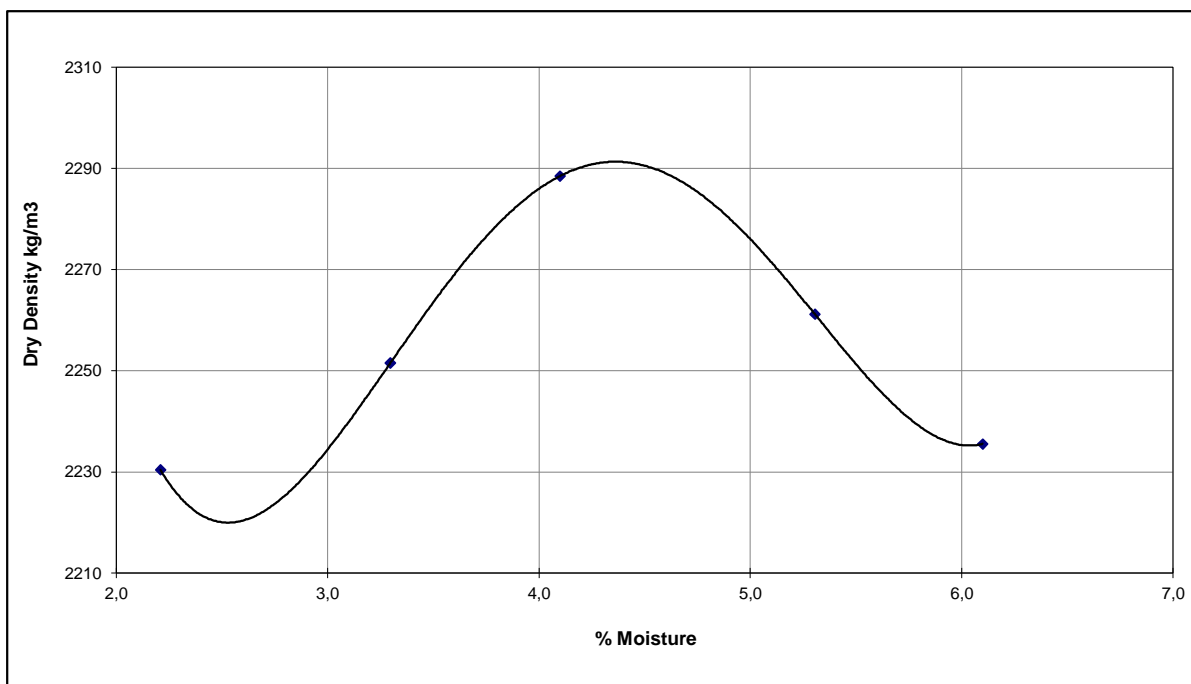
ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION: Material sampled by Client
DESCRIPTION: drk Olive Poorly graded silty/clayey gravel
TP : TP 1
DEPTH (m): 0.134 - 0.6m below EGL

SAMPLE NO: QOJ 078/1
JOB NUMBER: QOJ 078
PREPERATION METHOD: Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	2230	2252	2288	2261	2236	
Moisture Content OMC %	2,2	3,3	4,1	5,3	6,1	



Maximum Dry Density MDD kg/m ³	2291,4
Optimum Moisture Content OMC %	4,4

Technical Signatory: V Kasambarare
V Kasambarare

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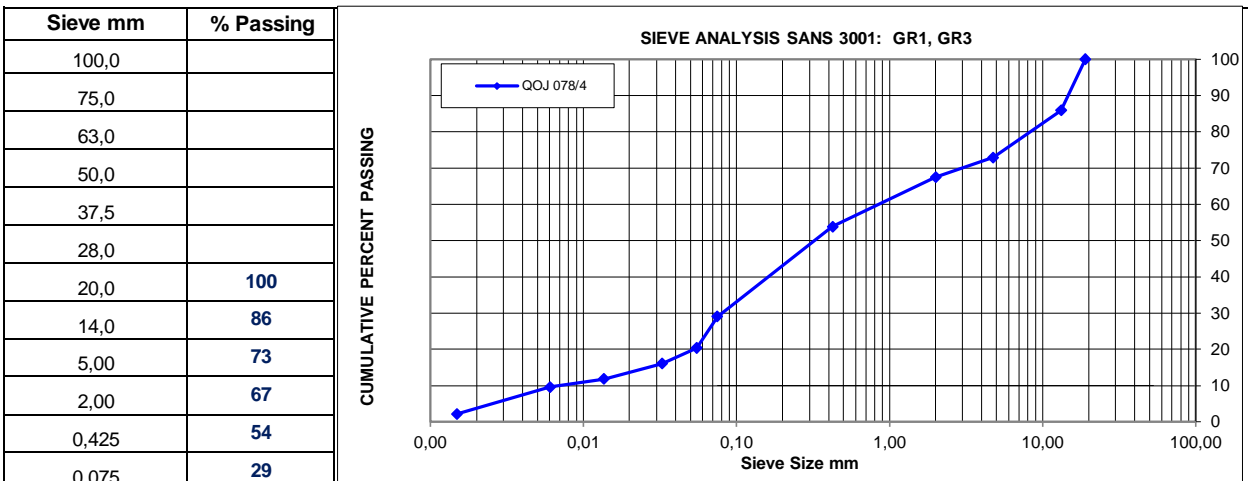
Test Report for Foundation Indicator

Client Name: Kgosihadi Consulting Engineers **Date received:** 20/01/2021
Client Address: 5 Lynx street, Treesbank **Date Tested:** 04/02/2021
Midrand 1683 **Date reported:** 13/02/2021
Report No: QOJ 078/4

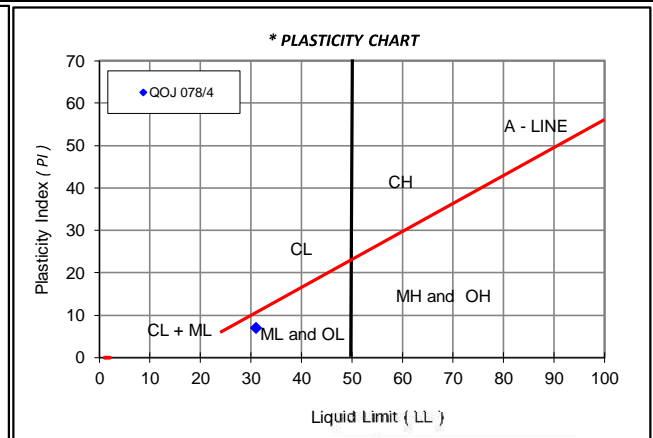
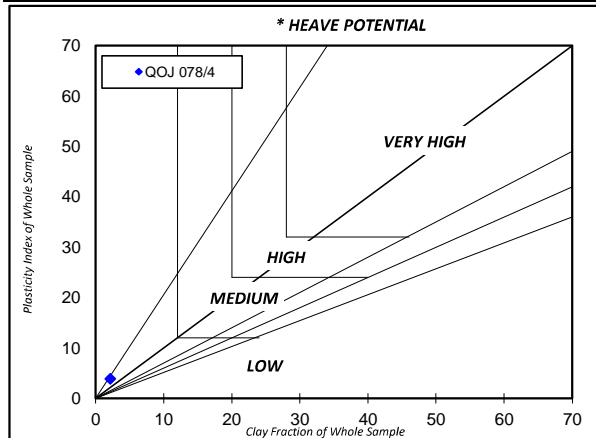
Attention: Moses Malungana

Project: Geotechnical Investigation for Betrams Multi purpose centre project

Description: Material sampled by Client **Sample No.:** QOJ 078/4
Description: drk Brown Silty/Clayey sand **Job Number:** QOJ 078
TP : TP 2 **Depth (m):** 0 - 0.4m below EGL



*Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,055	20	Clay	2	Grading Modulus	1,50	USCS	sm/sc
0,033	16	Silt	18	SANS 3001:GR12		COLTO (1998)	-
0,014	12	Sand	47	Liquid Limit (%)	31	US Highway	A-2-4
0,006	10	Gravel	33	Plasticity Index (%)	7	Group Index	0
0,001	2			Linear Shrinkage (%)	3,5		



Remarks

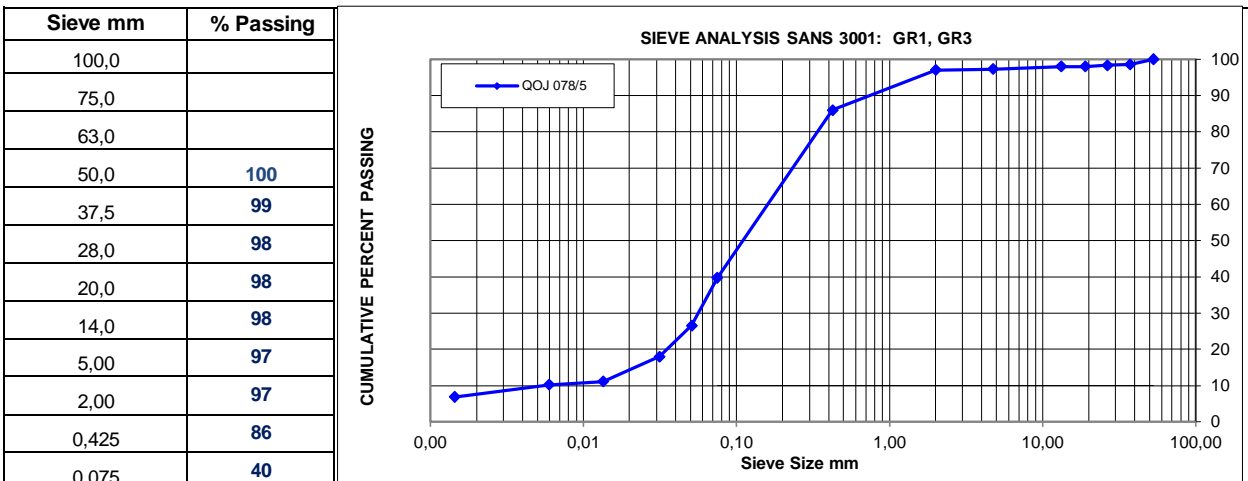
Technical Signatory: V Kasambarare
V Kasambarare

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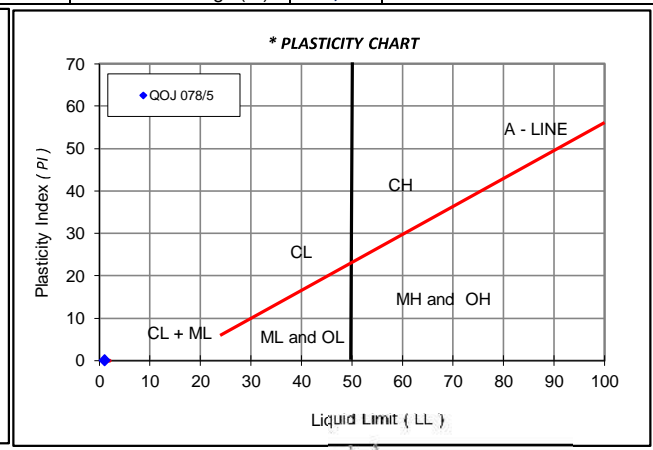
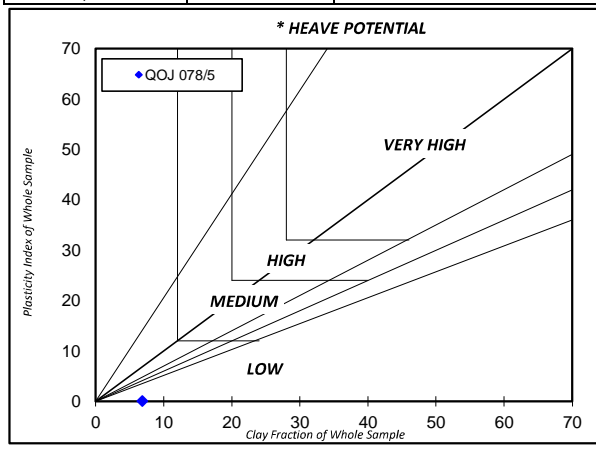
Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
		Date reported:	13/02/2021
		Report No:	QOJ 078/5
Attention:	Moses Malungana		
Project:	Geotechnical Investigation for Betrums Multi purpose centre project		
Description:	Material sampled by Client	Sample No.:	QOJ 078/5
Description:	It Olive Silty sand	Job Number:	QOJ 078
TP :	TP 2	Depth (m):	0.4 - 2,2m below EGL



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,051	27	Clay	7	Grading Modulus	0,77	USCS	SM(d)
0,031	18	Silt	20	SANS 3001:GR12		COLTO (1998)	<G9
0,013	11	Sand	70	Liquid Limit (%)		US Highway	A-4
0,006	10	Gravel	3	Plasticity Index (%)	NP	Group Index	1
0,001	7			Linear Shrinkage (%)	0,0		



Remarks

Technical Signatory: _____

V Kasambarare

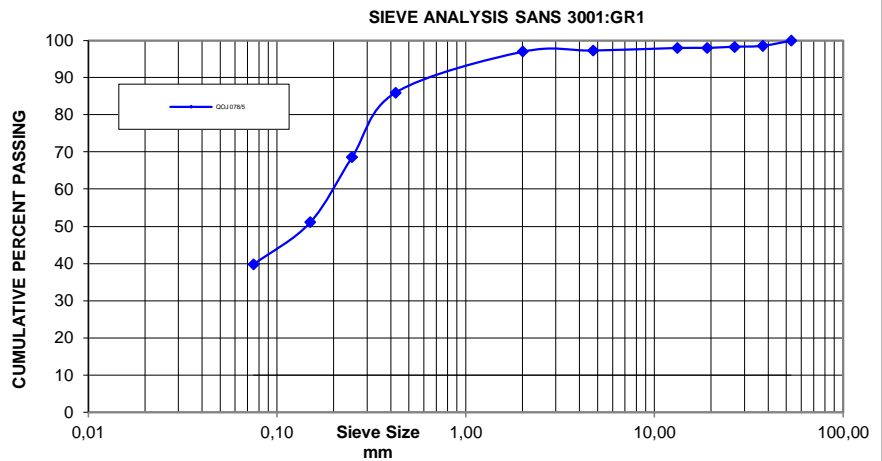
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Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

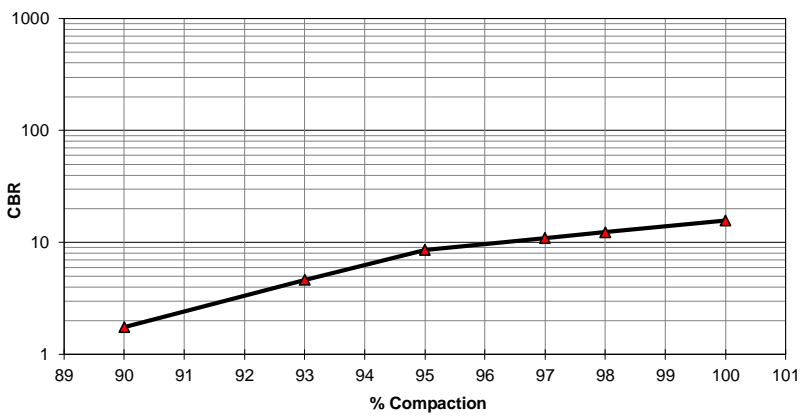
CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street, Treesbank	DATE TESTED:	04/02/2021
	Midrand 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/5
ATT:	Moses Malungana		
PROJECT:	Geotechnical Investigation for Betrums Multi purpose centre project		
DESCRIPTION:	Material sampled by Client	SAMPLE NO:	QOJ 078/5
MATERIAL DESCR.:	lt Olive Silty sand	JOB NUMBER:	QOJ 078
TP :	TP 2	DEPTH (m):	0.4 - 2,2m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	100
37,5	99
28,0	98
20,0	98
14,0	98
5,00	97
2,00	97
0,425	86
0,250	69
0,150	51
0,075	40



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand	11	Grading Modulus: 0,77
Coarse Fine Sand	18	Unified Soil Classification: SM(d)
Medium Fine Sand	18	Soil Constants SANS 3001:GR12: COLTO (1998) <G9
Fine Fine Sand	12	Liquid Limit (%): US Highway A-4
Silt and Clay	41	Plasticity Index (%): NP
		Group Index: 1
		Linear Shrinkage (%): 0,0

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	2047		
OMC %	8,7		
Comp. Moisture %	8,8		
Dry Density kg/m ³	2043	1941	1838
Compaction %	99,8	94,8	89,8
% Swell	0,47	1,06	1,30
CBR @ % MDD			
@ 100% comp. :	16		
@ 98% comp. :	12		
@ 97% comp. :	11		
@ 95% comp. :	9		
@ 93% comp. :	5		
@ 90% comp. :	2		



Remarks: _____ Technical Signatory: V Kasambarare
V Kasambarare

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No 52 Bester Street, Nelspruit, 1200
P. O. Box 2814, Nelspruit 1200
Tel: 013 753 2370, Fax : 013 753 2370
Email: madoda@msmabuya.co.za, www.msmabuya.co.za
Reg:2007/034872/07, Vat no 4920255686



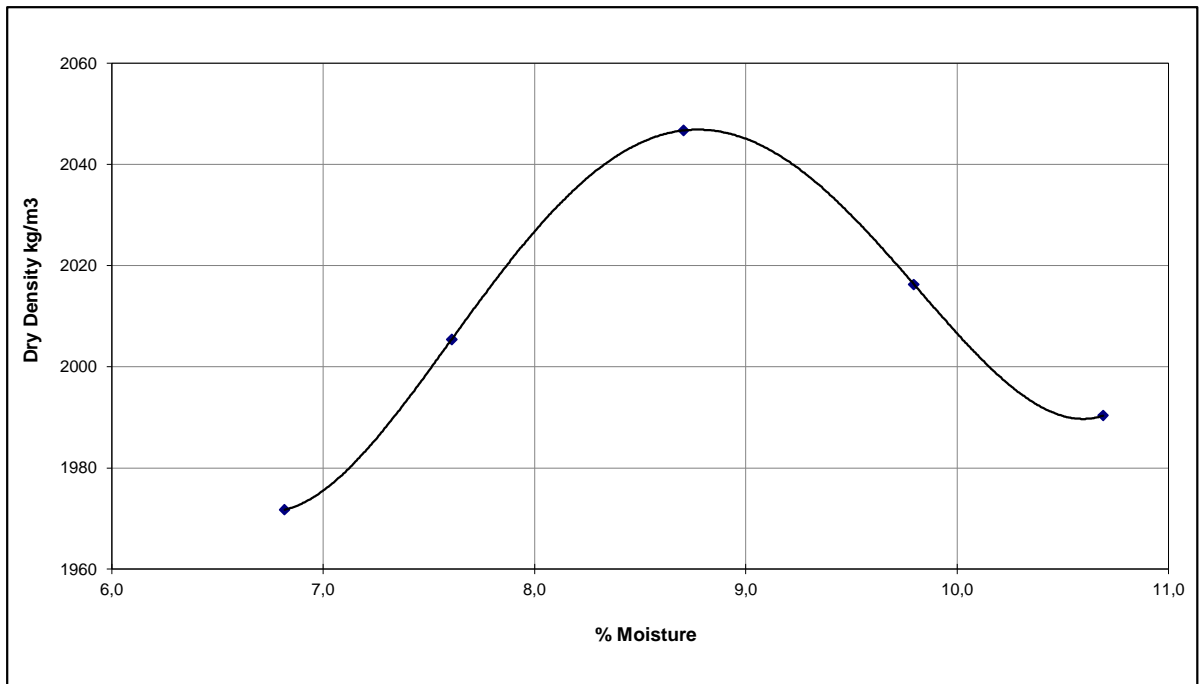
Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street, Treesbank	DATE TESTED:	04/02/2021
	Midrand 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/5
ATT:	Moses Malungana		

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION:	Material sampled by Client	SAMPLE NO:	QOJ 078/5
DESCRIPTION:	lt Olive Silty sand	JOB NUMBER:	QOJ 078
TP :	TP 2		
DEPTH (m):	0.4 - 2,2m below EGL	PREPERATION METHOD:	Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	2005	2047	2016	1990	1972	
Moisture Content OMC %	7,6	8,7	9,8	10,7	6,8	



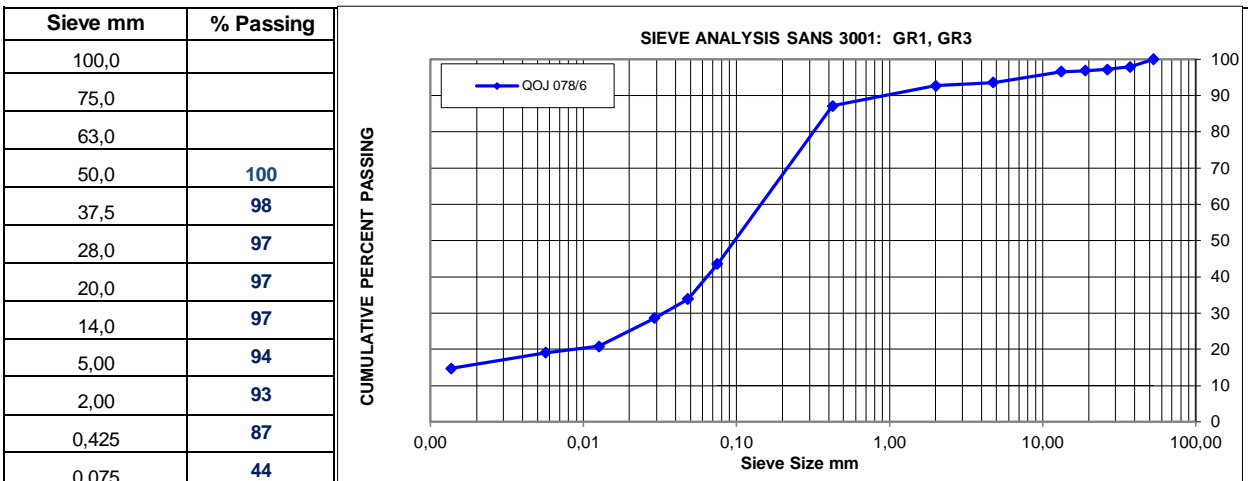
Maximum Dry Density MDD kg/m³	2046,8
Optimum Moisture Content OMC %	8,74

Technical Signatory: V Kasambarare
V Kasambarare

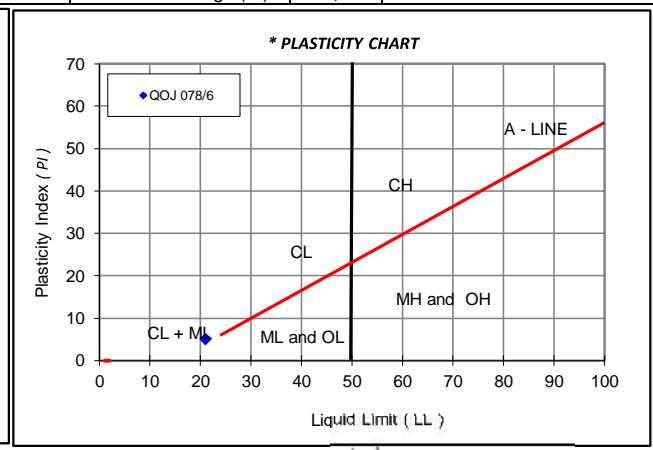
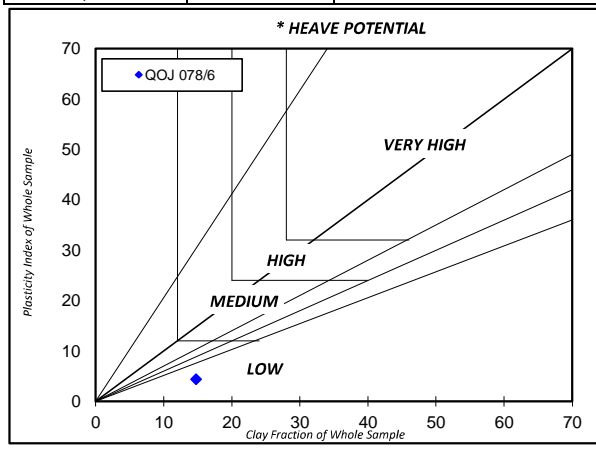
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Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.*

Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
		Date reported:	13/02/2021
		Report No:	QOJ 078/6
Attestion:	Moses Malungana		
Project:	Geotechnical Investigation for Betrains Multi purpose centre project		
Description:	Material sampled by Client	Sample No.:	QOJ 078/6
Description:	lt Yellow Silty/Clayey sand	Job Number:	QOJ 078
TP :	TP 2	Depth (m):	2,2 - 3.4m below EGL



*Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,048	34	Clay	15	Grading Modulus	0,77	USCS	sm/sc
0,029	29	Silt	19	SANS 3001:GR12		COLTO (1998)	<G9
0,013	21	Sand	59	Liquid Limit (%)	21	US Highway	A-4
0,006	19	Gravel	7	Plasticity Index (%)	5	Group Index	2
0,001	15			Linear Shrinkage (%)	2,5		



Remarks

Technical Signatory: V Kasambarare
V Kasambarare

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Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/6

ATT: Moses Malungana

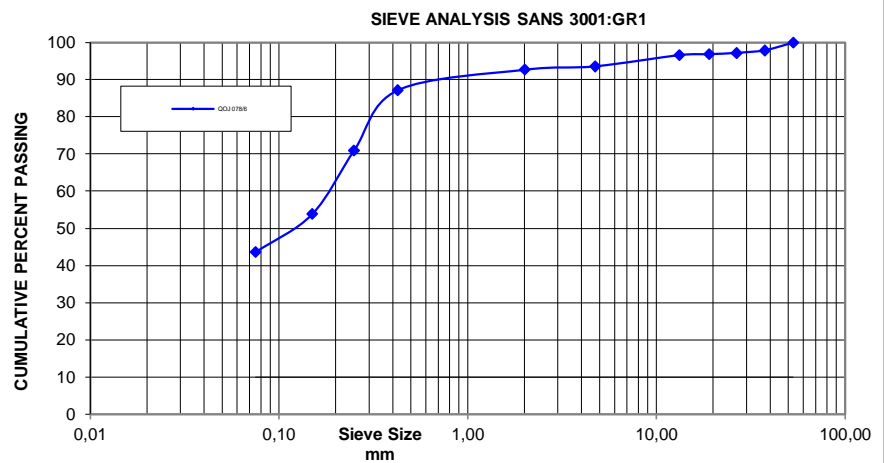
PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION: Material sampled by Client
SAMPLE NO: QOJ 078/6

MATERIAL DESCR.: lt Yellow Silty/Clayey sand
JOB NUMBER: QOJ 078

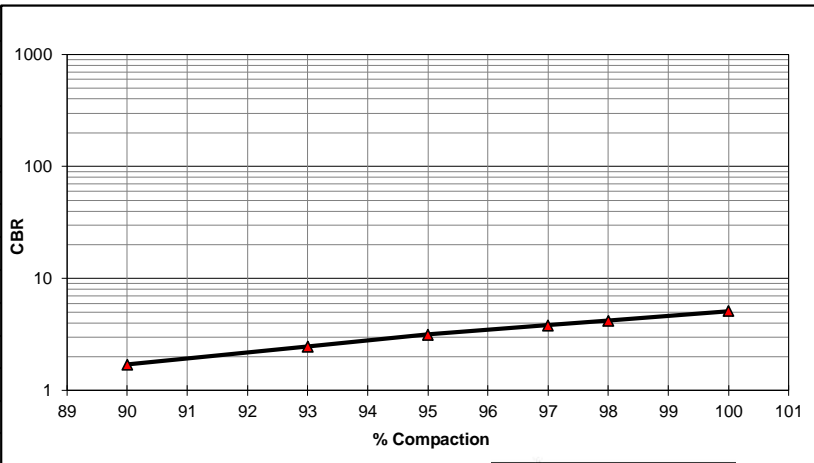
TP : TP 2
DEPTH (m): 2,2 - 3.4m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	100
37,5	98
28,0	97
20,0	97
14,0	97
5,00	94
2,00	93
0,425	87
0,250	71
0,150	54
0,075	44



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand	6	Grading Modulus: 0,77
Coarse Fine Sand	17	Soil Constants SANS 3001:GR12
Medium Fine Sand	18	Liquid Limit (%): 21
Fine Fine Sand	11	Plasticity Index (%): 5
Silt and Clay	47	Linear Shrinkage (%): 2,5
		Unified Soil Classification: sm/sc
		COLTO (1998): <G9
		US Highway: A-4
		Group Index: 2

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	2025		
OMC %	10,9		
Comp. Moisture %	11,4		
Dry Density kg/m ³	2019	1917	1817
Compaction %	99,7	94,7	89,7
% Swell	0,28	0,51	1,06
CBR @ % MDD			
@ 100% comp. :	5		
@ 98% comp. :	4		
@ 97% comp. :	4		
@ 95% comp. :	3		
@ 93% comp. :	2		
@ 90% comp. :	2		



Remarks

Technical Signatory: V Kasambarare
V Kasambarare

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P. O. Box 2814, Nelspruit 1200
Tel: 013 753 2370, Fax : 013 753 2370
Email: madoda@msmabuya.co.za, www.msmabuya.co.za
Reg:2007/034872/07, Vat no 4920255686



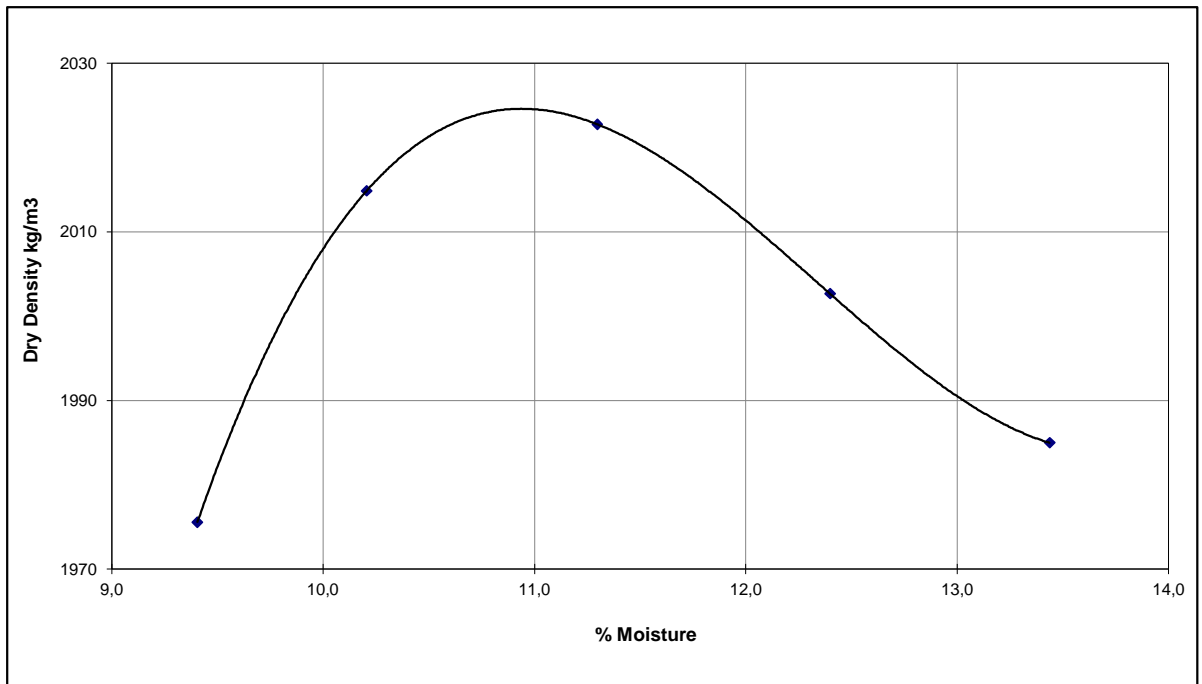
Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street,Treesbank	DATE TESTED:	04/02/2021
	Midrand 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/6
ATT:	Moses Malungana		

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION: Material sampled by Client	SAMPLE NO:	QOJ 078/6
DESCRIPTION: lt Yellow Silty/Clayey sand	JOB NUMBER:	QOJ 078
TP : TP 2		
DEPTH (m): 2,2 - 3.4m below EGL	PREPERATION METHOD:	Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	2015	2023	2003	1985	1976	
Moisture Content OMC %	10,2	11,3	12,4	13,4	9,4	



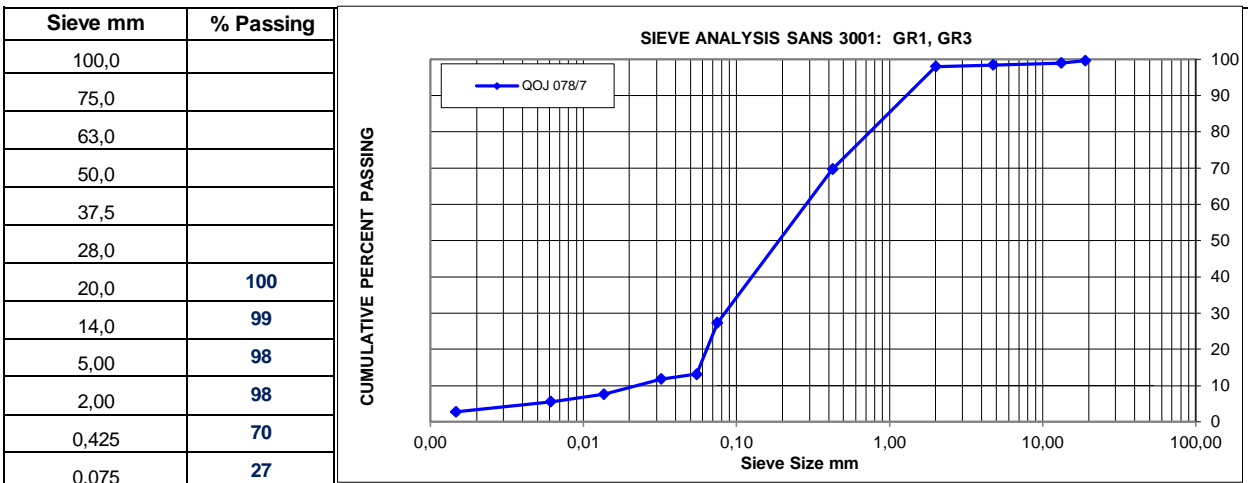
Maximum Dry Density MDD kg/m³	2024,5
Optimum Moisture Content OMC %	10,9

Technical Signatory: V Kasambarare
V Kasambarare

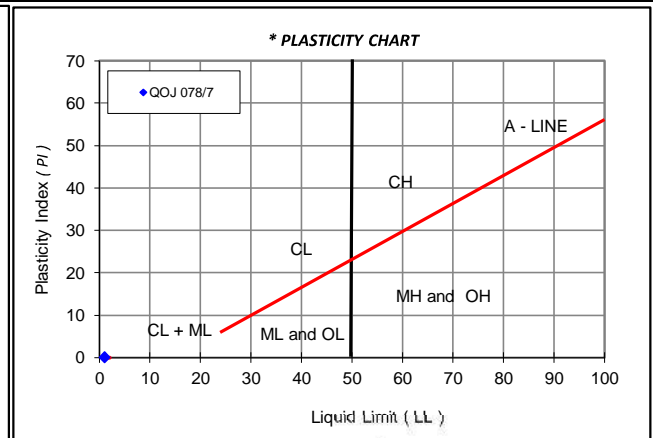
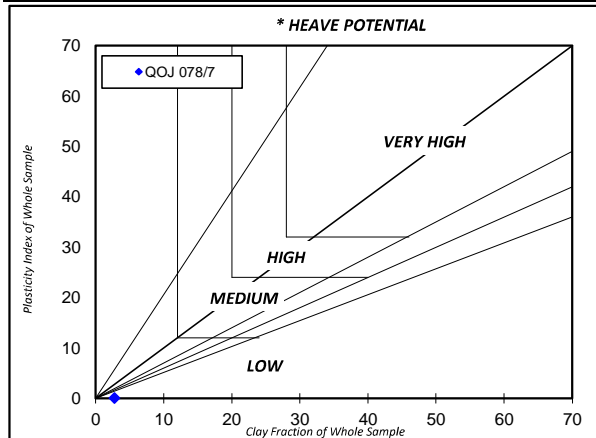
*The above test results are only relevant to samples delivered and tested at the laboratory. This report shall not be reproduced or altered without the prior consent of the laboratory, except copied in full. * Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.
Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.*

Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
Attenion:	Moses Malungana	Date reported:	13/02/2021
Project:	Geotechnical Investigation for Betrams Multi purpose centre project	Report No:	QOJ 078/7
Description:	Material sampled by Client	Sample No.:	QOJ 078/7
Description:	drk Brown Silty sand	Job Number:	QOJ 078
TP :	TP 3	Depth (m):	0 - 0.3m below EGL



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,055	13	Clay	3	Grading Modulus	1,05	USCS	SM(d)
0,032	12	Silt	10	SANS 3001:GR12		COLTO (1998)	-
0,014	8	Sand	85	Liquid Limit (%)		US Highway	A-2-4
0,006	6	Gravel	2	Plasticity Index (%)	NP	Group Index	0
0,001	3			Linear Shrinkage (%)	0,0		



Remarks

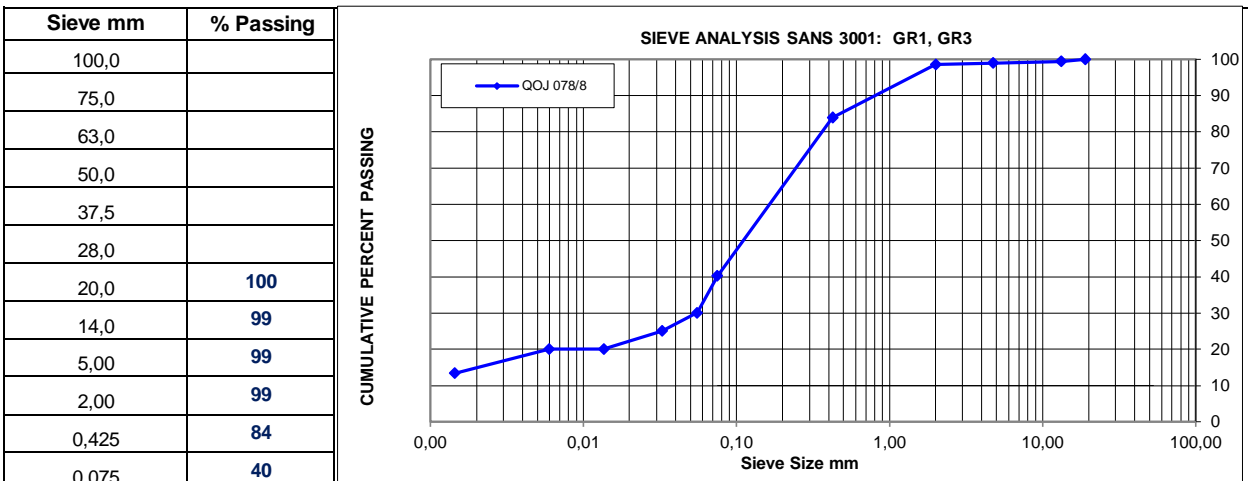
Technical Signatory: V Kasambarare
V Kasambarare

The above test results are only relevant to samples delivered and tested at the laboratory. This report shall not be reproduced or altered without the prior consent of the laboratory, except copied in full. * Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.

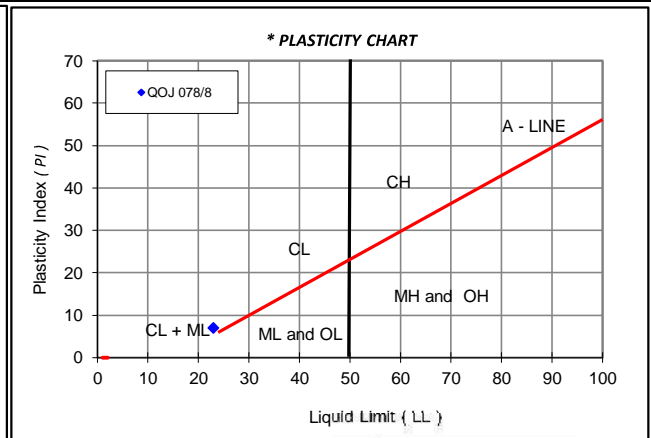
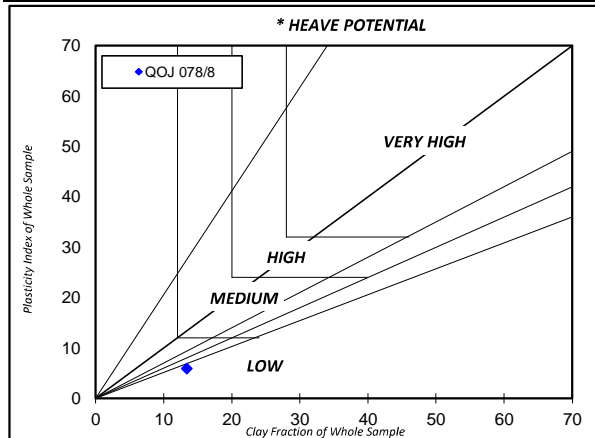
Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
		Date reported:	13/02/2021
		Report No:	QOJ 078/8
Attention:	Moses Malungana		
Project:	Geotechnical Investigation for Betrums Multi purpose centre project		
Description:	Material sampled by Client	Sample No.:	QOJ 078/8
Description:	lt Olive Silty/Clayey sand	Job Number:	QOJ 078
TP :	TP 3	Depth (m):	0.3 - 2.1m below EGL



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,055	30	Clay	13	Grading Modulus	0,77	USCS	sm/sc
0,033	25	Silt	17	SANS 3001:GR12		COLTO (1998)	<G9
0,014	20	Sand	68	Liquid Limit (%)	23	US Highway	A-4
0,006	20	Gravel	1	Plasticity Index (%)	7	Group Index	1
0,001	13			Linear Shrinkage (%)	3,5		



Remarks

Technical Signatory: V Kasambarare
V Kasambarare

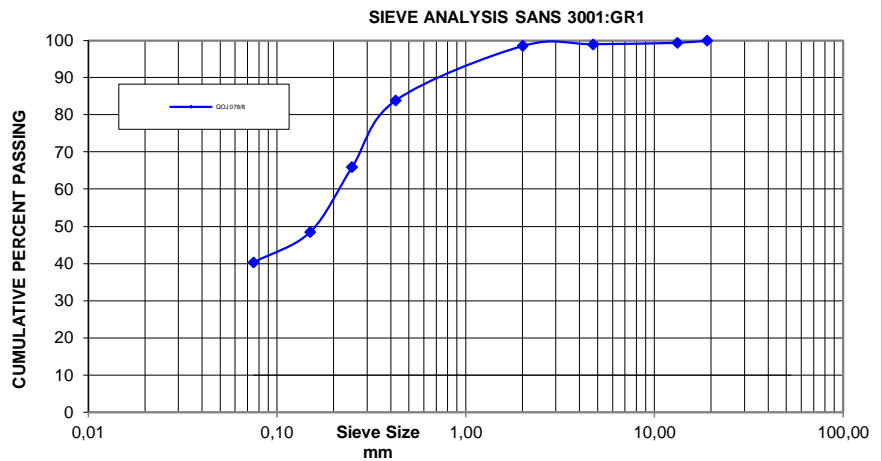
The above test results are only relevant to samples delivered and tested at the laboratory. This report shall not be reproduced or altered without the prior consent of the laboratory, except copied in full. * Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.

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Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

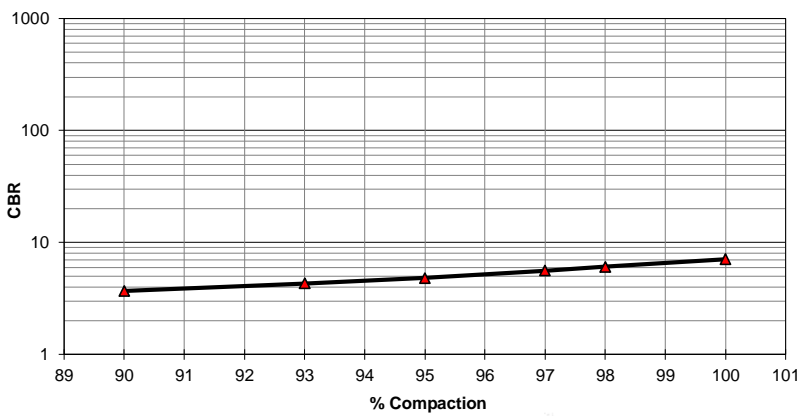
CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street, Treesbank	DATE TESTED:	04/02/2021
	Midrand 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/8
ATT:	Moses Malungana		
PROJECT:	Geotechnical Investigation for Betrams Multi purpose centre project		
DESCRIPTION:	Material sampled by Client	SAMPLE NO:	QOJ 078/8
MATERIAL DESCR.:	lt Olive Silty/Clayey sand	JOB NUMBER:	QOJ 078
TP :	TP 3	DEPTH (m):	0.3 - 2.1m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	
37,5	
28,0	
20,0	100
14,0	99
5,00	99
2,00	99
0,425	84
0,250	66
0,150	48
0,075	40



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand 15	Grading Modulus 0,77	Unified Soil Classification sm/sc
Coarse Fine Sand 18	Soil Constants SANS 3001:GR12	COLTO (1998) <G9
Medium Fine Sand 18	Liquid Limit (%) 23	US Highway A-4
Fine Fine Sand 8	Plasticity Index (%) 7	Group Index 1
Silt and Clay 41	Linear Shrinkage (%) 3,5	

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	2113		
OMC %	7,9		
Comp. Moisture %	8,0		
Dry Density kg/m ³	2100	1997	1891
Compaction %	99,4	94,5	89,5
% Swell	0,31	0,65	0,83
CBR @ % MDD			
@ 100% comp. :	7		
@ 98% comp. :	6		
@ 97% comp. :	6		
@ 95% comp. :	5		
@ 93% comp. :	4		
@ 90% comp. :	4		



Remarks: _____ Technical Signatory: V Kasambarare
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Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/8

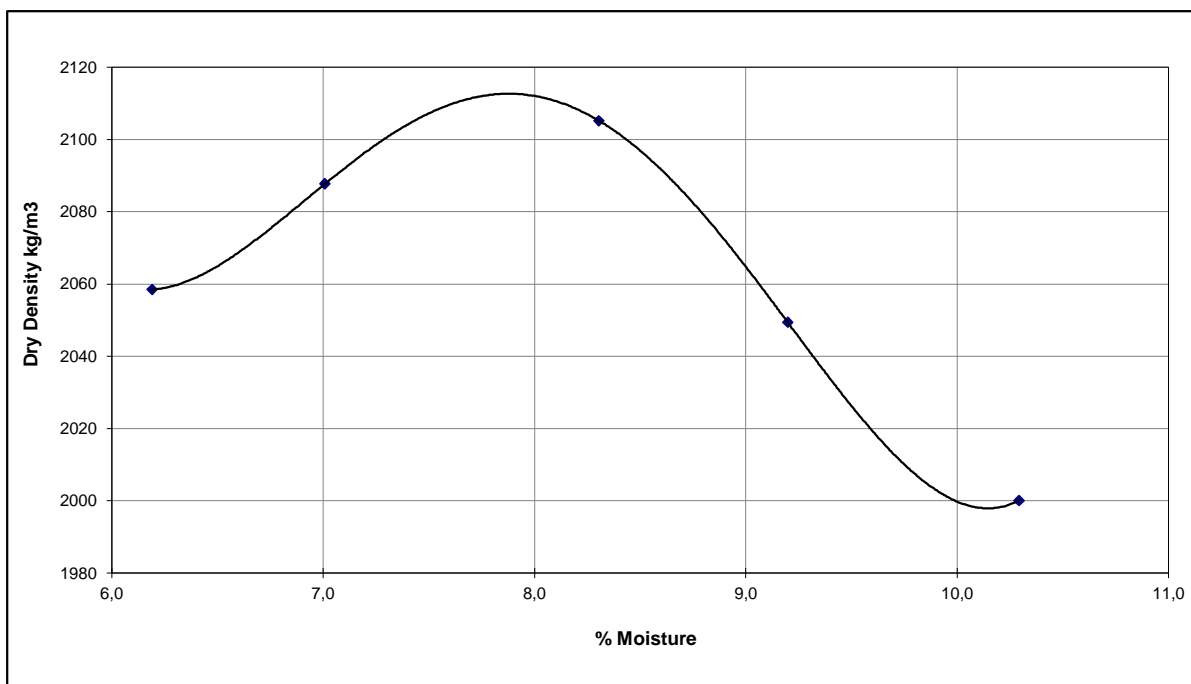
ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION: Material sampled by Client
DESCRIPTION: lt Olive Silty/Clayey sand
TP : TP 3
DEPTH (m): 0.3 - 2.1m below EGL

SAMPLE NO: QOJ 078/8
JOB NUMBER: QOJ 078
PREPERATION METHOD: Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	2058	2088	2105	2049	2000	
Moisture Content OMC %	6,2	7,0	8,3	9,2	10,3	



Maximum Dry Density MDD kg/m ³	2112,6
Optimum Moisture Content OMC %	7,9

Technical Signatory: _____

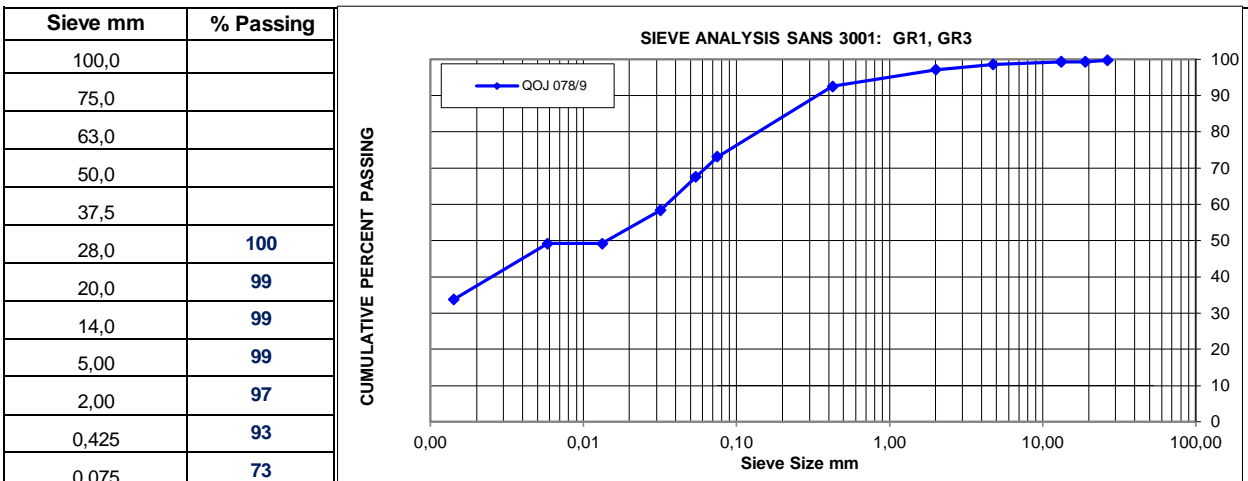
V Kasambarare
V Kasambarare

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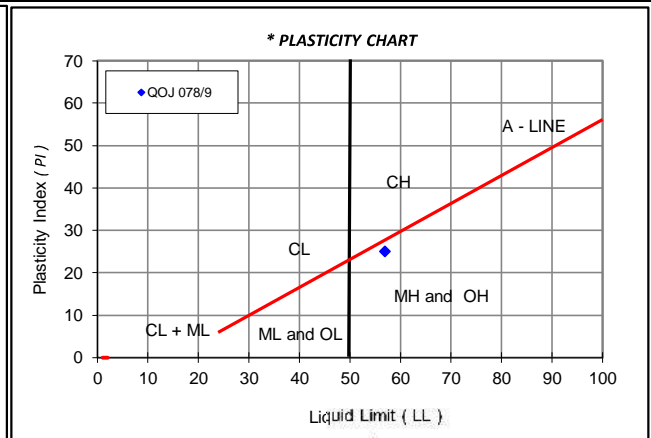
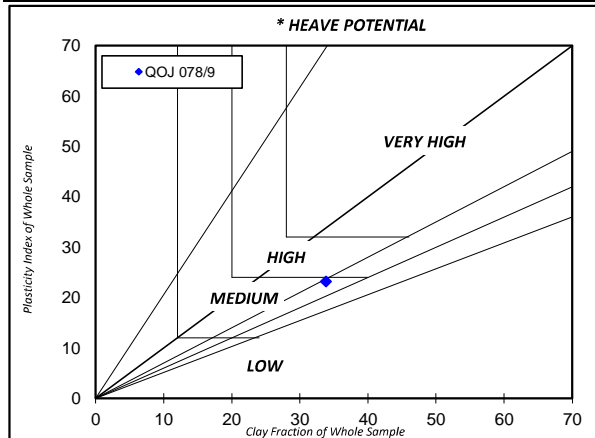
Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
		Date reported:	13/02/2021
		Report No:	QOJ 078/9
Attention:	Moses Malungana		
Project:	Geotechnical Investigation for Betrums Multi purpose centre project		
Description:	Material sampled by Client	Sample No.:	QOJ 078/9
Description:	drk Yellow Inorganic silt	Job Number:	QOJ 078
TP :	TP 3	Depth (m):	2.1 - 3.6m below EGL



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,054	68	Clay	34	Grading Modulus	0,37	USCS	MH
0,032	58	Silt	34	SANS 3001:GR12		COLTO (1998)	<G9
0,013	49	Sand	30	Liquid Limit (%)	57	US Highway	A-7-5
0,006	49	Gravel	3	Plasticity Index (%)	25	Group Index	17
0,001	34			Linear Shrinkage (%)	12,5		



Remarks

Technical Signatory: _____

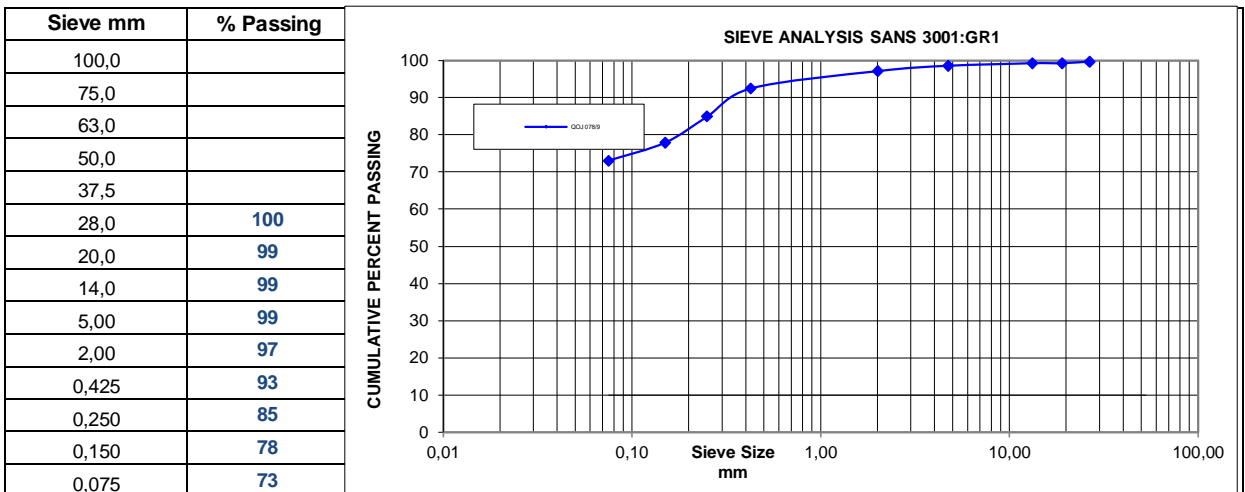
V Kasambarare

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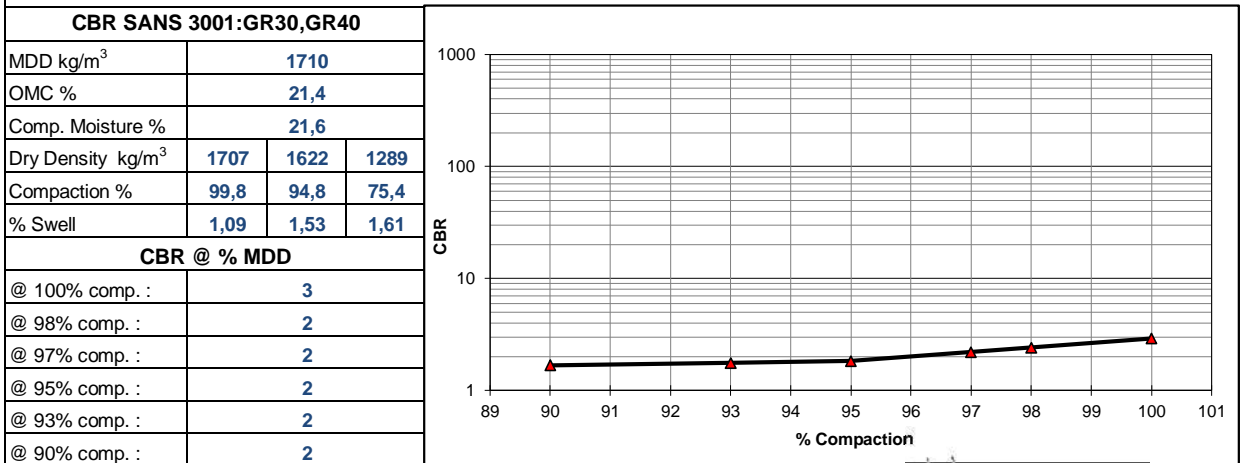
Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street, Treesbank	DATE TESTED:	04/02/2021
	Midrand 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/9
ATT:	Moses Malungana		
PROJECT:	Geotechnical Investigation for Betrams Multi purpose centre project		
DESCRIPTION:	Material sampled by Client	SAMPLE NO:	QOJ 078/9
MATERIAL DESCR.	drk Yellow Inorganic silt	JOB NUMBER:	QOJ 078
TP :	TP 3	DEPTH (m):	2.1 - 3.6m below EGL



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand 5	Grading Modulus 0,37	Unified Soil Classification MH
Coarse Fine Sand 8	Soil Constants SANS 3001:GR12	COLTO (1998) <G9
Medium Fine Sand 7	Liquid Limit (%) 57	US Highway A-7-5
Fine Fine Sand 5	Plasticity Index (%) 25	Group Index 17
Silt and Clay 75	Linear Shrinkage (%) 12,5	



Remarks

Technical Signatory: V Kasambarare

V Kasambarare

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Email: madoda@msmabuya.co.za, www.msmabuya.co.za
Reg:2007/034872/07, Vat no 4920255686



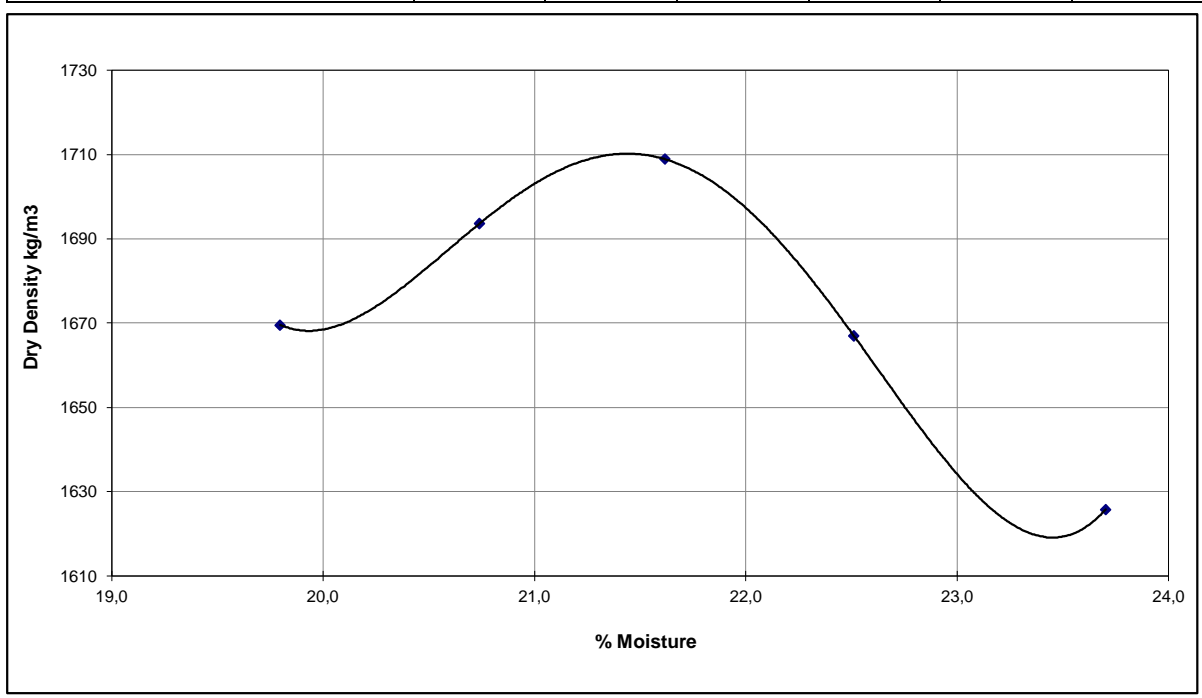
Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT:	Kgosihadi Consulting Engineers	DATE RECEIVED:	20/01/2021
	5 Lynx street,Treesbank	DATE TESTED:	04/02/2021
	Midrand 1683	DATE REPORTED:	13/02/2021
	1683	REPORT NO.:	QOJ 078/9
ATT:	Moses Malungana		

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION:	Material sampled by Client	SAMPLE NO:	QOJ 078/9
DESCRIPTION:	drk Yellow Inorganic silt	JOB NUMBER:	QOJ 078
TP :	TP 3		
DEPTH (m):	2.1 - 3.6m below EGL	PREPERATION METHOD:	Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	1694	1709	1667	1626	1670	
Moisture Content OMC %	20,7	21,6	22,5	23,7	19,8	



Maximum Dry Density MDD kg/m³	1710,4
Optimum Moisture Content OMC %	21,44

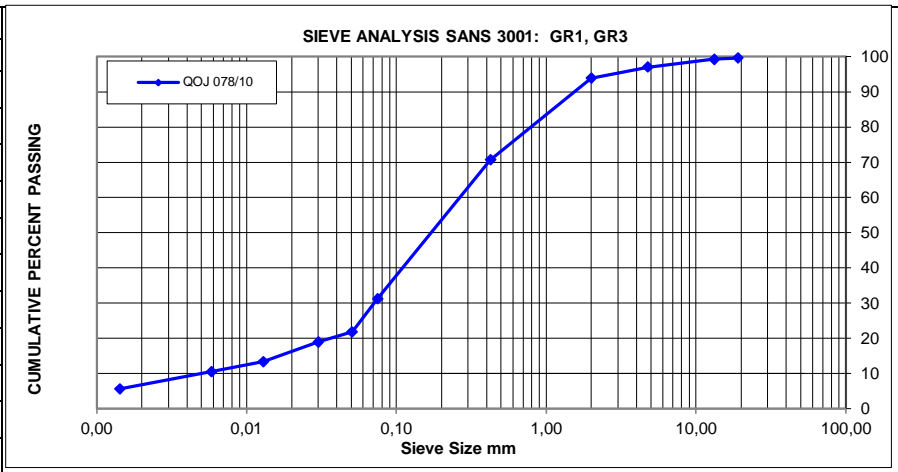
Technical Signatory: V Kasambarare
V Kasambarare

*The above test results are only relevant to samples delivered and tested at the laboratory. This report shall not be reproduced or altered without the prior consent of the laboratory, except copied in full. * Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.
Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.*

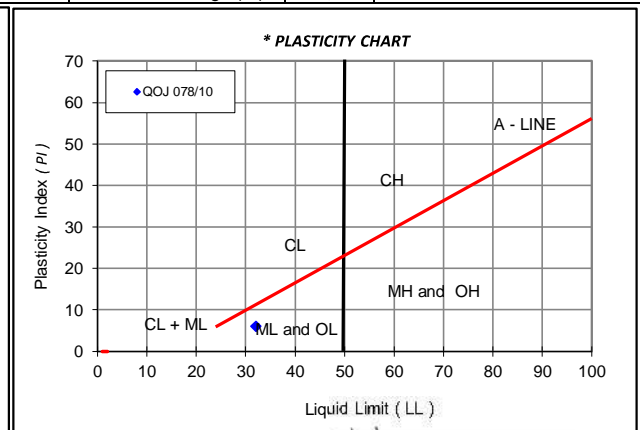
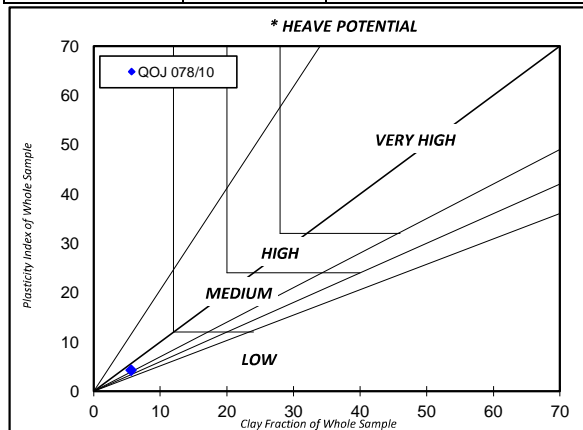
Test Report for Foundation Indicator

Client Name:	Kgosihadi Consulting Engineers	Date received:	20/01/2021
Client Address:	5 Lynx street, Treesbank Midrand 1683	Date Tested:	04/02/2021
		Date reported:	13/02/2021
		Report No:	QOJ 078/10
Attention:	Moses Malungana		
Project:	Geotechnical Investigation for Betrums Multi purpose centre project		
Description:	Material sampled by Client	Sample No.:	QOJ 078/10
Description:	drk Brown Silty/Clayey sand	Job Number:	QOJ 078
TP :	TP 4	Depth (m):	0-0.3m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	
37,5	
28,0	
20,0	100
14,0	99
5,00	97
2,00	94
0,425	71
0,075	31



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,051	22	Clay	6	Grading Modulus	1,04	USCS	sm/sc
0,030	19	Silt	16	SANS 3001:GR12		COLTO (1998)	<G9
0,013	13	Sand	72	Liquid Limit (%)	32	US Highway	A-2-4
0,006	11	Gravel	6	Plasticity Index (%)	6	Group Index	0
0,001	6			Linear Shrinkage (%)	3,0		



Remarks

Technical Signatory: _____

V Kasambarare
V Kasambarare

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Results marked "#" in this report are not included in the SANAS schedule of Accreditation for this laboratory.

Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/10

ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

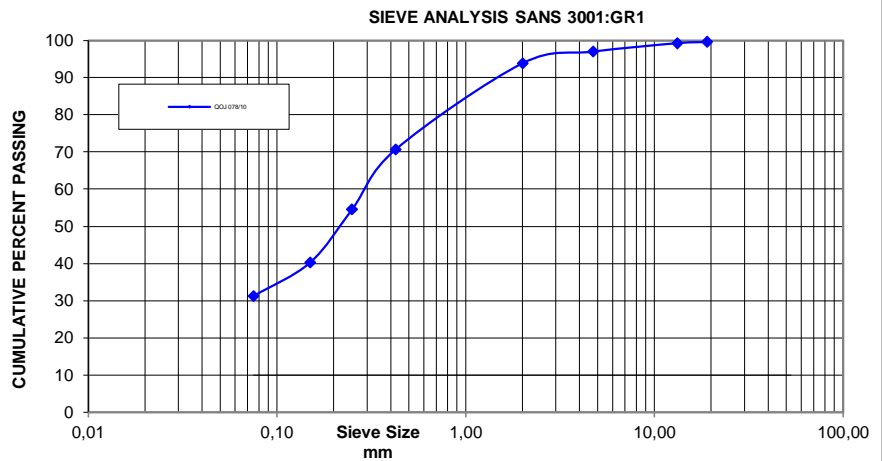
DESCRIPTION: Material sampled by Client

MATERIAL DESCR.: drk Brown Silty/Clayey sand

TP : TP 4

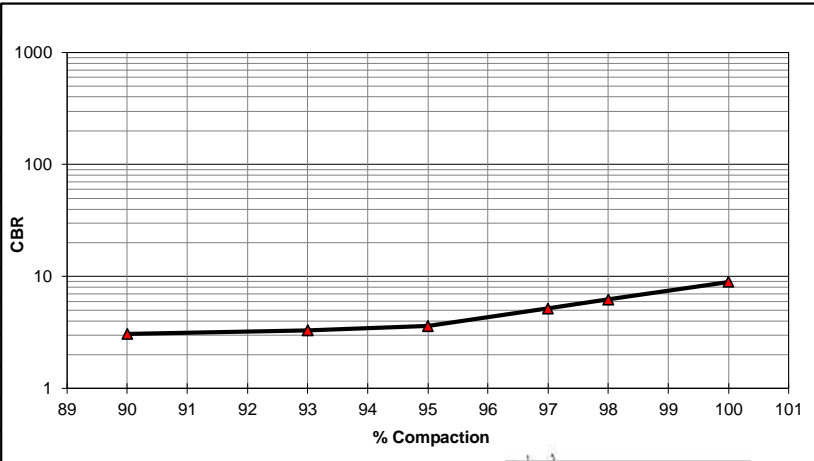
SAMPLE NO: QOJ 078/10
JOB NUMBER: QOJ 078
DEPTH (m): 0-0.3m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	
37,5	
28,0	
20,0	100
14,0	99
5,00	97
2,00	94
0,425	71
0,250	55
0,150	40
0,075	31



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand 25	Grading Modulus 1,04	Unified Soil Classification sm/sc
Coarse Fine Sand 17	Soil Constants SANS 3001:GR12	COLTO (1998) <G9
Medium Fine Sand 15	Liquid Limit (%) 32	US Highway A-2-4
Fine Fine Sand 10	Plasticity Index (%) 6	Group Index 0
Silt and Clay 33	Linear Shrinkage (%) 3,0	

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	1803		
OMC %	14,4		
Comp. Moisture %	14,0		
Dry Density kg/m ³	1800	1708	740
Compaction %	99,9	94,8	41,1
% Swell	1,12	1,42	1,69
CBR @ % MDD			
@ 100% comp. :	9		
@ 98% comp. :	6		
@ 97% comp. :	5		
@ 95% comp. :	4		
@ 93% comp. :	3		
@ 90% comp. :	3		



Remarks

Technical Signatory: _____

V Kasambarare

V Kasambarare

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Email: madoda@msmabuya.co.za, www.msmabuya.co.za
Reg:2007/034872/07, Vat no 4920255686



Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/10

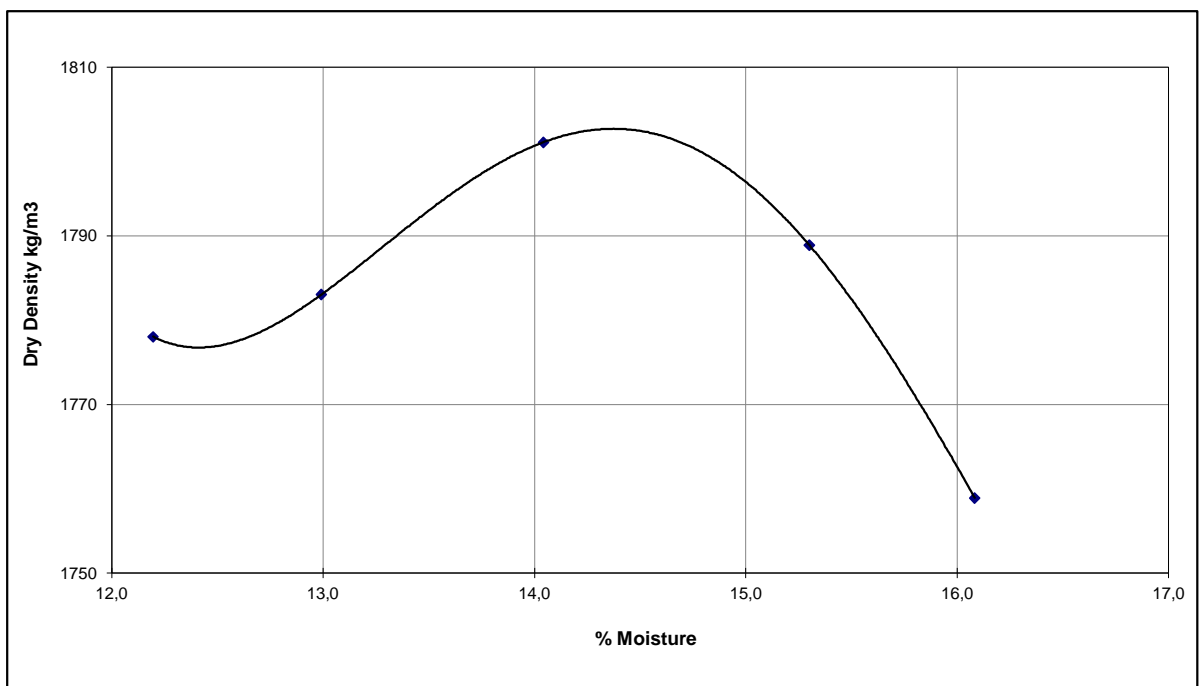
ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

DESCRIPTION: Material sampled by Client
DESCRIPTION: drk Brown Silty/Clayey sand
TP : TP 4
DEPTH (m): 0-0.3m below EGL

SAMPLE NO: QOJ 078/10
JOB NUMBER: QOJ 078
PREPERATION METHOD: Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	1778	1783	1801	1789	1759	
Moisture Content OMC %	12,2	13,0	14,0	15,3	16,1	



Maximum Dry Density MDD kg/m³	1802,5
Optimum Moisture Content OMC %	14,4

Technical Signatory: V Kasambarare
V Kasambarare

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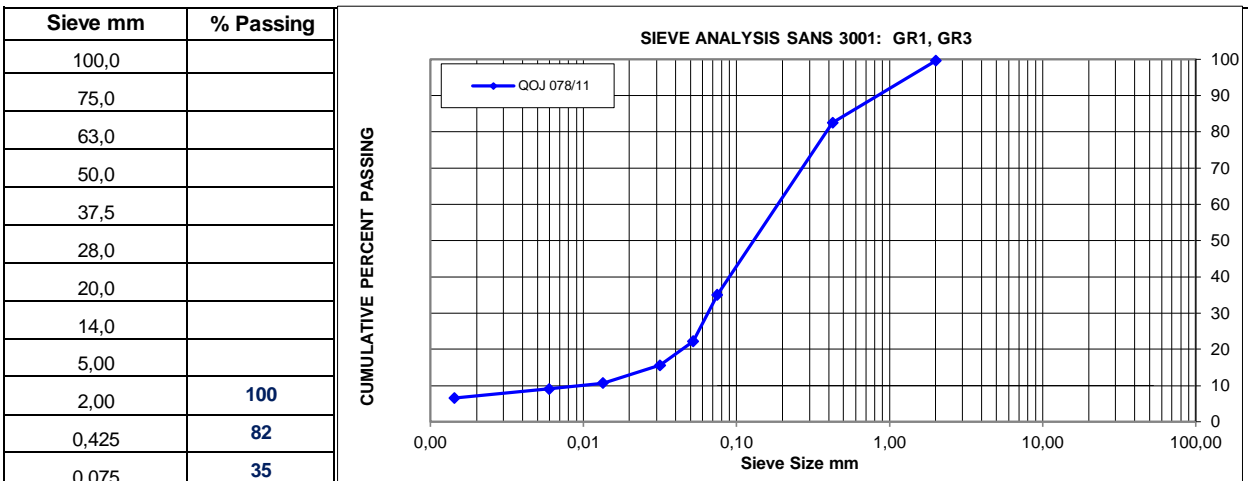
Test Report for Foundation Indicator

Client Name: Kgosihadi Consulting Engineers **Date received:** 20/01/2021
Client Address: 5 Lynx street, Treesbank **Date Tested:** 04/02/2021
Midrand 1683 **Date reported:** 13/02/2021
Report No: QOJ 078/11

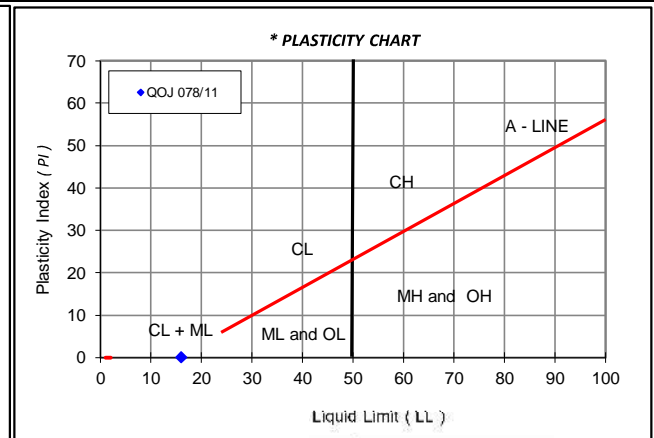
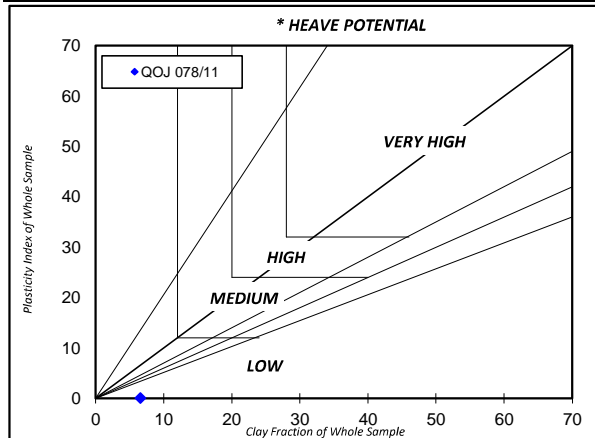
Attention: Moses Malungana

Project: Geotechnical Investigation for Betrums Multi purpose centre project

Description: Material sampled by Client **Sample No.:** QOJ 078/11
Description: drk Olive Silty sand **Job Number:** QOJ 078
TP : TP 4 **Depth (m):** 0.3-3.2m below EGL



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,052	22	Clay	7	Grading Modulus	0,83	USCS	SM(d)
0,032	16	Silt	16	SANS 3001:GR12		COLTO (1998)	G8
0,013	11	Sand	77	Liquid Limit (%)	16	US Highway	A-2-4
0,006	9	Gravel	0	Plasticity Index (%)	SP	Group Index	0
0,001	7			Linear Shrinkage (%)	1,0		



Remarks

Technical Signatory: V Kasambarare
V Kasambarare

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Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/11

ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrums Multi purpose centre project

DESCRIPTION: Material sampled by Client

SAMPLE NO: QOJ 078/11

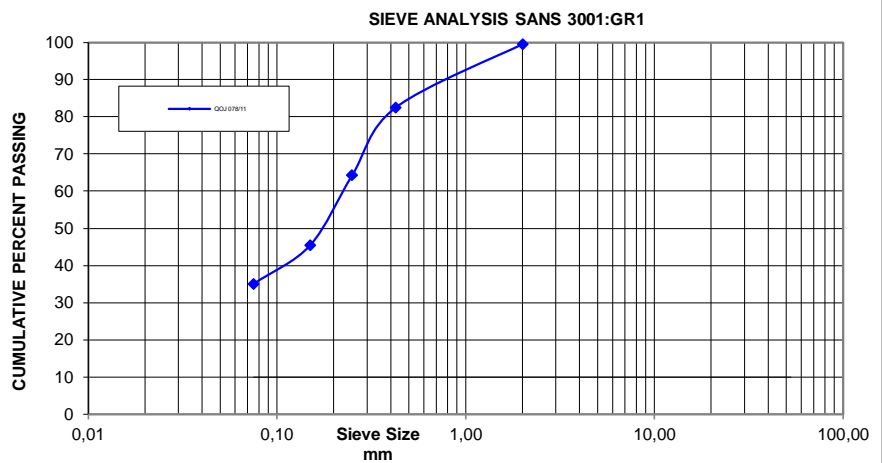
MATERIAL DESCR.: drk Olive Silty sand

JOB NUMBER: QOJ 078

TP : TP 4

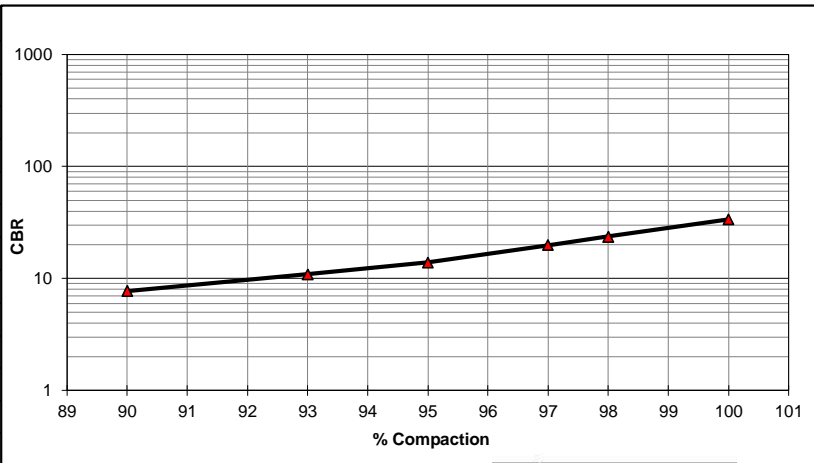
DEPTH (m): 0.3-3.2m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	
37,5	
28,0	
20,0	
14,0	
5,00	
2,00	100
0,425	82
0,250	64
0,150	45
0,075	35



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand 17	Grading Modulus 0,83	Unified Soil Classification SM(d)
Coarse Fine Sand 18	Soil Constants SANS 3001:GR12	COLTO (1998) G8
Medium Fine Sand 19	Liquid Limit (%) 16	US Highway A-2-4
Fine Fine Sand 10	Plasticity Index (%) SP	Group Index 0
Silt and Clay 35	Linear Shrinkage (%) 1,0	

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	2166		
OMC %	6,7		
Comp. Moisture %	6,7		
Dry Density kg/m ³	2160	2052	1944
Compaction %	99,7	94,7	89,7
% Swell	0,24	0,36	0,65
CBR @ % MDD			
@ 100% comp. :	34		
@ 98% comp. :	24		
@ 97% comp. :	20		
@ 95% comp. :	14		
@ 93% comp. :	11		
@ 90% comp. :	8		



Remarks

Technical Signatory: V Kasambarare

V Kasambarare

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Email: madoda@msmabuya.co.za, www.msmabuya.co.za
Reg:2007/034872/07, Vat no 4920255686



Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/11

ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project

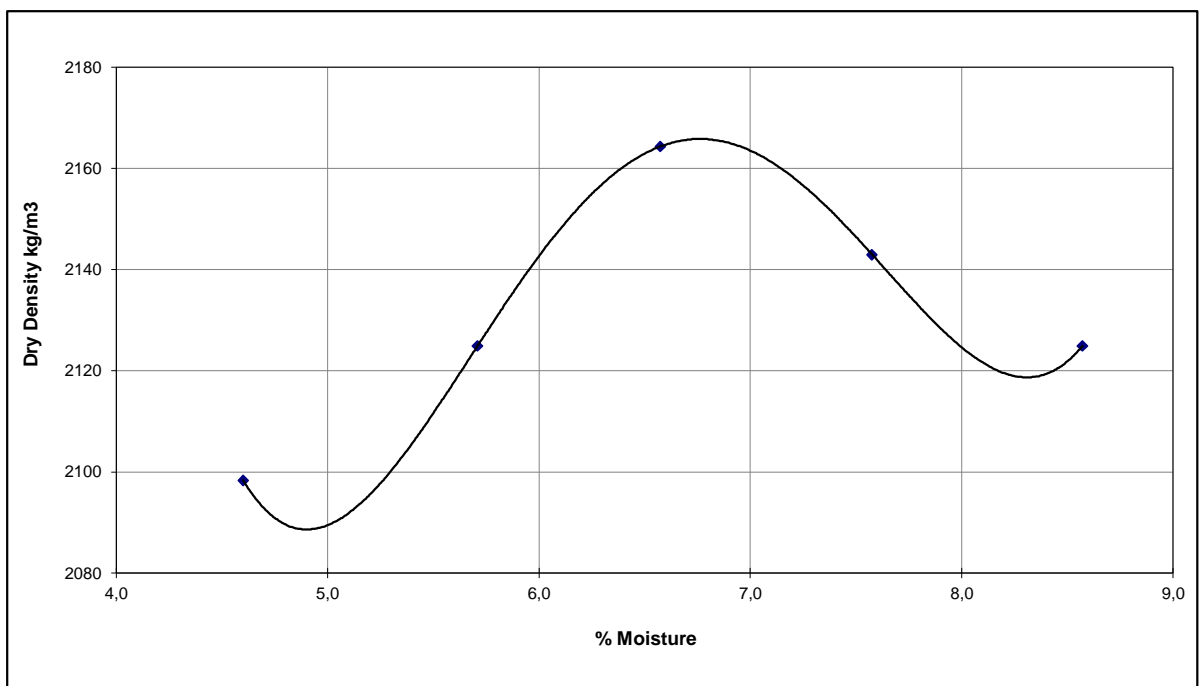
DESCRIPTION: Material sampled by Client **SAMPLE NO:** QOJ 078/11

DESCRIPTION: drk Olive Silty sand **JOB NUMBER:** QOJ 078

TP : TP 4

DEPTH (m): 0.3-3.2m below EGL **PREPERATION METHOD:** Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	2125	2164	2143	2125	2098	
Moisture Content OMC %	5,7	6,6	7,6	8,6	4,6	



Maximum Dry Density MDD kg/m³	2165,8
Optimum Moisture Content OMC %	6,74

Technical Signatory: V Kasambarare
V Kasambarare

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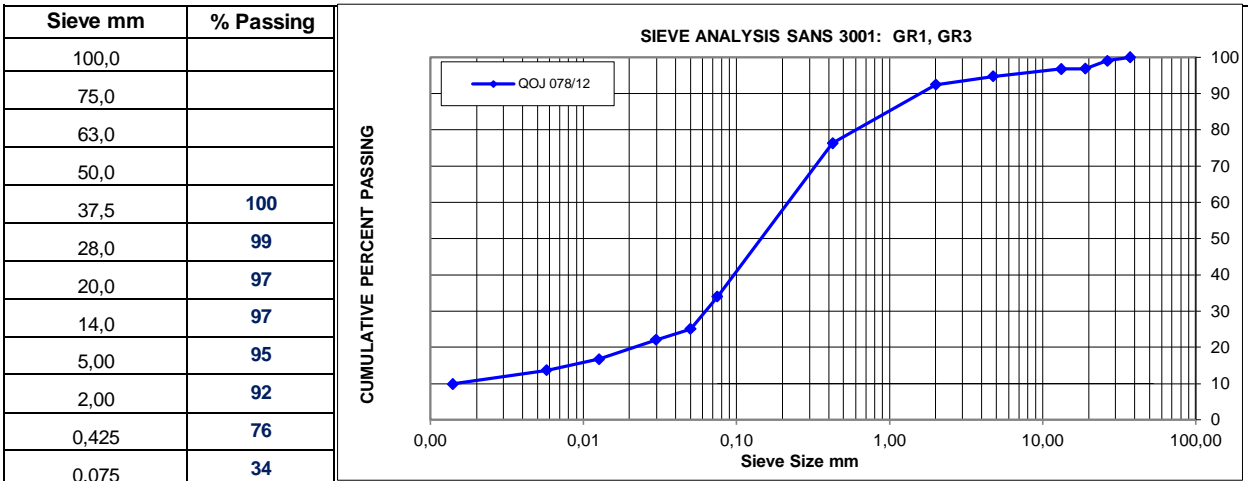
Test Report for Foundation Indicator

Client Name: Kgosihadi Consulting Engineers **Date received:** 20/01/2021
Client Address: 5 Lynx street, Treesbank **Date Tested:** 04/02/2021
Midrand 1683 **Date reported:** 13/02/2021
Report No: QOJ 078/12

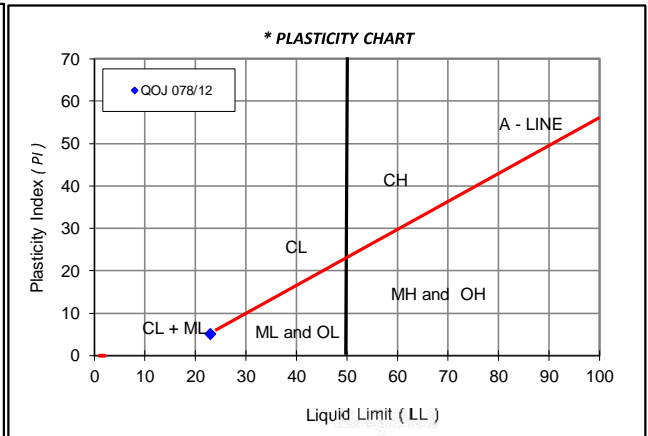
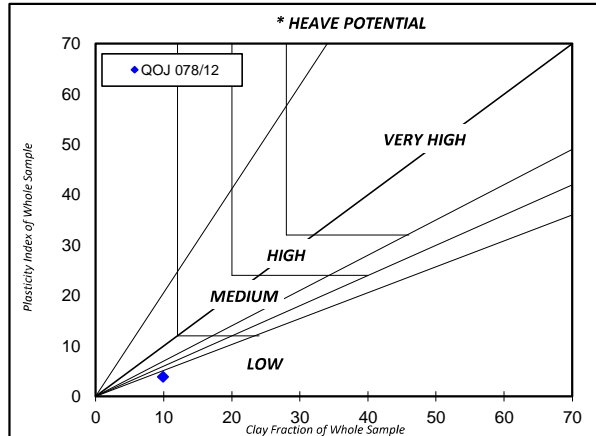
Attention: Moses Malungana

Project: Geotechnical Investigation for Betrums Multi purpose centre project

Description: Material sampled by Client **Sample No.:** QOJ 078/12
Description: drk Reddish Brown Silty/Clayey sand **Job Number:** QOJ 078
TP : TP 6 **Depth (m):** 0 - 0.7m below EGL



#Hydrometer Analysis SANS 3001: GR3		*Classification Grain size Boundaries %		*Grading Modulus SANS 3001 : PR5		*Classifications	
0,050	25	Clay	10	Grading Modulus	0,97	USCS	sm/sc
0,030	22	Silt	15	SANS 3001:GR12		COLTO (1998)	<G9
0,013	17	Sand	67	Liquid Limit (%)	23	US Highway	A-2-4
0,006	14	Gravel	8	Plasticity Index (%)	5	Group Index	0
0,001	10			Linear Shrinkage (%)	2,5		



Remarks

Technical Signatory: _____

V Kasambarare
V Kasambarare

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Test Report for Mod CBR Road Indicator Report SANS 3001-GR1,GR10,GR20,GR30,GR40

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/12

ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrums Multi purpose centre project

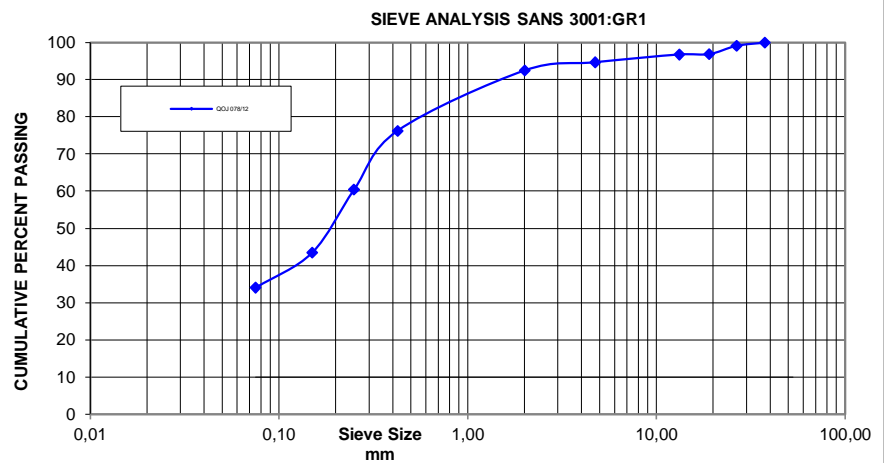
DESCRIPTION: Material sampled by Client

MATERIAL DESCR.: drk Reddish Brown Silty/Clayey sand

TP : TP 6

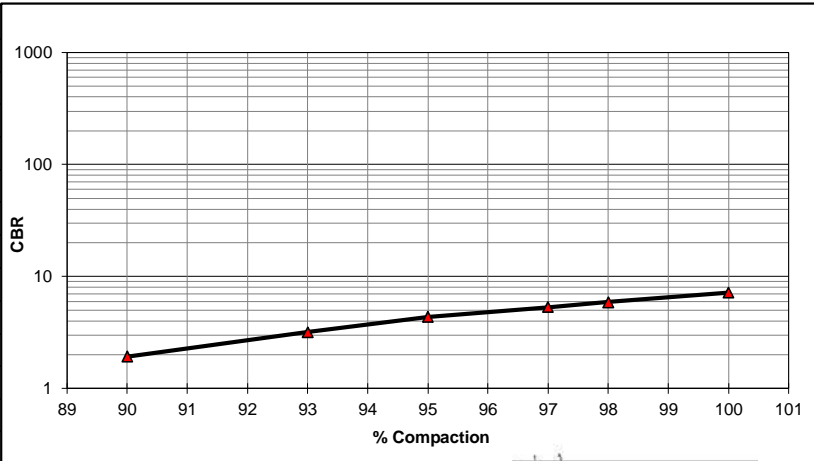
SAMPLE NO: QOJ 078/12
JOB NUMBER: QOJ 078
DEPTH (m): 0 - 0.7m below EGL

Sieve mm	% Passing
100,0	
75,0	
63,0	
50,0	
37,5	100
28,0	99
20,0	97
14,0	97
5,00	95
2,00	92
0,425	76
0,250	60
0,150	43
0,075	34



Soil Mortar % SANS 3001-PR5	Grading Modulus SANS 3001:PR5	*Classifications
Coarse Sand 18	Grading Modulus 0,97	Unified Soil Classification sm/sc
Coarse Fine Sand 17	Soil Constants SANS 3001:GR12	COLTO (1998) <G9
Medium Fine Sand 18	Liquid Limit (%) 23	US Highway A-2-4
Fine Fine Sand 10	Plasticity Index (%) 5	Group Index 0
Silt and Clay 37	Linear Shrinkage (%) 2,5	

CBR SANS 3001:GR30,GR40			
MDD kg/m ³	1922		
OMC %	13,1		
Comp. Moisture %	12,9		
Dry Density kg/m ³	1915	1819	1723
Compaction %	99,6	94,6	89,6
% Swell	0,87	0,98	1,31
CBR @ % MDD			
@ 100% comp. :	7		
@ 98% comp. :	6		
@ 97% comp. :	5		
@ 95% comp. :	4		
@ 93% comp. :	3		
@ 90% comp. :	2		



Remarks

Technical Signatory: V Kasambarare

V Kasambarare

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Test report for Maximum Dry Density and Optimum Moisture Content SANS 3001-GR20,GR30

CLIENT: Kgosihadi Consulting Engineers
5 Lynx street, Treesbank
Midrand 1683
1683

DATE RECEIVED: 20/01/2021
DATE TESTED: 04/02/2021
DATE REPORTED: 13/02/2021
REPORT NO.: QOJ 078/12

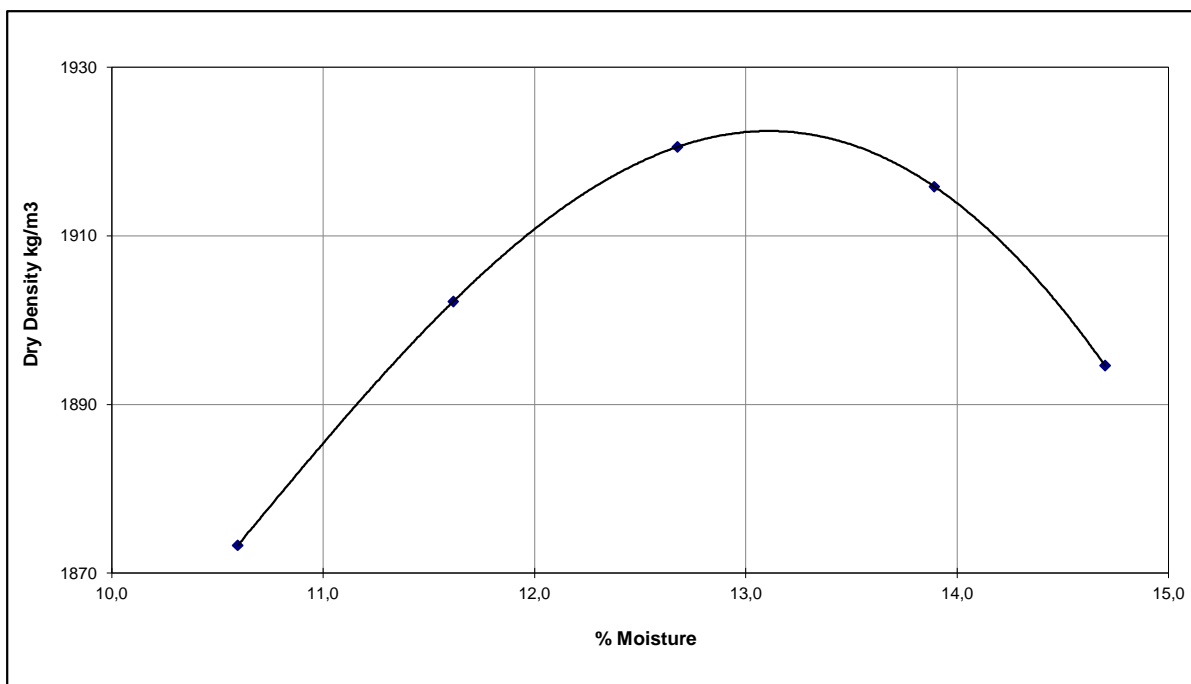
ATT: Moses Malungana

PROJECT: Geotechnical Investigation for Betrums Multi purpose centre project

DESCRIPTION: Material sampled by Client
DESCRIPTION: drk Reddish Brown Silty/Clayey sand
TP : TP 6
DEPTH (m): 0 - 0.7m below EGL

SAMPLE NO: QOJ 078/12
JOB NUMBER: QOJ 078
PREPERATION METHOD: Scalping

Maximum Dry Density (MDD) - SANS 3001: GR30, GR20						
Point No	1	2	3	4	5	
Dry Density MDD kg/m ³	1873	1902	1921	1916	1895	
Moisture Content OMC %	10,6	11,6	12,7	13,9	14,7	



Maximum Dry Density MDD kg/m ³	1922,4
Optimum Moisture Content OMC %	13,05

Technical Signatory: V Kasambarare
V Kasambarare

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Email: madoada@msmabuya.co.za, www.msmabuya.co.za
Reg: 2007/034872/07, Vat: 4920255686
Coordinates: S25°20'23.4"E031°00'31.3"



PH & ELECTRICAL CONDUCTIVITY BY TEST METHOD: TMH1 A20 & A21T

CLIENT: Kgosihadi Consulting Engineers
ADDRESS: 5 Lynx street, Treesbank
Midrand
1683
PROJECT: Geotechnical Investigation for Betrams Multi purpose centre project
Tel / Email: 649 490 786
ATTENTION: Mr Moses Malungana

DATE RECIEVED: 20/Jan/2021
DATE TESTED: 08/Feb/2021
DATE REPORTED: 10/Feb/2021
JOB NUMBER: QOJ 078
REPORT NO: QOJ 078/13

Specimen Particulars			Ph : Method A20		CONDUCTIVITY : METHOD A2T	
Lab Sample Number	Position	Depth (m)	PH	Temperatue	Conductivity (µS/cm)	Temperature
QOJ078/1	TP1	0,1 - 0,6	7,9	24,0	650,0	24,5
QOJ078/2	TP1	0,6 - 1,4	6,6	24,2	470,0	25,0
QOJ078/3	TP1	1,4 - 2,9	6,4	24,4	250,0	25,0
QOJ078/4	TP2	0,0 - 0,4	6,9	24,4	560,0	25,5
QOJ078/5	TP2	0,4 - 2,2	7,4	24,5	80,0	25,5
QOJ078/6	TP2	2,2 - 3,5	7,0	24,7	180,0	25,5
QOJ078/7	TP3	0,0 - 0,3	6,8	24,8	300,0	25,8
QOJ078/8	TP3	0,3 - 2,1	6,8	25,0	210,0	25,5
QOJ078/9	TP3	2,1 - 3,6	7,8	25,1	440,0	25,5
QOJ078/10	TP4	0,0 - 0,3	6,6	25,5	490,0	25,6
QOJ078/11	TP4	0,3 - 3,2	7,3	25,5	150,0	25,6
QOJ078/12	TP6	0,0 - 0,6	7,2	25,8	320,0	25,6
-	-	-	-	-	-	25,6
-	-	-	-	-	-	-

Signature:
V Kasambarare
Technical Signatory

APPENDIX D:

Piling table

Table 2: Proposed Bertrams Community Centre, Johannesburg - Details of Suitable Pile Types

PILE TYPE	NOMINAL DIAMETER (mm)	TYPICAL COMPRESSIVE LOAD CAPACITY (kN)	REMARKS
Driven displacement cast in situ	520 600	1200 1600	i) Clear level site is required with access suitable for a 35 ton low-bed. ii) Moderate construction noise level with high vibration intensity. iii) The individual borehole logs should be used to evaluate pile founding depths.
Continuous Flight Auger	Dependent on design requirements		i) Limited construction noise with no vibration. ii) The individual borehole logs should be used as a guide to determine pile founding depths.

ANNEXURE G

Asbestos removal

REPORT FOR THE REMOVAL OF ASBESTOS

Introduction

Asbestos is a group of six naturally occurring minerals composed of soft, flexible fibers that are heat-resistant. Exposure to asbestos causes cancers and other diseases, including mesothelioma and asbestosis. The most common way for asbestos fibers to enter the body is through breathing. In fact, asbestos containing material is not generally considered to be harmful unless it is releasing dust or fibers into the air where they can be inhaled or ingested. Many of the fibers will become trapped in the mucous membranes of the nose and throat where they can then be removed, but some may pass deep into the lungs, or, if swallowed, into the digestive tract. Once they are trapped in the body, the fibers can cause health problems.

Asbestos is most hazardous when it is friable. The term "friable" means that the asbestos is easily crumbled by hand, releasing fibers into the air. Sprayed on asbestos insulation is highly friable.

There are three primary diseases associated with asbestos exposure:

- Asbestosis
- Lung Cancer
- Mesothelioma

Determining Factors

Three things seem to determine your likelihood of developing one of these asbestos related diseases:

1. The amount and duration of exposure - the more you are exposed to asbestos and the more fibers that enter your body, the more likely you are to develop asbestos related problems. While there is no "safe level" of asbestos exposure, people who are exposed more frequently over a long period of time are more at risk.
2. Whether or not you smoke - if you smoke and you have been exposed to asbestos, you are far more likely to develop lung cancer than someone who does not smoke and who has not been exposed to asbestos. If you work with asbestos or have been exposed to it, the first thing you should do to reduce your chances of developing cancer is to stop smoking.

3. Age - cases of mesothelioma have occurred in the children of asbestos workers whose only exposures were from the dust brought home on the clothing of family members who worked with asbestos. The younger people are when they inhale asbestos, the more likely they are to develop mesothelioma. This is why enormous efforts are being made to prevent school children from being exposed.

SITE INFORMATION

Site address : 7 Bertrams Rd, Bertrams, Johannesburg,2095

Site coordinates : 26°11'38.8"S 28°03'56.2"E

AERIAL VIEW OF THE SITE

The removal of the sections of the buildings roof which are asbestos panels as marked in red in the below figure 1.



Figure 1.

- The building is located within residential vicinity and amenities that are used on a daily basis by the community around, therefore the removal of the asbestos roof must be carried out with caution as the health of the community must be protected. Only asbestos registered contractors who are listed by the Department of Labour and who have a valid registration certificate can perform the task of removal of the asbestos roof.



Figure 2.

- The yard has enough water taps which will be helpful during the removal of the roof sheets.
- During the removal of the roof sheets, there is enough space to work on as shown in figure 2 and figure 3. Double-wrap and label asbestos waste. Standard practice is to use a red inner bag with asbestos warnings, and a clear outer bag with a hazardous label.



Figure 3

N.B There is a specification that has been developed that will help the contractor follow the regulation as set out by the government.

Notes to ensure before any work commencement

- The registered asbestos contractor is registered and in good standing with the Compensation Fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993.
- The Contractor must ensure they submit the plan of work at least seven days prior to commencement of asbestos.
- Work to the Chief Director: Provincial Operations for acknowledgement;
 - receive acknowledgement from the Chief Director: Provincial Operations within the seven-day period;
- Confirm the employee medical certificate of fitness and asbestos training records for that asbestos work;
- Isolation of the work area.
- Proper PPE must be adhered to during all stages of the project:
 - Respiratory masks
 - Full body covering suit
 - Gloves
 - Eye Protection
 - Hard Hat etc.

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E: admin@nkatekohs.co.za
Reg no.: 2014/013395/07
Tax no.: 9234001221

Business Physical Address
21 Sidonio Brooklands lifestyle Estate
Samrand
0157



- The contractor must develop a method statement and risk assessment for the removal of asbestos roof sheets.(no work will commence until the plan has been approved in writing).
- Do not do dry removal.
- Avoid breaking up large pieces of asbestos waste. Instead double wrap in suitable polythene sheeting (1000-gauge) and label accordingly.
- To transport waste, you need a waste carriers licence.
- Waste disposal certificates to be submitted upon disposal of asbestos roof sheets.

A handwritten signature in black ink, appearing to read "W. M. M. M.", is written over a horizontal line.

Managing Director (Nkateko H&S)