



Contract JW14481
**CONSTRUCTION OF NEW PERIMETER WALL AND
GUARDBOUSES AT ENNERDALE DEPOT**



YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF JOHANNESBURG WATER

BID NUMBER: JW14481

CLOSING DATE: 10 February 2026

CLOSING TIME: 10:30 AM

DESCRIPTION: CONSTRUCTION OF NEW PERIMETER WALL AND GUARDBOUSES AT ENNERDALE DEPOT

CIDB REQUIREMENTS: TENDERERS SHOULD HAVE A CONTRACTOR CIDB GRADING OF 5GB OR HIGHER

BRIEFING SESSION	COMPULSORY YES
BRIEFING DETAILS	DATE AND TIME : 03 December 2025 AT 10:00 AM ADDRESS : 2 JAMES ST, MID-ENNERDALE, ENNERDALE, 1830, ENNERDALE DEPOT ERF 1701 VENUE : JOHANNESBURG WATER ENNERDALE DEPOT TENDERS RECEIVED FROM NON-ATTENDED BIDDERS OF A COMPULSORY BRIEFING SESSION WILL BE DISQUALIFIED
TENDER SUBMISSION DETAILS	BID DOCUMENTS MUST BE DEPOSITED IN THE TENDER BOX SITUATED AT GROUND FLOOR IN JOHANNESBURG WATER ADDRESS: TURBINE HALL, 65 NTEMI PILISO STREET, NEWTOWN, JOHANNESBURG, 2001 PLEASE ALLOW SUFFICIENT TIME TO ACCESS JOHANNESBURG WATER OFFICES IN TURBINE HALL AND DEPOSIT YOUR TENDER DOCUMENT IN THE JOHANNESBURG WATER TENDER BOX SITUATED AT RECEPTION BEFORE TENDER CLOSING TIME. TIMES: THE BUILDING WILL OPEN 7 DAYS A WEEK FROM 06:00 UNTIL 18:00

BIDDER INFORMATION

NAME OF BIDDER				
NO. OF DOCUMENTS SUBMITTED				
PHYSICAL ADDRESS				
TELEPHONE NUMBER				
CELLPHONE NUMBER				
E-MAIL ADDRESS				
VAT REGISTRATION NUMBER				
TAX COMPLIANCE STATUS	TCS PIN		MAAA No	
OTHER STATUS	COIDA Registration No		CIDB (CRS) No	

EMPLOYER INFORMATION

DEPARTMENT	CAPEX	DEPARTMENT	SCM
CONTACT PERSON	KEGAOGETSWE MAKOLA	CONTACT PERSON	GCINA NDELA
TELEPHONE NUMBER	011 688 1738	TELEPHONE NUMBER	011 688 1796
E-MAIL ADDRESS	KEGAOGETSWE.MAKOLA@JWATER.CO.ZA	E-MAIL ADDRESS	GCINA.NDELA@JWATER.CO.ZA



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NOTE: HARD COPY TENDER DOCUMENTS ARE AVAILABLE AT A COST OF R350.00 PER SET. DOCUMENTS DOWNLOADED FROM THE ETENDER PORTAL IS AT NO COST BUT MUST COMPLY WITH SUBMISSION REQUIREMENTS.

WITHOUT LIMITATION, JOHANNESBURG WATER TAKES NO RESPONSIBILITY FOR ANY DELAYS IN ANY COURIER OR POSTAL SYSTEM OR ANY LOGISTICAL DELAYS WITHIN THE PREMISES OF JOHANNESBURG WATER. JOHANNESBURG WATER LIKEWISE TAKES NO RESPONSIBILITY FOR OFFERS DELIVERED TO A LOCATION OTHER THAN THE TENDER BOX AS PER THE TENDER SUBMISSION DETAILS STATED IN THE TENDER. PROOF OF POSTING OR OF COURIER DELIVERY WILL NOT BE TAKEN BY JOHANNESBURG WATER AS PROOF OF DELIVERY. TENDER SUBMISSION DOCUMENTS MUST BE IN THE BOX BEFORE TENDER CLOSURE.

The current Johannesburg Water Supply Chain policy is applicable which is available on the JW website www.johannesburgwater.co.za

THE TENDERER IS ENCOURAGED TO SIGN THE TENDER SUBMISSION REGISTER WHEN SUBMITTING THEIR TENDERS.

**PLEASE ENSURE YOU SUBMIT 1 x ORIGINAL TENDER HARD DOCUMENT
(IF PRACTICAL, ALSO PROVIDE AN ELECTRONIC COPY IN A MEMORY STICK/USB TO ENSURE INFORMATION IS NOT MISSED WHEN TENDERS ARE BEING EVALUATED BY THE BID EVALUATION COMMITTEE – NON-SUBMISSION OF ELECTRONIC COPY AND MEMORY STICK/USB WILL NOT LEAD TO DISQUALIFICATION).**

Any documents required that are not submitted in the tender box at the deadline will be considered late.

The tenderer accepts that Johannesburg Water will not take responsibility for the misplacement or premature opening of the tender if the outer package is not sealed and marked as stated.

NB: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

NAME OF CONTACT PERSON:

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:



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PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED– (NOT TO BE RE-TYPED) OR ONLINE**
- 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

- 2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
- 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.
- 2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.
- 2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.
- 2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
- 2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
- 2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

- 3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO
- 3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO
- 3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO
- 3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO
- 3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

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

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.



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Notice and invitation to tender



1. TENDER NOTICE AND INVITATION TO TENDER

Johannesburg Water (SOC) Ltd invites the tenderer for the following:

CONTRACT NO. JW14481: - CONSTRUCTION OF NEW PERIMETER WALL AND GUARDBOUSES AT ENNERDALE DEPOT

The tender document will be available in the form of a download from the Johannesburg Water website (<https://www.johannesburgwater.co.za/scm/supply-chain/tenders/all-open-tenders/>) starting from 18 November 2025.

All tenders and supporting documents must be submitted in a sealed envelope and be placed in the Tender box on the ground floor of Johannesburg Water by no later than 10:30 am on 10 February 2026.

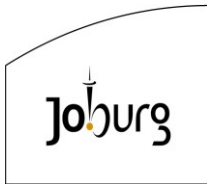
Address is as follows:

TURBINE HALL, 65 NTEMI PILISO STREET, NEWTOWN, JOHANNESBURG, 2001

Johannesburg Water (SOC) Ltd is not obliged to accept the lowest or any tender and Johannesburg Water reserves to appoint:

- a) in whole or in part.
- b) to more than one tenderer.
- c) to the highest points scoring bidder.
- d) to the lowest acceptable tender or highest acceptable tender in terms of the point scoring system.
- e) to a bidder not scoring the highest points (based on objective grounds in terms of section 2 (1) (f) of the PPPFA) (where applicable).
- f) not to consider any bid with justifiable reasons.

A valid and binding contract with the successful tender/s will be concluded once Johannesburg Water has awarded the contract. Johannesburg Water (SOC) Ltd and the successful tenderer/s will sign the contract agreement forms.



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Johannesburg Water SOC Ltd

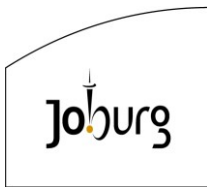


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VOLUME 1

TENDER AND CONTRACT



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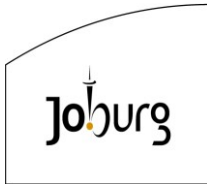
The Tenderer is to indicate in the “Submitted (Yes/No)” column in the below table that they have completed the required section of the tender document. Completion of this checklist will assist the Tenderer in ensuring that they have attended to all the required items for submission with this tender. Additionally, it is an absolute requirement that tenderers comply with National Treasury’s CSD registration as well as SARS tax compliance requirements for contract award – refer T2.2.4. The below will form part of the tender document, the tenderers are therefore encouraged to submit the returnable and or documentation with their tender offer to avoid elimination especially with regards to what is stated in the Required for Tender Evaluation column or not obtaining points for Specific Goals. Tenderers are encouraged to ensure that their Tax status remains Tax Compliant on CSD throughout the process to avoid delaying the process or being eliminated at award stage. For infrastructure related projects. Tenderer must have a CIDB Active Status at the requested CIDB requirement at evaluation stage to avoid disqualification.

All documentation listed in the Checklist below shall form part of the Contract.

Table 1

Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
1	Tender Cover:				
	Name of Tender	•			
	Contact Person	•			
	Telephone Number	•			
	Central Supplier Database Registration	•			
	CIDB Registration Number	•			
	COIDA Registration Number			•	
	Tax SARS PIN No.		•		
	MAAA No. for Tax Compliant Status		•		
2 T2.3. 3	Mandatory Documents at Particular Stage:				
	CIDB grading of 5GB or higher. Active Status at the required CIDB grading or higher at the time of Evaluation	•			
	Mandatory Tender Briefing Meeting	•			
	Complete and sign the Form of Offer	•			

Employer:		Contractor:	
Witness:		Witness:	

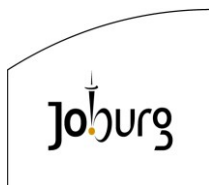


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
3	Administrative Documentation:				
T2.1.1	Record of Addenda to Tender Documents	•			
T2.1.2	Signed Certificate of Authority to Sign	•	•		
T2.1.3	Compulsory Enterprise Questionnaire	•			
	MBD 1 - Invitation to Bid - Completed and signed	•	•		
	Central Supplier Database Registration	•			
T2.1.4	MBD 4 - Declaration of interest - Completed and signed	•	•		
T2.1.4	MBD 6.1 - Preference Points Schedule – Specific Goals and Price Points - Completed and signed.	•			
T2.1.4	MBD 8 - Bidder's past supply chain management practices – Completed and signed.	•	•		
T2.1.4	MBD 9 - Certificate of Independent Bid Determination – Completed and signed.	•	•		
	Municipal Rates and Taxes for the Company - Current municipal rates for the company not older than 90 days (if leasing/renting, submitted proof such as lease agreement where premises are rented), OR Confirmation that suitable arrangements are in place for arrear municipal obligations with your local municipality. OR Current municipal rates which is not older than 90 days or valid lease agreement with affidavit from owner of property in cases stated in Proof of Good Standing with Regards to Municipal Accounts document in the Tender.	•	•		

Employer:		Contractor:	
Witness:		Witness:	

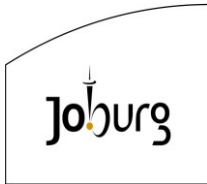


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	Municipal Rates and Taxes - Current municipal rates for the directors of the entity not older than 90 days (if leasing/renting, submitted proof such of lease agreement where premises are rented), OR Confirmation that suitable arrangements are in place for arrear municipal obligations with your local municipality. OR Current municipal rates which is not older than 90 days or valid lease agreement with affidavit from owner of property in cases stated in Proof of Good Standing with Regards to Municipal Accounts document in the Tender	•	•		
	3-year financial statements (audited where applicable)	•	•	•	
	Joint Venture Consortium or equivalent Agreement signed by all parties if applicable.	•	•		
	Any qualifications. If "Yes", reference to such qualification/s must be indicated on a cover letter. Please be aware that alterations on the tender document may result in your tender being eliminated as the qualification may impede on the ability to evaluate like with like.	•	•		
T2.1.5	Proposed Amendments and Qualifications	•			
T2.3.4	Imported Content Sheet: Forward Exchange Cover for Imported	•			
4.	Functionality Documentation:				
	Documentary Evidence Required for Criteria 1 Tenderer's Experience with respect to Perimeter Wall Building Projects.	•			
	Documentary Evidence Required for Criteria 2 Experience of Contracts Manager Only Contract Managers with minimum qualification (NQF7): i.e. BTech / BSc/ BEng: Engineering (Civil) or Quantity Survey or	•		•	

Employer:		Contractor:	
Witness:		Witness:	

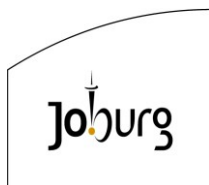


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	Construction Management AND ECSA Professional Registration (Pr. Eng. / Pr. Technologist) or SACPCMP Professional Registration (PrCPM / PrCM) will be considered.				
	Documentary Evidence Required for Criteria 3 Experience of Site Agent/ Manager Only Site Agents/ Managers with minimum qualifications of National Diploma (NQF6) in Building Science will be considered	•		•	
	Documentary Evidence Required for Criteria 4 Post Qualification Experience of Safety Officer Only a Safety Officer with qualifications of National Diploma (Safety Management/ Environmental Health/Environmental Science/ Environmental Management), SAMTRAC / SHEOMTRAC/ SHEMTRAC / MESHTRAC /NEBOSH / Safety Officers Course (NQF 5) or more AND Registered with SACPCMP in the “Construction Health and Safety” Sector OR Submitted the proof to register with SACPCMP in the “Construction Health and Safety” Sector will be considered	•		•	
5.	Specific Goals:				
	Business owned by 51% or more – Black Youth -Valid BBBEE Certificate issued by SANAS accredited verification agency, OR -CIPC registration document showing percentage of ownership	•			

Employer:		Contractor:	
Witness:		Witness:	

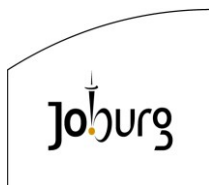


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	and share certificate where applicable				
	Business owned by 51% or more- Women -Valid BBBEE Certificate issued by SANAS accredited verification agency, OR -CIPC registration document showing percentage of ownership and share certificate where applicable	•			
	Businesses located within the boundaries of Gauteng Province -Proof of municipal account / valid lease agreement, confirmation of lease letter indicating the address, letter from the Ward Council confirming the business address.	•			
	Business owned by 51% or more - Black People who are military Veterans -Valid BBBEE Certificate issued by SANAS accredited verification agency, and -Registration with military veteran's database (stamped printout from military veteran's office showing the principal member with the ID number will be required), OR Registration a Military Veteran Company (stamped printout from military veteran's office showing the principal member with the ID number will be required).				
	Business owned by 51% or more-Black People with Disabilities				

Employer:		Contractor:	
Witness:		Witness:	

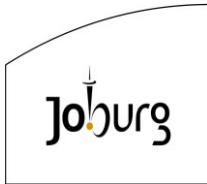


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	-Valid BBBEE Certificate issued by SANAS accredited verification agency, and Medical Certificate from medical doctor or SARS Confirmation of Diagnosis of Disability.				
6.	Scope of Work:				
	Scope of Work and Specifications	•			
7.	Pricing Schedule:				
	Bill of Quantities/ Schedule of Quantities completed	•			
	Alterations authenticated – Refer to Acknowledgment of Tender Conditions	•			
8.	Site Information:				
	Site Information	•			
9.	Occupational Health, Safety and Environmental Specification				
T2.3.1	Acknowledgement of SHE Specification & Annexures	•			
10.	Tender Drawings:				
T2.3.2	Acknowledgement of Project Tender Drawings	•			
11.	Terms and Conditions:				
	General Conditions of Contract	•			
	Tender Data	•			
	Pricing Data	•	•		
12.	Other Documents				
	Form of Acceptance (do not complete Form of Acceptance it will be completed by JW official)				
	Public Liability Insurance			•	
	Insurance of Works			•	

Employer:		Contractor:	
Witness:		Witness:	



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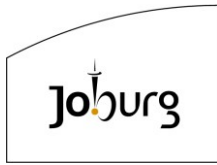


Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	Common Law Liability Insurance			•	
	Insurance of Construction Plant and Equipment			•	
	Valid Registration with Compensation for Occupation Injuries and Diseases Act			•	
	Performance Guarantee			•	
	Comprehensive Health and Safety Plan (compliance with OHSE Specification - if applicable)			•	
	Bank Details Form			•	

Tenderers will be notified of any omitted, outstanding, missing and or incomplete administrative documents and will be offered a period of 3 days to complete or submit those pages i.e., Municipal Bidding Documents (MBD), authority to sign and other administrative documents that require completion and signatures. These exclude documentation on functionality, price, and preference points for specific goals. Tenders that are received contrary to the above requirements will be disqualified after three (3) days period has lapsed. If locality is a specific goal in MBD6.1 – the requested documentation may not be used to allocate points for specific goals.

Signature: _____ Date: _____

Employer:		Contractor:	
Witness:		Witness:	



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VOLUME 1

PART 1: TENDERING PROCEDURES



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Witness:		Witness:	



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TENDER DATA

Conditions of Tender

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Construction Procurement (August 2019). (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 mainly applies.

Tender Data

The clause numbers in the Tender Data refer to the corresponding clause numbers in the Conditions of Tender.

The additional Conditions of Tender are:

Clause Number	Tender Data
C.1.1	The Employer is, Johannesburg Water (SOC) Limited
C.1.2	The tender document issued by the Employer comprise: Volume 1 Tender Part 1: Tendering Procedures T1.1: Tender Notice and Invitation to Tender T1.2: Tender Data Tender Part 2: Returnable Documents T2.1: List of Returnable Documents, including the Enterprise Declaration Affidavit which may be bound in a separate volume. T2.2: List of Other Returnable Documents T2.3: List of Other Returnable Schedules Contract Part 1: Agreement and Contract Data C1.1: Form of Offer and Acceptance C1.2: Contract Data

Employer:		Contractor:	
Witness:		Witness:	



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Clause Number	Tender Data
	C1.3: Forms of Securities Contract Part 2: Pricing Data C2.1: Pricing Instructions C2.2: Bill of Quantities Volume 2A Contract Part 3: Scope of Work C3.1: Scope of Work C3.2: Particular Specifications Contract Part 4: Site Information C4: Site Information Volume 2B Generic Specifications Volume 3 Occupational Health, Safety and Environmental Specification Environmental Management Plan Volume 4 Tender Drawings
C.1.4	The Employer's representative is: Contact Person: Ms Kegaogetswe Makola Telephone: 011 688 1738 E-mail address: kegaogetswe.makola@jwater.co.za The SCM representative is: Contact Person: Gcina Ndela Telephone: 011 688 1796 E-mail address: Gcina.ndela@jwater.co.za

Employer:		Contractor:	
Witness:		Witness:	



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Clause Number	Tender Data
C.2.1	Eligibility criteria and requirements CIDB registration and grading: 1) Only tenderers who are registered with the CIDB and were capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than the contractor grading designation determined in accordance with the sum tendered for an 5GB class of construction work, are eligible to submit tenders. Tenders must have an Active status at the required CIDB gradings at time of tender evaluation for the bidder to meet the eligibility criteria and requirement. 2) Joint ventures are eligible to submit tenders provided that: i) every member of the joint venture is registered with the CIDB; and ii) the combined contractor grading designation calculated in accordance with the CIDB Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for an 5GB class of construction work. Failure to meet to Eligibility criteria and requirements will result in disqualification.
C.2.8	Replace the contents of the clause with the following: “Request clarification of the tender documents, if necessary, by notifying the Employer’s Officials indicated on the Tender Notice and Invitation to Tender in writing at least seven (7) working days before the closing time stated in the foregoing notice and clause C.2.15.1”
C.2.10.5	Add the following to the clause: “A price or rate is to be entered against each item in the Bill 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 in the Schedule.”

Employer:		Contractor:	
Witness:		Witness:	



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Clause Number	Tender Data
C.2.11	The evaluation on price alteration will be conducted as follows: Where the tender award strategy is to evaluate and award per item or category, the following must apply: a) If there is an alteration on the rate but no alteration on the total for the item or category, the bidder will not be disqualified. b) If there is an alteration on the total for the item/s without authentication, bidders will only be disqualified for alteration per item or category. Where the tender award strategy is to evaluate and award total bid offer, the following must apply: a) If there is an alteration on the rate, total for the line item, sub-total/ sum brought/carried forward for the section but no alteration on the total bid offer, the bidder will not be disqualified. b) If there is an alteration on the total bid offer on form of offer, then the amount in words must be considered or vice-versa. c) If there is an unauthenticated alteration on the total bid offer and the amount in words is not authenticated, the bidders will be disqualified for the entire tender. Where the tender pricing schedule or bill of quantities is requesting rates/price from bidder/s without providing a total, the following will apply: a) (i) If there is an unauthenticated alteration on the unit rate/price the bidder must be disqualified. Corrections may not be made using correction fluid, correction tape or the like, bid received contrary to this will be disqualified.
C.2.12.1	Replace Contents Alternative offers will not be permitted.
C.2.13.3	Each tender offer shall be submitted as an original. Tenderers are also requested to submit a soft copy in a USB (Tenderers who do not submit a soft copy will not be disqualified)

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Witness:		Witness:	



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C.2.13.5	The Employer's address for delivery of tender offers and identification details to be shown on the Tenderer's offer package are: Location of tender box: Ground Floor Entrance Physical address: Johannesburg Water (SOC) Ltd Turbine Hall 65 Ntemi Piliso Street Newtown Johannesburg 2001 Identification details: Tender reference number, Title of Tender and the closing date and time of the tender, as well as the Tenderer's name, their Authorised Representative's name, postal address and telephonic contact numbers.
C.2.13.6 & C.3.5	A two-envelope procedure will not be followed.
C.2.15.1	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.
C.2.16	The tender offer validity period is 90 days.
C.2.16.1	Add the following to the clause: "If the tender validity expires on a Saturday, Sunday or public holiday, the Tender Offer shall remain valid and open for acceptance until the closure of business on the following working day."
C.2.19	The Tenderer must provide access during working hours to his premises for inspections on request.
C.2.23	The Tenderer is required to submit with his tender: 1) Valid SARS Compliance status Pin for Tenders issued by the South African Revenue Services. 2) Proof of CSD registration i.e. MA number 3) A Certificate of Contractor Registration issued by the CIDB. 4) where the tendered amount inclusive of VAT exceeds R 10 million: i. audited annual financial statement for 3 years, or for the period since establishment if established during the last 3 years, if required by law to prepare annual financial statements for auditing.

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Witness:		Witness:	



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	ii. if the bidder is not required by law to prepare financial statements, then the bidder is required to submit their unaudited financial statements prepared by an independent accounting professional. 5) Proof that the tenderer and directors of the tenderer are not in arrears for more than 90 days with municipal rates and taxes and municipal service charges, The latest municipal account is to be attached, or a signed copy of the valid lease agreement if the tenderer or director of the tenderer is currently leasing premises and not responsible for paying municipal accounts. i. Should the municipal statement that was submitted with the tender document before tender closing date and time be in arrears for more than 90 days at time of award, the tenderer will be requested to submit the latest municipal statement which shows that the tenderer is not in arrears for more than 90 days. If the statement at that time is in arrears for more than 90 days, the tenderer must submit before the stipulated deadline, the written proof of an approved arrangement with the municipality. ii. The proof may be a copy of the agreement or an updated municipal statement which reflects the arrangement. iii. Should this tender be considered for award of the contract, based on proof of submission and should proof of such submission be found to be invalid, erroneous or inaccurate, the tenderer will no longer be considered for the award of the contract. iv. Statement must not be older than 90 days from the closing date of this tender. Attach latest municipal account statement behind this page. v. In cases where the director of the tenderer resides with their spouse, parent, partner or sibling the owner of the property that confirm where the director of the tenderer resides must submit an affidavit stating such and explaining the relationship. This would happen in the case where the submitted municipal statement or lease agreement is not in the name of the director of the tenderer. Point (i) will be applicable. vi. In cases where the business address of the tenderer is also the official residence of the director of the tenderer, the director of the tenderer must submit an affidavit stating such. Proof that the municipal statement is not in arrears for more than 90 days or a valid lease agreement must be submitted. Point (i) will be applicable. Where a tenderer satisfies CIDB contractor grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.
C.2.24	Add the following new clause: “Canvassing and obtaining of additional information by tenderers.

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	Accept that: i) No Tenderer shall make any attempt either directly or indirectly to canvass any of the Employers officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon. ii) No Tenderer shall make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders "
C.2.25	Add the following new clause: Prohibitions on awards to persons in service of the state Accept that the Employer is prohibited to award a tender to a person - a) who is in the service of the state; or b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or c) a person who is an advisor or consultant contracted with the municipality or municipal entity. "In the service of the state" means to be - i) a member of: - • any municipal council. • any provincial legislature; or • the National Assembly or the National Council of Provinces. ii) a member of the board of directors of any municipal entity. iii) an official of any municipality or municipal entity. iv) an employee of any national or provincial department. v) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999). vi) a member of the accounting authority of any national or provincial public entity; or vii) an employee of Parliament or a provincial legislature." In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in Section T2.1 must be completed.
C.2.26	Add the following new clause: "Awards to close family members of persons in the service of the state Accept that the notes to the Employer's annual financial statements must disclose particulars of any award of more than R 2 000 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause C.2.25), or has been in the service of the state in the previous twelve months, including

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	a) the name of that person; b) the capacity in which that person is in the service of the state; and c) the amount of the award. To give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 – Returnable Documents must be completed in full and signed.”
C.2.27	Add the following new clause: Tax Compliance In the case of a Joint Venture/Consortium the tax Compliance status Pin must be submitted for each member of the Joint Venture/Consortium.
C.2.28	Add the following new clause: i) Tenderers will be notified of any omitted, outstanding, missing and or incomplete administrative documents and will be offered a period of 3 days to complete or submit those pages i.e., Municipal Bidding Documents (MBD), authority to sign and other administrative documents that require completion and signatures. These exclude documentation on functionality, price and preference points for specific goals. ii) Tenders that are received contrary to the above requirements will be disqualified after three (3) days period has lapsed. iii) In cases where locality is a specific goal and the bidder did not submit the required documentation, the tenderer upon submitting the municipal statement, lease agreement or letter from ward councilor confirming business address as per above, may not be eligible for points under specific goals if such documentation was not submitted with the tender document.
C.3.2	Replace the contents of the clause with the following: “If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until seven (7) calendar days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.”
C.3.4.2	Tenders will be opened in public soon after closing time and recording of received documents but not later than 10:30 at the tender office located at Turbine Hall, 65 Ntemi Piliso, Newtown, 2001, Ground Floor. Tenderers’ names and total prices, where practical, will be read out
C.3.9	Replace Existing Clause Arithmetic Errors Construction related tenders

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	JW undertakes to check the highest scoring bid for arithmetical errors and correcting them as follows: JW shall check for arithmetic errors using the following sequence: (i) Check the amount in words against the amount in figures on the <i>Form of Offer</i>, (ii) Check the Form of Offer against the Summary Schedule Total, (iii) Check the Section Sub-Totals per section against the Summary Total for summation errors, (iv) Check the Section Sub-Totals in the Summary Schedule against Section Sub-Totals in the Bill of Quantities. (v) Check the Section Sub-Totals against the Item Totals for summation errors. (vi) Check the Item Totals against the product of the Item Rate and the Quantity Provided. If a bill of quantities or price schedule applies JW will request the bidder to correct the arithmetic errors as follows: (i) In respect of the Form of Offer, where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern. The bidder must be requested to adjust the amount in figures to correspond with the amount in words. JW will notify the tenderer of all errors or omissions that are identified in the tender offer and either request the tenderer to confirm the offer as tendered or JW will accept the corrected total of prices. Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows: (i) If bills of quantities or pricing schedules apply and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line-item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate shall be corrected. (ii) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern, and the tenderer will be requested to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

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	Clarification session(s) shall be held with Tenderer where there is pricing discrepancies, errors are highlighted and identified corrections are explained. Tenderer is afforded an opportunity to provide clarification, accept or reject identified corrections in writing. (i) In the event that the Tenderer accepts identified corrections, JW will proceed with evaluation. (ii) In the event that the Tenderer rejects the identified correction(s), JW must review the Tenderer’s motivation and risks associated with the proposed change. This is not an opportunity for Tenderers to change the bid offer. A bidder that does not agree to the above will be disqualified. Risk related to the Arithmetic Corrections shall be assessed. Where risks are identified, tenderers shall provide JW with any other material or information that has a bearing on the tender offer, the tenderer’s commercial position (including joint venture agreements), quotations preferencing arrangements or samples of materials considered necessary by JW for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the JW request or fails to attend any meeting in which it has been formally invited to clarify any issue, the tender offer will be regarded as non-responsive.																														
C.3.11	Tenderer to complete, sign and return MBD6.1 with the tender submission. Tenderer to claim the points in the space provided and submit documentary evidence to support the points claimed for specific goals. <table><tr><th>Stage</th><th>Description</th></tr><tr><td>Stage 1</td><td>Mandatory Evaluation</td></tr><tr><td>Stage 2</td><td>Administrative Evaluation</td></tr><tr><td>Stage 3</td><td>Technical Evaluation</td></tr><tr><td>Followed by</td><td>Preferential Procurement Goals and Pricing Evaluation</td></tr></table> <u>Stage 1: Mandatory Evaluation</u> <table><tr><th colspan="2">Description</th><th colspan="2">Complied</th></tr><tr><th>No</th><th>Description</th><th>Yes</th><th>No</th></tr><tr><td>1</td><td>CIBD grading 5GB or higher. Active Status at the required CIBD grading or higher at the time of Evaluation</td><td></td><td></td></tr><tr><td>2</td><td>Mandatory Tender Briefing Meeting</td><td></td><td></td></tr><tr><td>3</td><td>Form of Offer Completed and Signed</td><td></td><td></td></tr></table>	Stage	Description	Stage 1	Mandatory Evaluation	Stage 2	Administrative Evaluation	Stage 3	Technical Evaluation	Followed by	Preferential Procurement Goals and Pricing Evaluation	Description		Complied		No	Description	Yes	No	1	CIBD grading 5GB or higher. Active Status at the required CIBD grading or higher at the time of Evaluation			2	Mandatory Tender Briefing Meeting			3	Form of Offer Completed and Signed		
Stage	Description																														
Stage 1	Mandatory Evaluation																														
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Description		Complied																													
No	Description	Yes	No																												
1	CIBD grading 5GB or higher. Active Status at the required CIBD grading or higher at the time of Evaluation																														
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	Tenderers who FAIL to meet the mandatory criteria or requirements of tender will result in disqualification.

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Witness:		Witness:	



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Clause No.	<u>Tender Data</u>				
	<u>Stage 2: Administrative Evaluation</u>				
	Description			Complied	
	Reference	Description	Requirement	Yes	No
	T2.1.1	Record of Addenda to Tender Documents	Complete and submit complete and signed Form		
	T2.1.2	Signed Certificate of Authority to Sign or signed board resolution	Completed and signed certificate of authority to sign or signed board resolution		
	T2.2.2	SARS Tax Compliance Status Pin and Proof of CSD registration	Complete and submit complete and signed Form plus attachment		
	MBD 1	Invitation to Bid	Complete and submit complete and signed MBD 1 Form		
	CSD	Central Supplier Database Registration	Provide proof of CSD registration		
	MBD 4	Declaration of interest	Complete and submit signed MBD 4 Form		
	MBD 5	Declaration for procurement above 10 million (all applicable taxes included)	Complete and submit signed MBD 5 Form		
	MBD 6.1	Preference Points Claim in Terms of The Preferential Procurement Regulations 2022	Complete and submit signed MBD 6.1 Form		
	MBD 8	Declaration of bidder's past supply chain management practices	Complete and submit signed MBD 8 Form		
	MBD 9	Certificate of Independent Bid Determination	Complete and submit signed MBD 9 Form		
	Annexure – Proof of Specific Goals	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency or Affidavit sworn under oath, OR CIPC registration document showing percentage of ownership and share certificate where applicable	Submit applicable documentation with the tender submission		
	Annexure – Proof of Specific Goals	Proof of municipal account / valid lease agreement, letter from the Ward Council confirming the business address	Submit applicable documentation with the tender submission		
	Annexure	Municipal statement of account for Company (not older than three (03)	Submit applicable documentation with the tender		

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		months from the closing date of tender or a valid lease agreement at time of tender closure)	submission		
	Annexure	Municipal statement of account for Director/s (not older than three (03) months from the closing date of tender or a valid lease agreement at time of tender closure)	Submit applicable documentation with the tender submission		
	Annexure	3-year financial statements (audited where applicable)	Submit applicable documentation with the tender submission		
	Annexure	Joint Venture Consortium or equivalent Agreement signed by all parties, where applicable	Where applicable, submit applicable documentation with the tender submission		
	Tenderers will be notified of any omitted, outstanding, missing and or incomplete administrative documents and will be offered a period of 3 days to complete or submit those pages i.e., Municipal Bidding Documents (MBD), authority to sign and other administrative documents that require completion and signatures. These exclude documentation on functionality, price and preference points for specific goals. Tenders that are received contrary to the above requirements will be disqualified after three (3) days period has lapsed. Any document or form submitted or completed upon request (was not included in the initial tender submission before the closing date) will not be used to claim points for specific goals.				

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Clause No.	<u>Tender Data</u>				
	<u>Stage 3: Technical Evaluation</u> Tenderers who FAIL to meet the minimum required score or requirements of tender will be disqualified. The criteria maximum points in respect of each of criterion shall be as follows:				
	Criteria No #	Criteria	Evidence	Sub-Criteria/Clause	Max Score
	1.	Tenderer's Experience with respect to Perimeter Wall Building Projects.	Supporting Documents Required include Contactable Reference Letters as per T2.1.7 (Or on Client Letter Head with all required Information) and Works Completion / Certificate of Completion / Certificate of Final Completion / Final Approval Certificate. <i>If the completed project was a subcontract, Reference letter must be accompanied by Main Contractor Completion Certificate in addition to the Bidder's completion certificate.</i> <i>Note: This reference letter must be completed by the referee/previous client of the tenderer and included in the tender submission. Alternatively, the Client's letterhead may be used provided it complies with all functional requirements. A separate form must be</i>	NUMBER OF COMPLETED PERIMETER WALL BUILDING PROJECTS FOR INDUSTRIAL /COMMERCIAL/PUBLIC ENTITY (GOVERNMENT & MUNICIPALITIES)WITH MINIMUM AREA OF 600m² OR LENGTH OF 300m. Tenderer has Completed Less than 2 perimeter wall building Projects/No submission of supporting documents. Tenderer has Completed 2 – 3 perimeter wall building projects for industrial / commercial / public entity with minimum area of 600m² or length of 300m. Tenderer has Completed 4 or more perimeter wall building projects for industrial /	40
					0
					30
					40

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Clause No.	<u>Tender Data</u>				
			<i>completed for each reference as a requirement in the evaluation criteria. The information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting in participating in any future government tenders.</i>	commercial / public entity with minimum area of 600m ² or length of 300m.	
	Criteria No #	Criteria	Evidence	Sub-Criteria/Clause	Max Score
	2.	Experience of Contracts Manager Only Contract Managers with minimum qualification (NQF7): i.e. BTech / BSc/ BEng: Engineering (Civil) or Quantity Survey or Construction Management AND ECSA Professional Registration (Pr. Eng. / Pr. Technologist) or SACPCMP Professional Registration (PrCPM / PrCM) will be considered.	Tender must Provide CV of Contract Manager in the format given on T2.1.9 Note: Tenderers may provide their own CVs, but information provided should contain all information required in T2.1.9 template. Note: Certified Copies of qualifications and a valid registration certificate to accompany the CVs.	NUMBER OF CIVIL / BUILDING CONSTRUCTION PROJECTS COMPLETED AS CONTRACT MANAGER	20
				Has Completed Less than 4 Civil and/ or building projects as a Contract Manager	0
				Has Completed 4 – 5 Civil and/ or building projects as a Contract Manager	15

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Clause No.	<u>Tender Data</u>					
				Has Completed 6 or more Civil and/ or building projects as a Contract Manager		20
	Criteria No #	Criteria	Evidence	Sub-Criteria/Clause	Max Score	Score
	3.	Experience of Site Agent/ Manager Only Site Agents/ Managers with minimum qualifications of National Diploma (NQF6) in Building Science will be considered	Tender must Provide CV of Site Agent in the format given on T2.1.9 <i>Note: Tenderers may provide their own CVs, but information provided should contain all information in T2.1.9</i> <i>Note: Certified Copies of qualifications to accompany the CVs.</i>	NUMBER OF PERIMETER WALL BUILDING PROJECTS FOR INDUSTRIAL / COMMERCIAL /PUBLIC ENTITY (GOVERNMENT & MUNICIPALITIES) WITH MINIMUM AREA OF 600m ² OR LENGTH OF 300m COMPLETED AS SITE OR CONSTRUCTION MANAGER	25	
				Has Completed Less than 2 perimeter wall building projects for industrial / commercial / public entity with minimum area of 600m ² or length of 300m as Site Agent / Manager		0
				Has Completed 2 – 3 perimeter wall building projects for industrial / commercial / public		18.75

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				entity with minimum area of 600m ² or length of 300m as Site Agent / Manager	
				Has Completed 4 or more perimeter wall building projects for industrial / commercial / public entity with minimum area of 600m ² or length of 300m as Site Agent / Manager.	25
	Criteria No #	Criteria	Evidence	Sub-Criteria/Clause	Max Score
	4.	Post Qualification Experience of Safety Officer Only a Safety Officer with qualifications of National Diploma (Safety Management/ Environmental Health/Environmental Science/ Environmental Management), SAMTRAC / SHEOMTRAC/ SHEMTRAC / MESHTRAC /NEBOSH / Safety Officers Course (NQF 5) or more AND	NUMBER OF CIVIL / BUILDING CONSTRUCTION PROJECTS COMPLETED AS SAFETY OFFICER Tender must Provide CV of Safety Officer in the format given on T2.1.9 <i>Note: Certified Copies of qualifications and a valid registration certificate to accompany the CVs.</i>	Has Completed Less than 4 Civil or Building construction projects Has Completed 4 – 5 Civil or Building construction projects as a Safety officer	0 11.25

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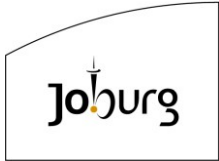
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		Registered with SACPCMP in the “Construction Health and Safety” Sector OR Submitted the proof to register with SACPCMP in the “Construction Health and Safety” Sector will be considered		Has Completed 6 or more Civil or Building construction projects as a Safety officer	15
	MINIMUM QUALIFYING SCORE				75
	Tenderers who FAIL to achieve a minimum overall score of 75 points will not be considered further.				TOTAL 100
	Note: It is the responsibility of the Tenderer to ensure that their listed referees are contactable. Johannesburg Water will conduct reference checks with the referees of the recommended Tenderer. Each referee will be given five (5) working days from the date of request by Johannesburg Water to confirm, in writing, the information provided in the reference letter. Failure by the referee to provide confirmation within the stipulated time-frame will result in the Tenderer not being awarded points for tenderer's experience. NOTE 1: Where applicable, foreign qualifications MUST be accompanied by a SAQA verification certificate. Failure to submit SAQA verification certificate will lead to that qualification not being considered for allocation of points for that criterion. NOTE 2: When an uncertified copy of professional registration is submitted and the requirement was to submit a certified copy, JW will verify the validity of the registration on the issuing bodies or institution's website. If the verification is confirmed on the website, the bidder meets the criteria. NOTE 3: The time of registration of Contract Manager and Safety Officer will not impact post qualification number of projects. NOTE 4: The information provided by bidders will be verified and if found to be false, punitive measures will be instituted.				

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	Acronyms ECSA: Engineering Council of South Africa SACPCMP: South African Council for the Project and Construction Management Professions SAMTRAC: Safety Management Training Course NEBOSH: National Examination Board in Occupational Safety and Health SHEOMTRAC: Safety Health Environmental Occupational Management Training Course SHEMTRAC: Safety Health Environmental Management Training Course MESHTRAC: Management Environmental Safety Health Training Course

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Clause number	Tender Data								
C.3.11.2 & C.3.11.3	The procedure for the evaluation of responsive tenders is Method 2 (Financial Offer and Specific Goals): 1. APPLICATION OF THE PREFERENCE POINTS SCORING SYSTEM <u>The following preference point systems are applicable to all bids:</u> - The 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and - The Specific Goals for the tender will be stated in MBD 6.1. In MBD 6.1, the tenderer must indicate how many points they are claiming for each Specific Goal and must submit all the required supporting documentation for the points to be verified and awarded by JW. JW will evaluate the submitted supporting documentation and confirm Specific Goal points claimed by the tenderer. Specific goals to be allocated by the Bid Evaluation Committee will depend on verification documentation submitted. - Only tenderers that have completed and signed MBD 6.1 and submitted applicable verification documents will be allocated Specific Goal points for preferencing. (a) The value of this bid is estimated not to exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable. (b) Preference points for this bid shall be awarded for: Price; and Specific Goals. (c) The maximum points for this bid are allocated as follows: <table><tr><th>Description</th><th>Points</th></tr><tr><td>Price</td><td>80</td></tr><tr><td>Specific goals</td><td>20</td></tr><tr><td>Total points for Price and Specific Goals must not exceed</td><td>100</td></tr></table> (d) Failure on the part of a bidder to submit proof of specific goals points claimed in MBD 6.1 will not result in disqualification but will result in points not being awarded for Specific Goals. Specific Goals In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations 2022, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as must be	Description	Points	Price	80	Specific goals	20	Total points for Price and Specific Goals must not exceed	100
Description	Points								
Price	80								
Specific goals	20								
Total points for Price and Specific Goals must not exceed	100								

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDBOUSES
AT ENNERDALE DEPOT
TENDERING DATA

**Volume 1 Tender and Contract
Section T1 Tender and Contract**



Clause number	Tender Data
	supported by proof/ documentation stated in the conditions of this tender. Specific goals may include contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender or disability. Race: I. Ownership by black people II. Black Designated Group: - Ownership by black people that are unemployed - Ownership by black people who are youth - Ownership by black people living in rural or underdeveloped areas or townships - Ownership by black people with disabilities - Ownership by black people who are military veterans - Cooperative owned by black people Gender: I. Persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of gender are women. Ownership by persons that are classified as female or women according to the Department of Home Affairs of South African. Disability: I. Persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of disability are disabled persons. Reconstruction and Development Programme (RDP) objectives as published in Government Gazette No. 16085 dated 23 November 1994 i.e., Local Manufacture: I. Promotion of procurement of locally manufactured goods in South Africa to promote job creation in light of the high unemployment rate in South Africa which has a greater impact previously disadvantaged individuals and black youth. Locality: I. Promotion of procurement from local business in the geographical areas that JW operate in. This is also directed at creating employment in the areas JW operate in. The BSC may allocate points as follows: • Promotion of enterprises located in the Gauteng Province • Promotion of enterprises located in a specific region within COJ (the 7 regions. A to G) • Promotion of enterprises located in the City of Johannesburg municipality • Promotion of enterprises located rural or underdeveloped areas or townships. Qualifying Small Enterprises (QSE)

Employer:		Contractor:	
Witness:		Witness:	



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Section T1 Tender and Contract**



Clause number	Tender Data														
	I. Promotion of procurement from QSE's that are black owned. Exempted Micro Enterprises (EME): I. Promotion of procurement from EME's that are black own. SUB-CONTRACTING: Promotion of sub-contracting a Historically Disadvantaged Individuals (HDI) company. Consider sub-contract only in cases where there are no company which can meet any of the specific goals. Check if the portion of the work cannot be subcontracted in terms of specific goals. One goal may be chosen, or a combination of goals may be decided upon including a sub-goal i.e., owned by black people that are disabled etc., JOINT VENTURE, CONSORTIUM OR EQUIVALENT: For Joint Venture Agreements, Consortiums or equivalent, the agreement must show percentages of ownership and work to be completed by each party. This agreement must form part of the tender submission. To determine the Joint Venture, Consortium or equivalent score for specific goals, JW will look at the consolidated BBBEE certificate to determine the points for specific goals that will be awarded to the tenderer. If a consolidated BBBEE certificate is not submitted, the parties to the joint venture, consortium or equivalent must submit their individual BBBEE certificates issued by a SANAS accredited verification agency or the documents listed below on 4.6 and the joint venture, consortium or equivalent agreement in order for JW to determine the proportional points for specific goals. Documentation to be provided: • JV, Consortium, or equivalent agreement • Consolidated BBBEE certificate issued by an SANAS accredited verification agency. Certificate must be valid Table 1: <table border="1"> <thead> <tr> <th>The specific goals allocated points in terms of this tender</th><th>Number of points allocated (80/20 system)</th></tr> </thead> <tbody> <tr> <td>Businesses located within the boundaries of Gauteng Province</td><td style="text-align: center;">6</td></tr> <tr> <td>Business owned by 51% or more-Women</td><td style="text-align: center;">4</td></tr> <tr> <td>Business owned by 51% or more- by Black Youth</td><td style="text-align: center;">4</td></tr> <tr> <td>Business owned by 51% or more - Black People who are military Veterans</td><td style="text-align: center;">2</td></tr> <tr> <td>Business owned by 51% or more-Black People with Disabilities</td><td style="text-align: center;">4</td></tr> <tr> <td>Total</td><td style="text-align: center;">20</td></tr> </tbody> </table>	The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Businesses located within the boundaries of Gauteng Province	6	Business owned by 51% or more-Women	4	Business owned by 51% or more- by Black Youth	4	Business owned by 51% or more - Black People who are military Veterans	2	Business owned by 51% or more-Black People with Disabilities	4	Total	20
The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)														
Businesses located within the boundaries of Gauteng Province	6														
Business owned by 51% or more-Women	4														
Business owned by 51% or more- by Black Youth	4														
Business owned by 51% or more - Black People who are military Veterans	2														
Business owned by 51% or more-Black People with Disabilities	4														
Total	20														

Employer:		Contractor:	
Witness:		Witness:	



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TENDERING DATA**

**Volume 1 Tender and Contract
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Clause number	Tender Data												
	The following verification documents must be submitted with the tender document: <table border="1"> <thead> <tr> <th data-bbox="311 562 624 685">Specific Goals – any one or a combination of any</th><th data-bbox="624 562 1347 685">Means of verification that may be selected or a combination thereof</th></tr> </thead> <tbody> <tr> <td data-bbox="311 685 624 853">Business owned by 51% or more -Black Youth</td><td data-bbox="624 685 1347 853">Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency or DTI/CIPC BBBEE Certificate for Exempted Micro Enterprises or Affidavit sworn under oath, OR CIPC registration document showing percentage of ownership and share certificate where applicable</td></tr> <tr> <td data-bbox="311 853 624 1021">Business owned by 51% or more-Women</td><td data-bbox="624 853 1347 1021">Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency or DTI/CIPC BBBEE Certificate for Exempted Micro Enterprises or Affidavit sworn under oath, OR CIPC registration document showing percentage of ownership and share certificate where applicable</td></tr> <tr> <td data-bbox="311 1021 624 1167">Businesses located within the boundaries of Gauteng Province</td><td data-bbox="624 1021 1347 1167">Proof of municipal account / valid lease agreement, letter confirming lease with details (address) of the leased property, letter from the Ward Council confirming the business address. Businesses that operate from personal properties are required to submit an affidavit</td></tr> <tr> <td data-bbox="311 1167 624 1335">Business owned by 51% or more-Black People with Disabilities</td><td data-bbox="624 1167 1347 1335"> - Valid BBBEE Certificate issued by SANAS accredited verification agency, and - Medical Certificate from medical doctor or SARS Confirmation of Diagnosis of Disability." </td></tr> <tr> <td data-bbox="311 1335 624 1693">Business owned by 51% or more - Black People who are military Veterans</td><td data-bbox="624 1335 1347 1693"> - Valid BBBEE Certificate issued by SANAS accredited verification agency, and - Registration with military veteran's database (stamped printout from military veteran's office showing the principal member with the ID number will be required), OR Registration a Military Veteran Company (stamped printout from military veteran's office showing the principal member with the ID number will be required)." </td></tr> </tbody> </table> Note: The joint venture, consortium, or equivalent agreement in order for JW to determine the proportional points for specific goals. Example, If there are two parties in a Joint Venture with a 50:50 ownership of the Joint Venture and one party is located within the boundaries of Gauteng and one is located in Limpopo, if one of the goals is locality and has total points of 4, the JV will only be entitled the proportional points of 2. The following are the requirements for a valid Sworn Affidavit in terms of the BBBEE	Specific Goals – any one or a combination of any	Means of verification that may be selected or a combination thereof	Business owned by 51% or more -Black Youth	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency or DTI/CIPC BBBEE Certificate for Exempted Micro Enterprises or Affidavit sworn under oath, OR CIPC registration document showing percentage of ownership and share certificate where applicable	Business owned by 51% or more-Women	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency or DTI/CIPC BBBEE Certificate for Exempted Micro Enterprises or Affidavit sworn under oath, OR CIPC registration document showing percentage of ownership and share certificate where applicable	Businesses located within the boundaries of Gauteng Province	Proof of municipal account / valid lease agreement, letter confirming lease with details (address) of the leased property, letter from the Ward Council confirming the business address. Businesses that operate from personal properties are required to submit an affidavit	Business owned by 51% or more-Black People with Disabilities	- Valid BBBEE Certificate issued by SANAS accredited verification agency, and - Medical Certificate from medical doctor or SARS Confirmation of Diagnosis of Disability."	Business owned by 51% or more - Black People who are military Veterans	- Valid BBBEE Certificate issued by SANAS accredited verification agency, and - Registration with military veteran's database (stamped printout from military veteran's office showing the principal member with the ID number will be required), OR Registration a Military Veteran Company (stamped printout from military veteran's office showing the principal member with the ID number will be required)."
Specific Goals – any one or a combination of any	Means of verification that may be selected or a combination thereof												
Business owned by 51% or more -Black Youth	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency or DTI/CIPC BBBEE Certificate for Exempted Micro Enterprises or Affidavit sworn under oath, OR CIPC registration document showing percentage of ownership and share certificate where applicable												
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Businesses located within the boundaries of Gauteng Province	Proof of municipal account / valid lease agreement, letter confirming lease with details (address) of the leased property, letter from the Ward Council confirming the business address. Businesses that operate from personal properties are required to submit an affidavit												
Business owned by 51% or more-Black People with Disabilities	- Valid BBBEE Certificate issued by SANAS accredited verification agency, and - Medical Certificate from medical doctor or SARS Confirmation of Diagnosis of Disability."												
Business owned by 51% or more - Black People who are military Veterans	- Valid BBBEE Certificate issued by SANAS accredited verification agency, and - Registration with military veteran's database (stamped printout from military veteran's office showing the principal member with the ID number will be required), OR Registration a Military Veteran Company (stamped printout from military veteran's office showing the principal member with the ID number will be required)."												

Employer:		Contractor:	
Witness:		Witness:	



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**Volume 1 Tender and Contract
Section T1 Tender and Contract**



Clause number	Tender Data		
	Sector Codes of Good Practise:		
	Affidavit Prescribed Formats	Category	Financial Threshold
	Generic Enterprises		
		BO QSE	Between R10m and R50m
		BO EME	Less than R10m
	Sector Specific Enterprises		
		BO QSE	Between R10m and R50m
		BO EME	Less than R10m
	Construction Sector Code		
		EME Contractor	Less than R3m
		BO EME BEP	Less than R1.8m
	Financial Sector Code		
		BO QSE	Between R10m and R50m
		BO EME	Less than R10m
	Information Communication Technology Sector Code (ICT)		
		BO QSE	Between R10m and R50m
		BO EME	Less than R10m
	Marketing, Advertising & Communication Sector Code (MAC)		
	> Public Relations	BO QSE	Between R5m and R10m
	> Marketing, Advertising & Communications	BO EME	Less than R5m
	Property Sector Code		
	> Service-based	BO QSE	Between R5m and R10m
		EME	Less than R5m
	> Agency-based	BO QSE	Between R2.5m and R35m
	> Asset-based	EME	Less than R2.5m
		BO QSE	Between R80m and R400m
	Tourism Sector Code		
		BO QSE	Between R5m and R45m
		BO EME	Less than R5m
	Specialised Enterprises		
		BO QSE	Between R10m and R50m
		BO EME	Less than R10m
Note: A sworn affidavit received from a tenderer that does not meet the above requirement will not be considered for the allocation of points for specific goals.			
Requirements for a valid BBBEE Certificate are as follows:			

Employer:		Contractor:	
Witness:		Witness:	



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Clause number	Tender Data
	a) Copy of a valid BBEE certificate (Only Valid BBEE accredited by SANAS), or a valid Sworn Affidavit or in a similar format complying with commissioner of oath Act. b) Bidders who do NOT qualify as EME's and QSE's as outlined above must submit B-BBEE verification certificates that are issued by an Agency accredited by SANAS. c) Bidders who fail to submit a certified copy of their valid B-BBEE certificate or valid sworn affidavit will score zero points for specific goals. Valid Sworn Affidavits or certified copies of B-BBEE Certificate must comply with the requirements outlined in the Justices of the Peace and Commissioners of Oaths Act, no 16 of 1963 and its Regulations promulgated in Government Notice GNR 1258 of 21 July 1972 Justices of the Peace and Commissioners of Oaths Act, No. 16 of 1963. i.e. (i) The deponent shall sign the declaration in the presence of the commissioner of oaths (COA). (ii) Below the deponent's signature the COA shall certify that the deponent has acknowledged that he knows and understands the contents of the declaration and the COA shall state the manner, place, and date of taking the declaration. (iii) The COA shall sign the declaration and print his full name and business address below his signature; and state his designation and the area for which he holds his appointment, or the office held by him if he holds his appointment ex officio. (iv) Copy of certified copies will not be accepted. Note: A tenderer failing to submit proof of specific goals claimed as per indicated above will not be disqualified but will be allocated zero points for specific goals and will be allocated points for pricing.
2.	ADJUDICATION USING A POINT SYSTEM a) The bidder obtaining the highest number of total points will be awarded the contract. b) Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;. c) Points scored must be rounded off to the nearest 2 decimal places.

Employer:		Contractor:	
Witness:		Witness:	



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Clause number	Tender Data
	d) In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of points for specific goals. e) However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for specific goals, the successful bid must be the one scoring the highest score for functionality. f) Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots. 3. POINTS AWARDED FOR PRICE THE 80/20 PREFERENCE POINT SYSTEMS A maximum of 80 points is allocated for price on the following basis: 80/20 $P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$ Where Ps = Points scored for comparative price of bid under consideration Pt = Comparative price of bid under consideration Pmin = Comparative price of lowest acceptable bid
C.3.12	Add the following to the clause: “Accept that the submission of a Tender shall be construed as an acknowledgement by the Tenderer that they are satisfied with the insurance cover, the Employer will affect under the contract.”
C.3.13.1	Add to the existing clause: Tender offers will only be accepted if: a) the tenderer submits a valid SARS tax Compliance status Pin for tenders issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations; b) Proof of CSD registration i.e., MA xxxxx number; c) the tenderer submits a letter of intent from an approved insurer undertaking to provide the Demand Performance Guarantee to the format included in Part

Employer:		Contractor:	
Witness:		Witness:	



**CONTRACT JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES
AT ENNERDALE DEPOT
TENDERING DATA**

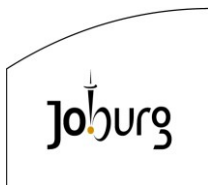
**Volume 1 Tender and Contract
Section T1 Tender and Contract**



Clause number	Tender Data
	T2.2.22 of this procurement document d) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation; e) 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; f) the tenderer has not: 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; g) the tenderer has completed the Compulsory Enterprise Questionnaire 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 and persons in the employ of the state are permitted to submit tenders or participate in the contract; h) the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer; i) 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; and j) the tenderer: i) has sufficiently substantiated his experience in this type work; ii) has the required and experienced key personnel
C.3.17	The number of paper copies of the signed contract to be provided by the Employer is one.
	There are no additional conditions of tender.

-- END OF PART --

Employer:		Contractor:	
Witness:		Witness:	



Johannesburg Water SOC Ltd



CONTRACT NO: JW14481

**CONSTRUCTION OF NEW PERIMETER WALL AND
GUARDBOUSES AT ENNERDALE DEPOT**

VOLUME 1

**RETURNABLE DOCUMENTS
AND
SCHEDULES**

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES
AT ENNERDALE DEPOT
Volume 1 Tender and Contract
Returnable Documents



The tenderer must complete the following returnable documents:

T2.1 LIST OF RETURNABLE DOCUMENTS

Returnable Schedules required for tender evaluation purposes

<u>Document</u>	<u>Page No.</u>
T2.1.1 Record of Addenda to Tender Documents	RD.4
T2.1.2 Certificate of Authority	RD.5
T2.1.3 Compulsory Enterprise Questionnaire	RD.11
T2.1.4 Preferential Procurement	RD.13
MBD 6.1 Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022	RD.16
MBD 4 DECLARATION OF INTEREST	RD.22
MBD 8 DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	RD.26
MBD 9 CERTIFICATE OF INDEPENDENT BID DETERMINATION	RD.28
T2.1.5 Proposed Amendments and Qualifications	RD.31
T2.1.6 Schedule of the Tenderer's Experience	RD.33
T2.1.7 Contactable Reference	RD.34
	RD.35
T2.1.9 Curriculum Vitae of Key Personnel	RD.43

T2.2 LIST OF OTHER RETURNABLE DOCUMENTS

Other documents required only for tender evaluation purposes

<u>Document</u>	<u>Page No.</u>
T2.2.1 Contractor's Certificate of Registration With CIDB	RD.58
T2.2.2 SARS Tax Compliance Status Pin and Proof of CSD registration	RD.59

T2.3 LIST OF RETURNABLE SCHEDULES

Other documents that will be incorporated into the contract

<u>Document</u>	<u>Page No.</u>
T2.3.1 Returnable Annexure A: Acknowledgement of SHE Specification	RD.61

Employer:		Contractor:	
Witness:		Witness:	



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&

T2.3.2 Returnable Annexure B: Acknowledgment of Tender Drawings RD.62

T2.3.3 Minutes of the Mandatory Tender Briefing RD.63

T2.3.4 Imported Content Sheet: Forward Exchange Cover for Imported RD.64

NOTE: *The Tenderer is required to complete each and every schedule listed above to the best of his ability as the evaluation of tenders and the eventual contract will be based on the information provided by the tenderer.*

T2.1 LIST OF RETURNABLE DOCUMENTS

Returnable Schedules required for tender evaluation purposes:

<u>Document</u>	<u>Page No.</u>
T2.1.1 Record of Addenda to Tender Documents	RD.4
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T2.1.7 Contactable Reference	RD.34
T2.1.8 Schedule of Key Personnel	RD.35
T2.1.9 Curriculum Vitae of Key Personnel	RD.43

Employer:		Contractor:	
Witness:		Witness:	



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T2.1.1 Record of Addenda to Tender Documents

We confirm that the following communications received from the Employer 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.		

Attach additional pages if more space is required.

Signed: Date:

Name: Position:

Tenderer:

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES
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T2.1.2 Certificate of Authority

Indicate the status of the Tenderer by ticking the appropriate box hereunder. The Tenderer must complete the certificate set out below for the relevant category.

(I) COMPANY	(II) CLOSE CORPORATION	(III) PARTNERSHIP	(IV) JOINT VENTURE	(V) SOLE PROPRIETOR

(I) Certificate For Company

I,, chairperson of the Board of Directors of
....., hereby confirm that by resolution of the Board
(copy attached) taken on, Mr/Ms, acting in the
capacity of, was authorized to sign all documents in
connection with the tender for Contract No. JW14481 and any contract resulting from it on
behalf of the company.

Chairman:

As Witnesses: 1

2

Date:

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
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(II) Certificate For Close Corporation

We, the undersigned, being the key members in the business trading as

.....

..... hereby authorize Mr/Ms , acting in the capacity of
.....

....., to sign all documents in connection with the
tender and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note : This certificate is to be completed and signed by all of the key members upon whom rests the direction of the affairs of the Close Corporation as a whole.

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES
AT ENNERDALE DEPOT
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(III) Certificate For Partnership

We, the undersigned, being the key partners in the business trading as,

.....

....., hereby authorize Mr/Ms

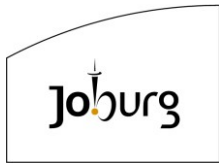
.....,

acting in the capacity of, to sign all documents in connection with the tender and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note : This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Partnership as a whole.

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDBOUSES
AT ENNERDALE DEPOT
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(IV) Certificate For Joint Venture

This Returnable Schedule is to be completed by joint ventures.

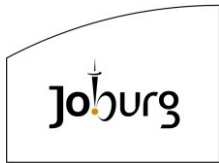
We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise

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	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		Signature: Name: Designation:
		Signature: Name: Designation:
		Signature: Name: Designation:
		Signature: Name: Designation:

Employer:		Contractor:	
Witness:		Witness:	



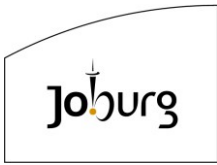
Contract JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES
AT ENNERDALE DEPOT
Volume 1 Tender and Contract



Returnable Documents		

Note : This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Joint Venture as a whole.

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES
AT ENNERDALE DEPOT
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(V) Certificate For Sole Proprietor

I,, hereby confirm that I am the sole owner of the Business
trading as

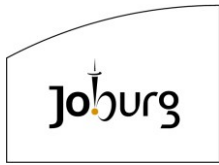
Signature of Sole Owner:

As Witnesses: 1

2

Date:

Employer:		Contractor:	
Witness:		Witness:	



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T2.1.3 Compulsory Enterprise Questionnaire

The following particulars must be furnished. In the case of a joint venture, **separate** enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 5: Particulars of companies and close corporations

Company registration number

Close corporation number

Proof of CSD registration i.e. MA xxxxxxxxx number.

SARS Tax Compliance status Pin number

Section 6: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

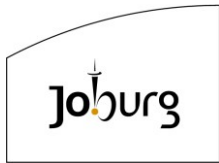
- | | |
|--|---|
| ☐ a member of any municipal council | ☐ an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| ☐ a member of any provincial legislature | ☐ a member of an accounting authority of any national or provincial public entity |
| ☐ a member of the National Assembly or the National Council of Province | ☐ an employee of Parliament or a provincial legislature |
| ☐ a member of the board of directors of any municipal entity | |
| ☐ an official of any municipality or municipal entity | |

If any of the above boxes are marked, disclose the following:

Name of sole proprietor, partner, director, manager, principal shareholder, or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

Employer:		Contractor:	
Witness:		Witness:	



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Section 7: Record of spouses, children, and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

- | | |
|--|---|
| ☐ a member of any municipal council
☐ a member of any provincial legislature
☐ a member of the National Assembly or the National Council of Province
☐ a member of the board of directors of any municipal entity
☐ an official of any municipality or municipal entity | ☐ an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
☐ a member of an accounting authority of any national or provincial public entity
☐ an employee of Parliament or a provincial legislature |
|--|---|

Name of spouse, child or parent	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

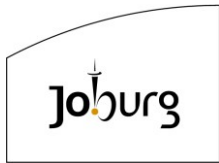
- i) authorizes the Employer to verify the tax compliance status from the South African Revenue Services that my / our tax matters are in order.
- ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004.
- iii) confirms that no partner, member, director, or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption.
- iv) iv) confirms that I / we are not associated, linked, or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
- v) iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed: _____ Date: _____

Name: _____ Position: _____

Enterprise name: _____

Employer:		Contractor:	
Witness:		Witness:	



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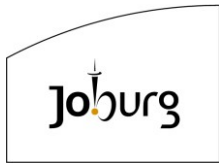
T2.1.4 Preferential Procurement

Forms for Completion by the Tenderer included in this section are:

Form No.	Form Title	Description	Page No.
MBD 6.1	Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022	Procedures and adjudication criteria for the information of the Tenderer	RD.16
MBD 4	DECLARATION OF INTEREST	Form to be completed by the Tenderer	RD.22
MBD 8	DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	Form to be completed by the Tenderer	RD.26
MBD 8	DECLARATION FOR PROCUREMENT ABOVE R10 MILLION(VAT INCLUDED)	Form to be completed by the Tenderer	RD.32
MBD 9	CERTIFICATE OF INDEPENDENT BID DETERMINATION	Form to be completed by the Tenderer	RD.28

Note: All information supplied must be current and valid. Proposed or imminent changes to a Tenderer's status may be mentioned but the declarations must reflect current circumstances.

Employer:		Contractor:	
Witness:		Witness:	



MBD 6.1

Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

- (a) The following preference point systems are applicable to invitations to tender:
- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
 - the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).
- (b) **To be completed by the organ of state**
- a) The applicable preference point system for this tender is the 80/20 preference point system.
- (c) Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:
- a) Price; and
 - b) Specific Goals.

(d) **To be completed by the organ of state:**

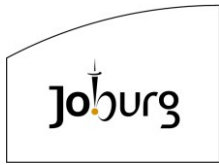
The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

- (e) Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

- (f) The organ of state reserves the right to require of a tenderer, either before a tender is

Employer:		Contractor:	
Witness:		Witness:	



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adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

(a) Points Awarded For Price

3.1.1 The 80/20 Preference Point Systems

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

$$\text{Ps} = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmin = Price of lowest acceptable tender

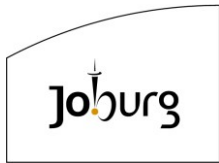
4. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

(a) POINTS AWARDED FOR PRICE

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

80/20

Employer:		Contractor:	
Witness:		Witness:	



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$$P_s = 80 \left(1 + \frac{P_t - P_{\max}}{P_{\max}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

$P_{\max}$ = Price of highest acceptable tender

5. POINTS AWARDED FOR SPECIFIC GOALS

- (a) In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in Table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:
- (b) In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

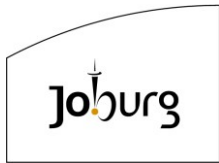
then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Businesses located within the boundaries of Gauteng Province	6	
Business owned by 51% or more-Women	4	
Business owned by 51% or more- by Black Youth	4	
Business owned by 51% or more - Black People who are military Veterans	2	
Business owned by 51% or more-Black People with Disabilities	4	
Total	20	

Employer:		Contractor:	
Witness:		Witness:	



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6. DECLARATION WITH REGARD TO COMPANY/FIRM

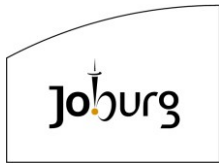
- (a) Name of company/firm.....
(b) Company registration number:
(c) TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
☐ One-person business/sole propriety
☐ Close corporation
☐ Public Company
☐ Personal Liability Company
☐ (Pty) Limited
☐ Non-Profit Company
☐ State Owned Company

[TICK APPLICABLE BOX]

- (d) I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:
- i) The information furnished is true and correct.
 - ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.
 - iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct.
 - iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process.
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct.
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation.
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

Employer:		Contractor:	
Witness:		Witness:	



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..... SIGNATURE(S) OF TENDERER(S)	
SURNAME AND NAME:	
DATE:	
ADDRESS:	

(e) SUB-CONTRACTING

6.5.1 Will any portion of the contract be sub-contracted?

(Tick applicable box)

YES	☐	NO	☐
-----	--------------------------	----	--------------------------

6.5.2 If yes, indicate:

i) What percentage of the contract will be subcontracted _____

ii) The name of the sub-contractor(s):

.....
.....
.....
.....

iii) The black sharehold of the sub-contractor(s):

.....
.....
.....
.....

iv) Whether the sub-contractor(s) is an EME or QSE

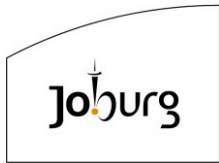
(Tick applicable box)

YES	☐	NO	☐
-----	--------------------------	----	--------------------------

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2022:

Designated Group: An EME or QSE which is at last 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
People who are women		

Employer:		Contractor:	
Witness:		Witness:	



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Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

Employer:		Contractor:	
Witness:		Witness:	



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(f) **DECLARATION WITH REGARD TO COMPANY/FIRM**

6.6.1 Name of company/firm:

6.6.2 VAT number registration number:

6.6.3 Company registration number:

(g) **TYPE OF COMPANY/ FIRM**

- ☐ Partnership/Joint Venture / Consortium
☐ One person business/sole propriety
☐ Close corporation
☐ Company
☐ (Pty) Limited

[TICK APPLICABLE BOX]

(h) **DESCRIBE PRINCIPAL BUSINESS ACTIVITIES**

.....
.....
.....
.....
.....

(i) **COMPANY CLASSIFICATION**

- ☐ Manufacturer
☐ Supplier
☐ Professional service provider
☐ Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

Employer:		Contractor:	
Witness:		Witness:	



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(j) **MUNICIPAL INFORMATION**

Municipality where business is situated:

Registered Account Number:

Stand Number:

(k) Total number of years the company/firm has been in business:

(l) I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the Specific Goals in MBD 6.1 qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) In the event of a contract being awarded as a result of points claimed as shown in MBD 6.1, the contractor is required to furnish documentary proof as requested in the Tender Data to the satisfaction of the purchaser that the claims are correct;
- iii) If the specific goals points have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

WITNESSES

1.
2.

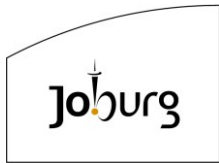
.....
SIGNATURE(S) OF BIDDERS(S)

DATE:

ADDRESS

.....
.....

Employer:		Contractor:	
Witness:		Witness:	



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MBD 4

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, hareholder²):
 - 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**
 - 3.8.1 If yes, furnish particulars.....
.....

¹MSCM 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;

Employer:		Contractor:	
Witness:		Witness:	



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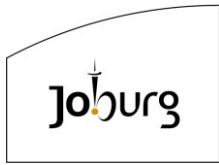


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- (c) an official of any municipality or municipal entity;
- (d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (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.

² Shareholder” 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.

Employer:		Contractor:	
Witness:		Witness:	



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3.9 Have you been in the service of the state for the past twelve months? **YES / NO**

3.9.1 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**

3.10.1..... 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**

3.11.1 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**

3.12.1..... 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**

3.13.1..... 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**

Employer:		Contractor:	
Witness:		Witness:	



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3.14.1..... If yes, furnish particulars:

.....
**Tenderers are encouraged to truthfully declare all other company interests they may have, with specific reference to Question 3.14, of which if not fully completed, might lead to disqualification. Tenderers are encouraged to utilise the CIPC bizportal (www.bizportal.gov.za) , free registration to check the companies for which a director is a director for. This can be done by inserting an ID number for the director tendering and the portal will show all companies, whether active or not..*

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

Full Name	Identity Number	State Employee Number

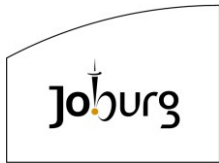
.....
Signature

.....
Date

.....
Capacity

.....
Name of Bidder

Employer:		Contractor:	
Witness:		Witness:	



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MBD 8

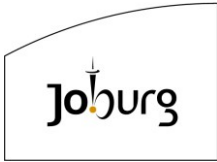
DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

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

- 2 **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 companies or persons 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 ☐	No ☐
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 ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		

Employer:		Contractor:	
Witness:		Witness:	



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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

.....
Date

.....
Position

.....
Name of Bidder

Employer:		Contractor:	
Witness:		Witness:	



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MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging)². Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

Employer:		Contractor:	
Witness:		Witness:	



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MBD 9

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:

(Name of Municipality / Municipal Entity) 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
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder
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;

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

Employer:		Contractor:	
Witness:		Witness:	



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- (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

Employer:		Contractor:	
Witness:		Witness:	



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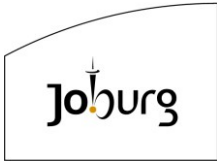
T2.1.5 Proposed Amendments and Qualifications

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 qualifications in a covering letter to his tender and reference such letter in this schedule.

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

Page	Clause or item	Proposal

Employer:		Contractor:	
Witness:		Witness:	



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Signed: Date:

Name: Position:

Tenderer:

Employer:		Contractor:	
Witness:		Witness:	

T2.1.6 Schedule of the Tenderer's Experience

EMPLOYER: CONTACT PERSON AND TELEPHONE NUMBER	EMPLOYER'S AGENT OR REPRESENTATIVE: CONTACT PERSON AND TELEPHONE NUMBER	NATURE OF WORK	VALUE OF WORK (inclusive of VAT)	DATE COMPLETED OR EXPECTED TO BE COMPLETED

Signed: _____ Date: _____

Name: _____ Position: _____

Tenderer:

Employer:		Contractor:	
Witness:		Witness:	



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T2.1.7 Contactable Reference TEMPLATE (PROJECT 1)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorized to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW 14481** for **CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES AT ENNERDALE DEPOT**

Name of Tenderer:

.....

Name of Project:

.....

**Description of Services provided in building of perimeter wall for
Industrial/Commercial or Public entity.**

.....
.....
.....

**Contract Value (R).....Perimeter Wall Length/Area (m /
m²).....**

Name of Client Company

.....

Name of Main Client Company (Employer if different from name of client company)

.....
.....

Name of authorized person/Referee completing this

Letter.....

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
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Signature of authorized person/Referee:

Date

Telephone/Mobile of authorized person/Referee:

.....

Email address of authorized person/Referee:

.....

*NB: This document must be completed by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with the functional criteria requirements. A separate form must be completed for each reference as required in the evaluation criteria. Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender. **If the completed project was a subcontract, Reference letter must be accompanied by Main Contractor Completion Certificate in addition to the bidder's completion certificate.***

Employer:		Contractor:	
Witness:		Witness:	



T2.1.7 Contactable Reference TEMPLATE (Project 2)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorized to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW 14481** for **CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES AT ENNERDALE DEPOT**

Name of Tenderer:

.....

Name of Project:

.....

**Description of Services provided in building of perimeter wall for
Industrial/Commercial or Public entity.**

.....
.....
.....

**Contract Value (R).....Perimeter Wall Length/Area (m /
m²).....**

Name of Client Company

.....

Name of Main Client Company (Employer if different from name of client company)

.....
.....

**Name of authorized person/Referee completing this
Letter.....**

Signature of authorized person/Referee:

Employer:		Contractor:	
Witness:		Witness:	



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Date

Telephone/Mobile of authorized person/Referee:

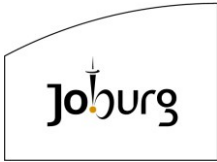
.....

Email address of authorized person/Referee:

.....

NB: This document must be completed by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with the functional criteria requirements. A separate form must be completed for each reference as required in the evaluation criteria. Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender. If the completed project was a subcontract, Reference letter must be accompanied by Main Contractor Completion Certificate in addition to the bidder's completion certificate.

Employer:		Contractor:	
Witness:		Witness:	



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T2.1.7 Contactable Reference TEMPLATE (project 3)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorized to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW 14481** for **CONSTRUCTION OF NEW PERIMETER WALL AND GUARDBOUSES AT ENNERDALE DEPOT**

Name of Tenderer:

.....

Name of Project:

.....

Description of Services provided in building of perimeter wall for Industrial/Commercial or Public entity.

.....
.....
.....

Contract Value (R).....Perimeter Wall Length/Area (m / m²).....

Name of Client Company

.....

Name of Main Client Company (Employer if different from name of client company)

.....
.....

Name of authorized person/Referee completing this

Letter.....

Signature of authorized person/Referee:

Date

Employer:		Contractor:	
Witness:		Witness:	



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Telephone/Mobile of authorized person/Referee:

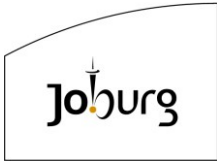
.....

Email address of authorized person/Referee:

.....

NB: This document must be completed by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with the functional criteria requirements. A separate form must be completed for each reference as required in the evaluation criteria. Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender. If the completed project was a subcontract, Reference letter must be accompanied by Main Contractor Completion Certificate in addition to the bidder's completion certificate.

Employer:		Contractor:	
Witness:		Witness:	



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T2.1.7 Contactable Reference TEMPLATE (project 4)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorized to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW 14481** for **CONSTRUCTION OF NEW PERIMETER WALL AND GUARDBOUSES AT ENNERDALE DEPOT**

Name of Tenderer:

.....

Name of Project:

.....

Description of Services provided in building of perimeter wall for Industrial/Commercial or Public entity.

.....
.....
.....

Contract Value (R).....Perimeter Wall Length/Area (m / m²).....

Name of Client Company

.....

Name of Main Client Company (Employer if different from name of client company)

.....
.....

Name of authorized person/Referee completing this Letter.....

Signature of authorized person/Referee:

Employer:		Contractor:	
Witness:		Witness:	



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Date

Telephone/Mobile of authorized person/Referee:

.....

Email address of authorized person/Referee:

.....

NB: This document must be completed by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with the functional criteria requirements. A separate form must be completed for each reference as required in the evaluation criteria. Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender. If the completed project was a subcontract, Reference letter must be accompanied by Main Contractor Completion Certificate in addition to the bidder's completion certificate.

Employer:		Contractor:	
Witness:		Witness:	

T2.1.8 Schedule of Key Personnel

In terms of the Project Specification and the Conditions of Tender, unskilled workers may only be brought in from outside the local community if such personnel are not available locally.

The Tenderer shall list below the personnel which they intend to utilize on the Works, including key personnel which may have to be brought in from outside if not available locally.

CATEGORY OF EMPLOYEE	NUMBER OF PERSONS					
	KEY PERSONNEL, PART OF THE CONTRACTOR'S ORGANISATION		KEY PERSONNEL TO BE IMPORTED IF NOT AVAILABLE LOCALLY		UNSKILLED PERSONNEL TO BE RECRUITED FROM LOCAL COMMUNITY	
	HDI	NON-HDI	HDI	NON-HDI	HDI	NON-HDI
Site Agent, Contracts Manager						
Foremen, Quality Control and Safety Personnel						
Technicians, Surveyors, etc.						
Artisans and other Skilled workers						
Plant Operators						
Unskilled Workers						
Others:						

SIGNATURE:

DATE:

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

Employer:		Contractor:	
Witness:		Witness:	



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T2.1.9 Curriculum Vitae of Key Personnel

ALL CVs MUST BE COMPLETED IN THE TEMPLATE LISTED BELOW. CVs THAT ARE PROVIDED IN ANY OTHER FORMAT MUST CONTAIN ALL INFORMATION REQUIRED BELOW.

Provide separate forms for each position listed in Form: Key Personnel

Proposed role in the project	CONTRACT MANAGER
-------------------------------------	-------------------------

1. Surname	
2. First Name	
3. Date and place of birth	
4. Nationality	

5. Education (Submit certified copies of qualifications)

Institution (Date from – Date to)	Degree(s) or Diploma(s) obtained

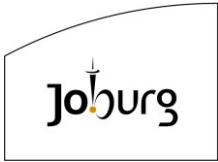
6. Registration/Membership of Professional Bodies (Submit copies of registration certificates)

Institution/ Professional Body	Category of Registration	Registration Number

7. Post Qualification Experience

Company/ Organisation	(Date from – Date to)	Years of Employment	Position

Employer:		Contractor:	
Witness:		Witness:	



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Employer:		Contractor:	
Witness:		Witness:	



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8. Project-based Experience

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Employer:		Contractor:	
Witness:		Witness:	



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Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Employer:		Contractor:	
Witness:		Witness:	



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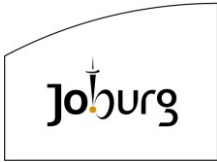


Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Duplicate relevant section to add more information, if required.

Employer:		Contractor:	
Witness:		Witness:	



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Certification:

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the schedule

.....
Date

Employer:		Contractor:	
Witness:		Witness:	



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Proposed role in the project	SITE AGENT / CONSTRUCTION MANAGER
-------------------------------------	--

1. Surname	
2. First Name	
3. Date and place of birth	
4. Nationality	

5. Education (Submit certified copies of qualifications)

Institution (Date from – Date to)	Degree(s) or Diploma(s) obtained

6. Registration/Membership of Professional Bodies (Submit copies of registration certificates)

Institution/ Professional Body	Category of Registration	Registration Number

7. Post Qualification Experience

Company/ Organisation	(Date from – Date to)	Years of Employment	Position

Employer:		Contractor:	
Witness:		Witness:	



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8. Project-based Experience

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Employer:		Contractor:	
Witness:		Witness:	



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Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Employer:		Contractor:	
Witness:		Witness:	



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Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Duplicate relevant section to add more information, if required.

Certification:

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the schedule

.....
Date

Employer:		Contractor:	
Witness:		Witness:	



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Proposed role in the project	SAFETY OFFICER
-------------------------------------	-----------------------

1. Surname	
2. First Name	
3. Date and place of birth	
4. Nationality	

5. Education (Submit certified copies of qualifications)

Institution (Date from – Date to)	Degree(s) or Diploma(s) obtained

6. Registration/Membership of Professional Bodies (Submit copies of registration certificates)

Institution/ Professional Body	Category of Registration	Registration Number

7. Post Qualification Experience

Company/ Organisation	(Date from – Date to)	Years of Employment	Position

8. Project-based Experience

Project Name and Locality	
Project Client	
Project Dates	

Employer:		Contractor:	
Witness:		Witness:	



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Project Value	
Project Position (e.g. Project Manager, Engineer, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project Position (e.g. Project Manager, Engineer, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project Position (e.g. Project Manager, Engineer, etc.)	
Description of Project Scope and Duties	

Employer:		Contractor:	
Witness:		Witness:	



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Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project Position (e.g. Project Manager, Engineer, etc.)	
Description of Project Scope and Duties	

Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Employer:		Contractor:	
Witness:		Witness:	



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Project Name and Locality	
Project Client	
Project Dates	
Project Value	
Project position (e.g. Contracts Manager, Site Agent, etc.)	
Description of Project Scope and Duties	

Duplicate relevant section to add more information, if required.

Certification:

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....
Signature of person named in the schedule

.....
Date

Employer:		Contractor:	
Witness:		Witness:	



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T2.2 LIST OF RETURNABLE DOCUMENTS

Other documents required only for tender evaluation purposes:

Document

Page No.

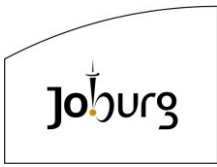
T2.2.1 Contractor's Certificate of Registration With CIDB

RD.58

T2.2.2 SARS Tax Compliance Status Pin and Proof of CSD registration

RD.59

Employer:		Contractor:	
Witness:		Witness:	



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T2.2.1 Contractor's Certificate of Registration With CIDB

NB: The Tenderer shall attach hereto the Contractor's Certificate of Registration with CIDB OR provide the CIDB registration number that JW can use to verify CIDB requirements for this tender.

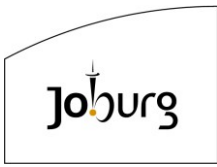
CIDB status to be active at the required CIDB grading at time of evaluation to avoid disqualification.

SIGNATURE:.....

DATE:

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

Employer:		Contractor:	
Witness:		Witness:	



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T2.2.2 SARS Tax Compliance Status Pin and Proof of CSD registration

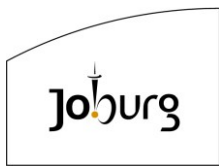
The Tenderer must attach hereto a copy SARS Tax Compliance Status Pin and Proof of CSD registration i.e. MA xxxxxxxxxx number.

SIGNATURE:

DATE:

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

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES
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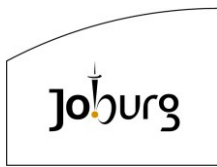


T2.3 LIST OF RETURNABLE SCHEDULES

3. Other documents that will be incorporated into the contract

<u>Document</u>	<u>Page No.</u>
T2.3.1 Returnable Annexure A: Acknowledgement of SHE Specification &	RD.61
T2.3.2 Returnable Annexure B: Acknowledgment of Tender Drawings	RD.62
T2.3.3 Minutes of the Mandatory Tender Briefing	RD.63
T2.3.4 Imported Content Sheet: Forward Exchange Cover for Imported	RD.64

Employer:		Contractor:	
Witness:		Witness:	



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T2.3.1 Returnable Annexure A: Acknowledgement of SHE Specification & Annexures

DECLARATION BY CONTRACTOR

I, the undersigned, and representing the tenderer as indicated hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and confirm compliance thereto in the event of being successful:

- OHS Specification (Volume 3)
- Annexure 1: Baseline Risk Assessment
- Annexure 2: Medical Screening Policy
- Annexure 3: Sign off form
- Annexure 4: Environmental Management Plan

We furthermore commit to:

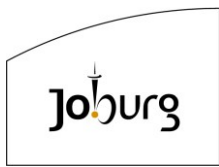
- Comply with all applicable SHE related legal and other requirements.
- Inform all staff of their role in managing environmental impacts and safety hazards on site.

Signed at on this Day of
..... 20.....

Name of tenderer	
Name of Authorized person	
Authorized Signature*	

*Signature must be as per form T2.1.2 as applicable

Employer:		Contractor:	
Witness:		Witness:	



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T2.3.2 Returnable Annexure B: Acknowledgment of Tender Drawings

DECLARATION BY CONTRACTOR

I, the undersigned, and representing the tenderer as indicated hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and confirm compliance thereto in the event of being successful:

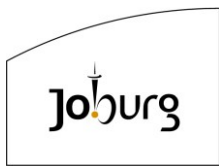
The drawings that are issued for **TENDER PURPOSES** are as per drawing list BW1400-RHD-C1-99-D-Z-9902

Signed at on this Day of
..... 20.....

Name of tenderer	
Name of Authorized person	
Authorized Signature*	

*Signature must be as per form T2.1.2 as applicable

Employer:		Contractor:	
Witness:		Witness:	



Contract JW14481
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T2.3.3 Minutes of the Mandatory Tender Briefing Meeting

We confirm that the following communications received from the Employer 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.		Minutes of the Mandatory Tender Briefing Meeting

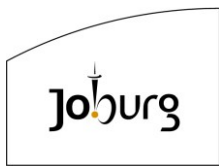
Attach additional pages if more space is required.

Signed: Date:

Name: Position:

Tenderer:

Employer:		Contractor:	
Witness:		Witness:	



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T2.3.4 Imported Content Sheet: Forward Exchange Cover for Imported Goods

The Tenderer shall, in the attached schedule, for each item which a price is tendered, state the item number as it appears in the Schedule of Quantities, a brief description of the item, the country of origin, the value of the imported content of all goods comprising that item, the number of items for which he requires forward exchange cover, and the total amount for which forward exchange cover will be required.

Each Part of the Schedule of Quantities must be dealt with separately.

In the event of components being imported from more than one country, a separate entry shall be made for each country.

The Tenderer shall state the applicable rate(s) for the relevant country(ies) as at the date seven days prior to the closing date for the receipt of tenders.

Exchange rate(s) as at(*insert date*)

Country	Exchange Rate

SIGNED ON BEHALF OF TENDERER :

NAME (in print) :

DATE :

Employer:		Contractor:	
Witness:		Witness:	

Equipment Schedule

[illegible]

Employer:		Contractor:	
Witness:		Witness:	

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Johannesburg Water (SOC) Ltd

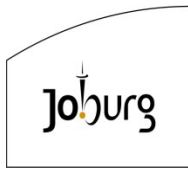


CONTRACT: JW14481

**CONSTRUCTION OF NEW PERIMETER WALL
AND GUARDHOUSES AT ENNERDALE DEPOT**

VOLUME 1
PART 1: AGREEMENT AND CONTRACT DATA

Employer:		Contractor:	
Witness:		Witness:	

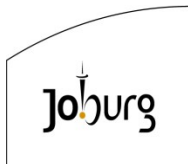


Contract: JW14481
CONSTRUCTION OF NEW PERIMETER WALL
AND GUARDHOUSES AT ENNERDALE DEPOT
Volume 1 Tender and Contract
Section C1 Agreement and Contract Data



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	k not
	defined.
C1.3.2 Blasting Indemnity	C.102
C1.3.3 Health and Safety Contract Between Employer and Contractor in Terms of Section 37(2) of the Occupational Health and Safety Act No 85 Of 1993	C.104
C1.3.4 Health and Safety Contract: General Information	C.105

Employer:		Contractor:	
Witness:		Witness:	



Contract: JW14481
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C1.1 Form of Offer (Acceptance & Agreement)
C1.1.1 Form of Offer

The Contractor is to complete and sign the Form of Offer

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

**JW14481: CONSTRUCTION OF NEW PERIMETER WALL AND
GUARDBOUSES AT ENNERDALE DEPOT**

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 Contractor 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 to the Contractor, whereupon the Contractor becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Signature(s)

Name(s)

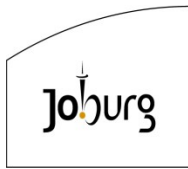
Capacity

For the Contractor

(Name and address of organisation)

**Name and signature
of witness**

Employer:		Contractor:	
Witness:		Witness:	



Contract: JW14481
CONSTRUCTION OF NEW PERIMETER WALL
AND GUARDHOUSES AT ENNERDALE DEPOT
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 (Name)

 (Signature)

Date

C1.1.2 Form of Acceptance

The Employer is to complete and sign the form of acceptance.

By signing this part of the Form of Offer and Acceptance, the Employer identified below accepts the Contractor'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 Contractor's Offer shall form an agreement between the Employer and the Contractor 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 1 Agreement and Contract Data, (which includes this Agreement)
- Part 2 Pricing Data
- Part 3 Scope of Work
- Part 4 Site Information

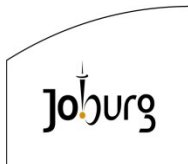
and drawings, pricing schedules (Bill of Quantities) and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Contractor 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 Contractor shall within twenty-eight **(28) days** after 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 Contact Data) to arrange the delivery of any 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 of 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 Contractor receives one fully completed copy of this document, including the Schedule of Deviations (if any). Unless the Contractor (now the Contractor) within five days after 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:		Contractor:	
Witness:		Witness:	



Contract: JW14481
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FOR EMPLOYER OFFICIAL USE ONLY

Name(s)

Capacity

For the Employer

**Johannesburg Water SOC (Ltd), Turbine Hall, 65 Ntemi Piliso
Street, Newtown.**

(Name and address of organisation)

**Name and signature
of witness**

(Name)

(Signature)

Date

C1.1.3 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 Contractor'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; and
4. Any change or addition to the tender documents arising from the above arrangements and recorded here shall also be incorporated into the final draft of the Contract.

1 Subject

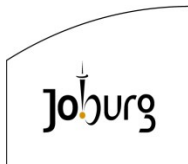
Details

2 Subject

Details

3 Subject

Employer:		Contractor:	
Witness:		Witness:	



Contract: JW14481
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AND GUARDHOUSES AT ENNERDALE DEPOT
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	Details	_____
4	Subject	_____
	Details	_____
5	Subject	_____
	Details	_____
6	Subject	_____
	Details	_____
7	Subject	_____
	Details	_____

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Contractor 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 change to the terms of the offer agreed by the Contractor and the Employer during the 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 Contractor of a completed and signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the Contractor:

Signature(s) _____

Name(s) _____

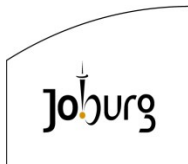
Capacity _____

For the Contractor _____
(Name and address of organisation)

Name and signature of witness _____
(Name) (Signature)

Date _____

Employer:		Contractor:	
Witness:		Witness:	



Contract: JW14481
CONSTRUCTION OF NEW PERIMETER WALL
AND GUARDHOUSES AT ENNERDALE DEPOT
Volume 1 Tender and Contract
Section C1 Agreement and Contract Data



For the Employer:

Name(s)

Capacity

For the Employer

**Johannesburg Water SOC (Ltd), Turbine Hall, 65 Ntemi Piliso Street,
Newtown**

(Name and address of organisation)

**Name and signature
of witness**

(Name)

(Signature)

Date

Employer:		Contractor:	
Witness:		Witness:	

C1.2 Contract Data

C1.2.1 Part 1: Data Provided by the Employer

CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works Third Edition (2015), published by the South African Institution of Civil Engineering, is applicable to this Contract.

Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Telephone number: 011-805 5947)

C1.2.1.1 Contract Specific Data

The following contract specific data are applicable to this Contract:

GCC Clause	Information
1.1.1.13	The Defects Liability Period is 52 weeks from the date of the Certificate of Completion.
1.1.1.14	Delete clause 1.1.1.14 and replace with: “Due Completion Date” means the date of expiry of the time stated in the Contract Data for achieving Practical Completion of the Works, calculated from the date on which the Employer’s Agent instructs the commencement of Works and adjusted by such extensions of time or acceleration as may be allowed in terms of the Contract.” The time for achieving Practical Completion is 6 months, inclusive of non-working and special non-working days.
1. 1.1.15	The name of the Employer is Johannesburg Water (SOC) Limited Contact Person is Tshilidzi Tshikovhi
1.1.1.16	The name of the Employer’s Agent is Tendai Chikwata.
1.1.1.26	The Pricing Strategy is a Re-measurement Contract.
1.2.1.2	The address of the Employer is: Physical Turbine Hall 65 Ntemi Piliso Street Newtown Postal P.O. Box 61542 Marshalltown 2107 Tel: 011 688 1686 Email: tshilidzi.tshikovhi@jwater.co.za
1.2.1.2	The address of the Employer’s Agent is:

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
	Physical Postal Tel: 011 045 2532 34 Dane Street 34 Dane Street Glen Austin Glen Austin Midrand Midrand Email:engineer@technodesigns.co.za
3.2.3	Specific Approval – The Employer's Agent is required to obtain the Employer's approval for the following: • Approval of Variation Orders • The use of contingencies • Approval of Prov. Sum (3 Quotes system) • Approval to exceed the Contract Sum • Approval of Subcontracting Plan and work package breakdown • Stoppage/ Suspension of works
4.4.2	Add the following after this clause: Apart from sub-contractors identified by the Contractor for the execution of certain sections of the Works, subcontractors shall also include SMME's (Small Medium and Micro Enterprises), who are identified from the Local Community for the execution of certain sections of the Works. The appointment of subcontractors and the allocation of work to subcontractors shall, in addition to the provisions of the General Conditions of Contract, comply with, but not be limited to, the provisions of C1.2.1.2.14 (see below). A minimum value of 12% of the Contract Price shall be subcontracted to SMME's. Where the advised items for subcontracting do not form 12% of the Contract Price, the Contractor shall identify additional works that will be subcontracted to ensure compliance with the minimum subcontracting percentage.
4.10.1	Add the following to this clause: The Contractor shall employ labour from Local Communities (otherwise known as Local Labour), in accordance with the Tender Data, Scope of Work, Site Information, and Specifications. All Local Labour shall be recruited through the Community Liaison Officer (CLO) and/or Labour Desk Officer (LDO). The Contractor remains fully responsible for all Local Labour that are employed for the execution of the Works, as if they were the Contractor's own labour.
4.11.1	Add the following to this clause: Competent Employees shall include, amongst others, the following Key Personnel: • Contracts Manager • Site Agent • Safety Officer

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
	The minimum requirements in terms of qualifications and experience of these Key Personnel are listed in C1.2.1.2.15 (see below).
5.3.1	The documentation required before commencement with Works execution are: • Approved Health and Safety File (Clause 4.3) • Approval of the Environmental File (Clause 4.3) • Initial programme & cashflow projections (Clause 5.6) • Guarantee from Bank or Insurance Company (Clause 6.2) • Insurance of the Works, Plant, etc. (Clause 8.6), including but not limited to: ○ SASRIA Policy ○ Liability Insurance ○ Insurance of Construction Machinery and Plant ○ Insurance of Motor Vehicle Liability, etc. • Compliance Certificate in respect of COID • Signed Notification to the Department of Labour • Construction Permit (where applicable). The Employer will require Health and Safety documentation from the Contractor to acquire this permit. • Organogram of resources • Delegation of Authority (on company letterhead) • Subcontract plan / proposal which includes a number of Subcontractors that meet requirements as per conditions of C1.2.1.2.14
5.3.2	The time to submit the documentation required before Commencement of the Works is 28 days.
5.3.3	Time to instruct commencement of the Works Delete Clause 5.3.3 and replace with the following: The Contractor shall commence with carrying out the Works upon written instruction from the Employer's Agent to commence with the Works.
5.4.2	The Works will be executed on an operational Wastewater Treatment Works. The Treatment Works shall remain operational at all times, except when written permission is granted by the Employer's Agent for any interruption or shutdown. All such interruptions/shutdowns shall be included in the Contractor's Programme.
5.8.1	Working days shall be Monday to Friday, between 07h00 to 17h00.
5.8.1	The non-working days are Saturdays and Sundays.

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
	The special non-working days are all Public Holidays in terms of the Public Holidays Act (as amended), and the annual “Builder’s Break” as defined by SAFCEC on an annual basis.
5.11.1.2	Notwithstanding any other provision of this Contract, the Contractor agrees that there shall be no suspension of the Works due to non-payment by the Employer. The Contractor shall continue to perform the Works as scheduled, regardless of any delays or failures by the Employer to make payments when due.
5.13.1	The penalty for failing to complete the Works is the greater of: An amount equal to the daily Time Related P&G rate (as calculated from the Time Related P&G section in the Bill of Quantities) or R5,000.00 per day, whichever is greater.
5.14.1	The requirements for achieving Practical Completion are: • Build a new 3m high and 340m perimeter double skin face brick wall at the depot • Extension of the existing 305m face brick wall up to 3m height • Install security razor wire fence on top of the boundary wall • Construction of 2 Guard houses with ablutions • Alterations to existing main entrance guard house. • Building works (Main guardhouse) to be connected to water and sewer and have electrical installation with a certificate of compliance. • Installation, testing & commissioning of all related electrical and C&I infrastructure. • Reinstatements of man-made surfaces affected during construction, including road surfaces and areas along the boundary line. • Environmental rehabilitation of site.
5.16.3	The latent defects period is 10 years for Civil Engineering works, Five (5) years for Building Works and Three (3) years for Electrical works
6.2.1	The time to deliver the Form of Guarantee is within 28 days from the Commencement Date. The security to be provided by the Contractor shall be in the form of a On-demand Performance Guarantee and will comply with the requirements of Clause 6.2.3. The value of the Performance Guarantee shall be ten (10)% of the Contract Sum, which sum excludes VAT.
6.8.2	The Contract Price Adjustment is NOT applicable for this contract. The following formula will be applicable.

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
	$(1 - x) \left[a \frac{L_t}{L_o} + b \frac{P_t}{P_o} + c \frac{C_t}{C_o} + d \frac{M_t}{M_o} + e \frac{E_t}{E_o} + f \frac{F_t}{F_o} - 1 \right]$ In which the symbols have the following meaning as per GCC 2015: "x" is the proportion of "Ac" which is not subject to adjustment. The value of "x" is 0,10 "a", "b", "c", "d", "e" and "f" are the coefficients contained in the Contract Data, which are deemed, irrespective of the actual constituents of the work, to represent the proportionate value of labour, contractors' equipment, material (other than "special materials" specified in the Contract Data) and fuel respectively. The values of the coefficients are: a = 0,30 Labour b = 0,10 Plant c = 0,20 Civil Engineering material d = 0,15 Mechanical Engineering material e = 0,15 Electrical Engineering material f = 0,10 Fuel All indexes below are as published by Statistics South Africa for the applicable time. "L" is the "Labour Index" - Table 9 – Consumer price indices for Gauteng - All items "P" is the "Plant Index" - P0141. Table 4 – Mining and construction plant and equipment – Plant and equipment "C" is the "Civil Engineering Materials Index" - P0141. Table 6 – Civil engineering material – Total "M" is the "Mechanical Engineering Materials Index" - P0141. Table 5 – Mechanical and electrical engineering – Mechanical engineering "E" is the "Electrical Engineering Materials Index" - P0141. Table 5 – Mechanical and electrical engineering – Electrical engineering "F" is the "Fuel Index"- P0142.1. Table 1 – PPI for final manufactured goods. Diesel The suffix "o" denotes the base indices applicable to the base month as stated in the Contract Data. The suffix "t" denotes the current indices applicable to the month in which the

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
	last day of the period falls to which the relevant monthly statement relates. The province where the Site is located is Gauteng and the urban area where the project is implemented is Johannesburg. The base month is one month before the tender closing date. If any index relevant to any particular certificate is not known at the time when the certificate is prepared, the Engineer shall estimate the value of such index. Any correction which may be necessary when the correct indices become known, shall be made by the Engineer in subsequent payment certificates. The contractor is to provide latest available published indices prior to claiming final adjustment for any month, with supporting documentation.
6.8.3	Price adjustments for variations in the costs of special materials are NOT allowed.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%.
6.10.3	The percentage retention on the amounts due to the Contractor is 10%. The limit of retention money is 5% of the Contract Price.
6.10.4	Delivery, dissatisfaction with and payment of payment certificates Delete Clause 6.10.4 and replace with the following: Payment shall be made upon: • The Contractor providing a payment certificate with all required supporting documents to the Employer's Agent on dates to be communicated to the Contractor upon award. • The payment certificate being submitted with an original tax invoice. • A statement being submitted on the last day of the month. Payment will be made within 30 days of receipt of the Contractor's statement. Payment shall be subject to the Contractor submitting an Original Tax Invoice compliant with SARS requirements for a Valid Tax Invoice to the Employer for the amount due. Any dissatisfaction in respect of such payment certificate shall be dealt with in terms of Clause 10.2.
6.10.5	Payment of Retention Money Add to Clause 6.10.5 the following: Payment will be subject to Johannesburg Water processes as outlined in clause 6.10.4 as amended.
6.10.6.2	Delete Clause 6.10.6.2

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
6.11	Delete Clause 6.11
7.8.2	Cost of making good of defects Amend Clause 7.8.2.1 as follows: In the first line, correct the spelling of ‘therefore’.
8.1.1	Add to the end of Clause 8.1.1 the following text: “Although the extent of the Works and the Site are located within the boundaries of the Ennerdale Depot, and the Employer may (or may not) provide security for the Ennerdale Depot as a whole, the Contractor shall remain solely responsible for the protection of the Works and the Site”.
8.4.1.1	Add to the end of Clause 8.4.1.1 the following text: “indemnifies the Employer against any liability in respect of damage or physical loss of property of any person or injury or death of any person due to non-compliance with the Occupational Health and Safety Act (Act 85 of 1993).
8.6	Add the following clause to 8.6 “In addition to any statutory obligations, or other requirements contained in the Conditions of Contract or in the Insurance Policy and Documents the Contractor shall report in writing to the Employer’s Agent every accident within 48 hours of its occurrence, whether such accident is in respect of damage to persons or property. The report shall contain full details of the accident. The Employer’s Agent shall have the right to make all and any enquiries either on the Site or elsewhere as to the cause and results of any such accident and the Contractor shall give the Employer’s Agent full access and facilities for carrying out such enquiries. The Employer’s Agent shall be given full and immediate access to all communication, reports, findings, assessments, etc. between the Contractor and its Insurance Broker (or Insurance Provider), particularly as it relates to the processing and outcomes of any and all claims. The Contractor shall further allow and authorise the Employer’s Agent to communicate with its Insurance Broker (or Insurance Provider) to obtain any and all such information as the Employer’s Agent deems necessary.”
8.6.1.1.2	The value of plant and materials supplied by the Employer to be included in the insurance sum is R0.
8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is an amount equal to 15% of the Contract Price.

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
8.6.1.2	Delete clause 8.6.1.2 and replace with the following: “Following the introduction of legislation affecting the articles of the South African Special Risks Insurance Association (SASRIA), insurance cover for loss or damage to the Works caused by any event defined as a risk in terms of the insurance offered by SASRIA, will be provided under a certificate issued by SASRIA.”
8.6.1.3	The limit of indemnity for liability insurance is R20,000,000 (Twenty million Rand) for any single claim – the number of claims to be unlimited during the Construction and Defects Liability Periods
8.6.1.5	In addition to the insurances required in terms of General Conditions of Contract for Construction Works 2015 Clauses 8.6.1.1 to 8.6.1.4 the following insurance is also required: - The Contractor shall insure all Construction Machinery and Plant (including tools, offices and other temporary structures and content) and other items, other than those intended for incorporation into the works, owned, leased or hired and brought on to the Site against all risks of physical loss or damage for the period that such Plant shall be on the Site to the full value thereof. In respect of Machinery and Plant brought on to the Site by or on behalf of Sub-Contractors, the Contractor shall be deemed to have complied with the provisions of this Sub-Clause if it has ensured that such Sub-Contractors have similarly insured such Plant and Machinery. Such insurance shall be affected with an Insurer and in terms approved by the Employer (which approval shall not be unreasonably withheld) and the Contractor shall, when required, submit to the Employer’s Insurance Brokers, via the Employer’s Agent, the policy or policies of insurance and receipts for payment of the current premiums. - The Contractor and the Sub-contractors shall affect and maintain at their cost, insurance under the provision of the Compensation for Occupational Injuries and Diseases Act (COID), 1993 (Act No. 130 of 1993) - The Contractor and the Sub-Contractors shall affect and maintain at their own cost, motor vehicle liability insurance with at least indemnification for “balance of third party” risks, including passenger liability with a limit of indemnity of not less than R2,5 million. - Where the contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during manufacture or fabrication then such

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information
	interest shall be noted by endorsement to the Contractor's Policies of Insurance. e. Any other Insurance cover that may be deemed necessary by the Contractor to ensure full and successful completion of the Works.
10.4.2	Dispute resolution shall be by Amicable Settlement, failing which, any dispute shall be resolved by way of ad-hoc Adjudication.
10.5.3	The number of Adjudication Board Members to be appointed is one (1).
10.7.1	The determination of disputes shall be by arbitration.

C1.2.1.2 Additions

The additional Conditions of Contract are:

C1.2.1.2.1 Penalties

In addition to GCC clause 5.13, during the Contract Period should the Contractor:

a) Fail to report

- The Employer shall levy a penalty on Contractor, should the latter fail to provide reporting as required in C1.2.1.2.6, C1.2.1.2.14 and the specification highlighted in the Scope of Work, with regard to content and frequency, whilst as per the Pricing Data section no payment for work completed shall be processed.
- The penalty value shall be R5,000.00 per report per occasion; and
- If the Contractor fails to complete the aforementioned more than three incidents and should the Employer or his duly authorised representative find that the Contractor is hindering his (the Employer's) deliverables to JW Senior Management, he shall reserve the right to:
 - i. perform the Works internally or through another Contractor; and
 - ii. deduct additional costs incurred by the Employer from monies owed to the Contractor or from the Contractor's Guarantee. Additional costs incurred by the Employer shall include all claims from Contract affected parties, claims such as but not be limited to claims from customers, any costs associated with the loss of water, and all costs associated with the procurement of an alternative Contractor.
 - iii. terminate the Contract.

Employer:		Contractor:	
Witness:		Witness:	

No liability in terms of this clause shall be attached to the Contractor if he can prove to the satisfaction of the Employer that the nature of the failure is due to fire, war, riot, strikes, act of God, lockout, accident or other unforeseen occurrences or circumstances beyond the Contractor's control, provided, however, that in all cases the Contractor has notified the Employer in writing within 24 hours of it first coming to his notice, that delivery shall be delayed or become impossible for the above-mentioned reasons.

b) Fail to pay any labourer or SMME

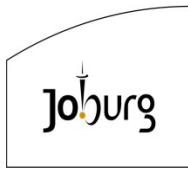
- The Employer shall levy a penalty on the Contractor, should the latter fail to provide payment to any labourer or SMME as required in the specification highlighted in the Scope of Work and specified in the appointment agreements with the Contractor and the labourer or SMME.
- The penalty value shall be R 5,000.00 per incident per occasion; and
- If the Contractor fails to complete the aforementioned more than three incidents and should the Employer or his duly authorised representative find that the Contractor is hindering his (the Employer's) deliverables to JW Senior Management, he shall reserve the right to:
 - i. perform the Works internally or through another Contractor; and
 - ii. deduct additional costs incurred by the Employer from monies owed to the Contractor or from the Contractor's Guarantee. Additional costs incurred by the Employer shall include all claims from Contract affected parties, claims such as but not be limited to claims from customers, any costs associated with the loss of water, and all costs associated with the procurement of an alternative Contractor.
 - iii. terminate the Contract.

No liability in terms of this clause shall be attached to the Contractor if he can prove to the satisfaction of the Employer that the nature of the failure is due to fire, war, riot, strikes, act of God, lockout, accident or other unforeseen occurrences or circumstances beyond the Contractor's control, provided, however, that in all cases the Contractor has notified the Employer in writing within 24 hours of it first coming to his notice, that delivery shall be delayed or become impossible for the above-mentioned reasons.

c) Failure to meet target participation by local SMME

If the Contractor fails to achieve the monetary value of the target set by the Employer for contract participation by local SMME Contractors in terms of **C1.2.1.2.14**, the Contractor shall be liable to the Employer for a sum calculated

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in accordance with the Contract Data and the aforementioned Scope as a penalty for such underachievement.

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 the Scope of Works is 50% of the monetary value by which the achieved monetary value falls short of the target monetary value.

d) Failure to meet the occupational health and safety compliance target

Monthly compliance rating will be calculated for each Contractor as per a formula determined by the Employer focusing on or incorporating outcomes of assurance (e.g. monthly audit), operational (e.g. behavioral based safety inspection) assessments and other requirements, as necessary.

The Employer will impose a penalty value of R7 500,00 per audit report where a Contractor scores below 85%.

The Employer will impose a penalty value of R2 000,00 per occasion where the Contractor scores above 85% but below 93% for two successive months.

e) Failure to meet the Environmental compliance target

Monthly compliance rating will be calculated for each Contractor as per a formula determined by the Employer focusing on or incorporating outcomes of assurance (e.g. monthly audit), operational assessments and other requirements, as necessary.

The Employer will impose a penalty value of R7 500,00 per audit report where a Contractor scores below 85%.

The Employer will impose a penalty value of R2 000,00 per occasion where the Contractor scores above 85% but below 93% for two successive months.

f) Penalties payable

If penalties are payable, they will be processed through a credit note issued by the Contractor.

g) Penalties irreversible

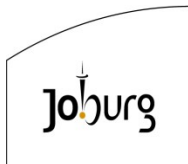
The Contractor shall note that all penalties once imposed shall be non-recoverable or non-reversible, even if the default is remedied.

C1.2.1.2.2

Source of Instructions

The Contractor shall neither seek nor accept instructions from any authority external to the Employer's Agent in connection with the performance of his services under this Contract. The Contractor shall refrain from any action which may adversely affect the Employer and shall fulfill his commitments with fullest regard for the interest of the Employer. The Contractor may only accept and comply with instructions from the Employer's Health and Safety Representative or the Employer's Environmental Representative with regards to matters regarding Health & Safety or Environmental Management respectively, but with further approval from the Employer's Agent.

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C1.2.1.2.3 Officials not to Benefit

The Contractor warrants that no official of the Employer has been or shall be admitted by the Contractor to any direct or indirect benefit arising from this Contract or the award thereof. The Contractor agrees that breach of this provision is a breach of the Contract.

C1.2.1.2.4 Prevention of Corruption

The Employer shall be entitled to cancel the Contract and to recover from the Contractor the amount of any loss resulting from such cancellation, if the Contractor has offered or given any person any gift or consideration of any kind as an inducement or reward for doing or intending to do any action in relation to the obtaining or the execution of the Contract or any other contract with the Employer or for showing or intending to show favor or disfavor to any person in relation to the Contract or any other contract with the Employer. If similar acts have been done by any persons employed by the Contractor or acting on his behalf whether with or without the knowledge of the Contractor in relation to this or any other Contract with the Employer, the same consequences shall apply.

C1.2.1.2.5 Confidential Nature of Documents

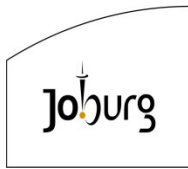
All maps, drawings, photographs, mosaics, plans, reports, recommendations, estimates, documents and all other data compiled by or received by the Contractor under the Contract shall be the property of the Employer, shall be treated as confidential and shall be delivered only to the Employer's Agent or his duly authorized representative on completion of the Works; their contents shall not be made known by the Contractor to any person other than the personnel of the Contractor performing services under this Contract without the prior written consent of the Employer.

C1.2.1.2.6 Returns of Labour, SMME, Plant, Equipment and Material

The Contractor shall provide a return in detail in the form and at such intervals as the Employer's Agent or his duly authorized representative may prescribe showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such information respecting construction plant, equipment and material as the Employer's Agent or his duly authorized representative may require. The supporting documents required for SMMEs include but are not limited to the following:

- A completed and signed sub-contracting agreement between the Contractor and the SMME
- Valid CIPC registration (i.e. CK, COR)
- SA ID copies of owners
- Active CIDB membership: minimum grading 1CE
- Valid CSD compliance status
- Valid EME affidavit
- COIDA certificate
- Company Profile including similar experience and skilled personnel CVs
- Health and Safety Plan
- Proof of Payments

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The supporting documents required for local labourers include but are not limited to the following

- A completed and signed employment contract between the Contractor and labourer
- Certified Copies of IDs
- Monthly Individual proof of payment
- Monthly timesheets
- Training returns
- UIF forms (proof of registration from Labour)

C1.2.1.2.7

Materials and Workmanship

All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Employer's Agent's instructions and shall be subjected from time to time to such tests as the Employer's Agent may direct at the place of manufacture or fabrication, or on the Site or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Employer's Agent. All testing equipment and instruments provided by the Contractor shall be used only by the Employer's Agent or by the Contractor in accordance with the instructions of the Employer's Agent.

- a) No material not conforming with the Specifications in the Contract shall be used for the Works without prior written approval of the Employer and instruction of the Employer's Agent, provided always that if the use of such material results or may result in increasing the Contract Price, the procedure in GCC clause 6.3 (Variations) shall apply.

C1.2.1.2.8

Examination of the Work before Covering Up

No work shall be covered up or put out of view without the approval of the Employer's Agent or his duly authorized representative and the Contractor shall afford full opportunity for the Employer's Agent or his duly authorized representative to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Employer's Agent whenever any such work or foundations is or are ready or about to be ready for examination. The Employer's Agent or his duly authorized representative shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or of examining such foundations.

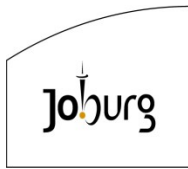
C1.2.1.2.9

Employer's Agent's Power to Order Removal of Improper Work and Materials

The Employer's Agent or his duly authorized representative shall during the progress of the Works have power to order in writing from time to time, and the Contractor shall execute at his cost and expense, the following operations:

- a) removal from the Site within such time or times as may be specified in the order of any materials which in the opinion of the Employer's Agent

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are not in accordance with the Contract.

- b) substitution of proper and suitable materials; and
- c) removal and proper re-execution (notwithstanding any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not in the opinion of the Employer's Agent or his duly authorized representative in accordance with the Contract.

C1.2.1.2.10 Default of Contractor in carrying out Employer's Agent's or his Duly Authorized Representative's Instructions

In case of default on the part of the Contractor in carrying out an instruction of the Employer's Agent or his duly authorized representative, the Employer shall be entitled to employ and pay other persons to carry out the same, and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer and may be deducted by the Employer from any monies due or which may become due to the Contractor.

C1.2.1.2.11 Date Falling on Public Holiday or Weekend

Where under the terms of the Contract any act is to be done or any period is to expire upon a certain day and that day or that period fall on a day of rest or recognized public holiday or weekend, the Contract shall have effect as if the act were to be done or the period to expire upon the working day following such day.

C1.2.1.2.12 Ambiguities and Inconsistencies

The Employer or the Contractor shall notify the other as soon as either becomes aware of an ambiguity or inconsistency in or between the documents, which are part of this Contract. Governed by the spirit and intention of the Contract, the Employer shall give a binding instruction resolving the ambiguity or inconsistency.

C1.2.1.2.13 False Claims by the Contractor

- a. Failure, by the Contractor, to demonstrate or present any feature declared during the procurement stage shall constitute grounds for Contract termination or the market related equivalent price discount, if no market related value is available, the Employer shall give a final ruling on the amount. This shall be at the discretion of the Employer based on the implication of such omission. Should the Contractor refuse to accept the Employer's price, the Contract shall be terminated.
- b. Any false claims by the Contractor or his staff (with or without his knowledge), based on Works to be performed or completed per site stage shall constitute grounds for Contract termination and result in blacklisting on the Employer's database.

The Contractor shall note that any of the above shall constitute non-performance on the part of the Contractor, further resulting in him forfeiting his full Contract Guarantee.

Employer:		Contractor:	
Witness:		Witness:	

C1.2.1.2.14

Special Conditions

The successful Contractor must subcontract a minimum of 12% of the value of this Contract to an entity(s) described below. The value of the Contract for the purposes of this calculation shall be equal to the Contract Price (excluding VAT) as described in the General Conditions of Contract.

The subcontractor/s chosen for this purpose must be registered on National Treasury's Central Supplier Database (CSD) and must be from one of the following designated groups:

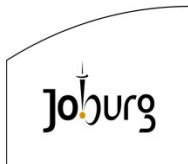
- An EME or QSE which is at least 51% owned by black people;
- An EME or QSE which is at least 51% owned by black people who are youth;
- An EME or QSE which is at least 51% owned by black women;
- An EME or QSE which is at least 51% owned by black people with disabilities;
- An EME or QSE which is 51% owned by black people living in rural or underdeveloped areas or townships;
- A cooperative which is at least 51% owned by black people;
- An EME or QSE which is at least 51% owned by black people who are military veterans;
- an EME or QSE .

1. Subcontractors must be chosen from National Treasury's Central Supplier Database which can be accessed on National Treasury's website.
2. The Contractor will identify subcontracting items or tasks that will meet the subcontracting minimum of 12% of the value of this Contract. In complying with this condition, the following shall be adhered with:
 - The Contractor shall develop a Subcontracting Plan that sets out the details of the proposed Subcontracting arrangements including, but not limited to, competitive bidding process to be used for the appointment of SMME's, scope of work to be allocated, criteria for the selection of Subcontractor(s), Subcontractor agreements, cost of the work to be Subcontracted, etc.
 - The Subcontracting Plan shall be issued to the Employer's Agent for approval, prior to the engagement of any Subcontractor(s) by the Contractor. The activities, time periods, linkages, etc. associated with the development and approval of the Subcontracting Plan shall be included in the Project Programme, which Programme is subject to the approval of the Employer's Agent.
 - The Employers Agent may assist with identified items for subcontracting but where these do not form 12% of the Contract Price, the Contractor shall identify additional works that will be subcontracted to ensure compliance with the minimum subcontracting percentage.

Employer:		Contractor:	
Witness:		Witness:	

- In the event that a rate supplied by the Contractor for a specific BoQ work item is not sufficient to cover Subcontractor costs/rates for that specific item, the Contractor shall provide a detailed rate breakdown for that specific BoQ item (and each and every subsequent BoQ work item where the rate is not sufficient to cover Subcontractor cost); and shall indicate costs (amongst others) for labour, material, handling, mark-ups, etc. to prove that the rate that was submitted during tender stage was in fact market related; and in balance with other rates that were submitted for work items that will not be undertaken by Subcontractors.
 - Should any delays be experienced during the period of the Contract due to the appointment of subcontractors by the Contractor, work stoppages by subcontractors, industrial action by subcontractors, etc. such delays shall be assigned to the Contractor, and no claims for Extension of Time will be entertained by the Employer.
 - The Contractor will be liable to pay a penalty if the Subcontracting target of 12% has not been met by the end of the Contract. The Employer will deduct this penalty amount through the Payment Certificate process. The Employer will have full discretion as to when the penalty will be applied (i.e. the month in which the penalty amount will be deducted). In calculating the total amount that has been (will be) paid to SMME's, all amounts that have actually been reimbursed to SMME's will be taken into account including P&G's, amounts for actual work done, etc.
 - The penalty amount described above shall be equal to 50% (fifty percent) of the difference between the target Subcontract amount (i.e 12% of the Contract Price) and the actual amount that has been spent on Subcontractors/SMME's by the end of the Contract.
3. A Subcontracting agreement between the Main Contractor and the Subcontractor shall be submitted to JW upon appointment and must include the following minimum information:
- Name of Subcontractor and BBBEE status
 - Subcontractor domicilium and registered address of business, as well as status of compliance with all applicable legal requirements.
 - Area and location of project
 - Scope of Work issued to the Subcontractor
 - Value of the Work issued including P&G's (this information must be submitted in a format that is readily auditable).
 - Assistance provided/to be provided to the Subcontractor by the Contractor, e.g. acquisition of materials, machinery, tools, etc.
 - Indicate the remuneration rate of all local labourers (the latest Gazetted labour rates)

Employer:		Contractor:	
Witness:		Witness:	

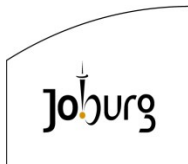


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- A Skills Transfer Plan which will indicate, amongst others, the proposed skills that will be transferred to the Subcontractor, individuals that will be identified for skills transfer, the amount that will be spent by the Contractor on skills transfer, evidence that will be produced by the Contractor (such as training certificates, training registers, etc.), etc.
- A specific provision that enables the Contractor to pay the Subcontractor's suppliers, labour (skilled, local, etc.) or any other service provider of the Subcontractor, should the Subcontractor fail to do so. This provision shall include (but not be limited to) the following conditions/proviso's: Invoices that are due for payment from suppliers and the like must be invoices that have been approved for payment and be based on work or services that have actually been completed or delivered. Payments that are due to labour will be based on approved timesheets.
 - The Contractor is to ensure that any invoice presented for payment is indeed an approved invoice, and that the necessary work or services have been delivered or completed. The approved invoice shall be settled (paid) by the Contractor (on behalf of the Subcontractor) by the due date for payment.
 - The Contractor will be entitled to deduct payments made to any third party, on behalf of the Subcontractor, from subsequent payments that may become due to the Subcontractor.
 - The Contractor will be entitled to bill the Subcontractor a mark-up on the payments made on behalf of the sub-contractor. The mark-up shall not be more than 10% (ten percent) of the amount actually paid (i.e. the amount (excluding VAT) reflected on the invoice that has been settled). The mark-up amount shall be deducted from subsequent payments that may become due to the Subcontractor.
 - Proof of any such payments made on behalf of the Subcontractor shall be issued to the Employer's Agent, on request, with all necessary supporting information that the Employer's Agent may request
 - Payments made on behalf of the Subcontractor are not subject to the Contractor first being paid by the Employer. Therefore, the Contractor shall pay approved invoices, on behalf of the Subcontractor, irrespective of whether the Contractor has first been paid by the Employer. The Contractor will be entitled to levy interest on all payments that have been made in this regard, in accordance with the necessary interest payment provisions contained in the General and Special Conditions of Contract.

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Witness:		Witness:	



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4. The successful Contractor shall submit periodic SMME/Subcontractor reports to the Employer's Agent as follows:
- Status of progress against the Subcontracting Plan (described above), to the approval of the Employer's Agent
 - Subcontractor domicilium and registered address of business, as well as ongoing status of compliance with all applicable legal requirements.
 - Name of Subcontractor and BBEE status
 - Area and location of project
 - Scope of work issued to the Subcontractor
 - Value of the work issued (this information must be submitted in a format that is readily auditable)
 - Monthly payments made to the subcontractor (this information must be submitted in a format that is readily auditable)
 - Assistance provided to the Subcontractor e.g. advance payments, acquisition of materials, machinery, tools, etc.
 - Performance of the Subcontractor, with evidence to support this performance assessment.
5. Upon completion of the project, the Contractor is required to provide a final report to JW on skills transferred to / acquired by the Subcontractor(s) engaged on the Project, description and value of work performed, as well as their overall performance.
6. The Contractor shall also indicate whether the experience gained by the Subcontractor is sufficient to assist the Subcontractor to improve their CIDB grading, with full details of supporting information.

Employer:		Contractor:	
Witness:		Witness:	

C1.2.1.2.15 Competent Employees

Competent Employees	Qualifications	Experience
Contract Manager	Minimum Qualifications of Contract Manager Only a Contract Manager with minimum qualifications of BTech / BSc/ BEng: Engineering (Civil) or Quantity Survey or Construction Management AND ECSA Professional Registration (Pr. Eng. / Pr. Technologist) or SACPCMP Professional Registration (PrCPM / PrCM)	Minimum Number of completed civil / building construction projects for industrial / commercial / public entity as Contract Manager is 4.
Site Agent/ Construction Manager	Minimum Qualifications of Site Agent/ Construction Manager Only a Site Agent/Construction Manager with qualifications of National Diploma in Building Science or higher	Minimum number of completed perimeter wall building project for industrial / commercial / public entity with minimum area of 600m² or length of 300m as Site Manager is 3
Safety Officer	Minimum Qualifications of Safety Officer Post Qualification Experience of Safety Officer Only a Safety Officer with qualifications of National Diploma (Safety Management/ Environmental Health/Environmental Science/ Environmental Management), SAMTRAC / SHEOMTRAC/ SHEMTRAC / MESHTRAC /NEBOSH / Safety Officers Course (NQF 5) or more AND Registered with SACPCMP in the "Construction Health and Safety" Sector OR Submitted the proof to register with SACPCMP in the "Construction Health and Safety" Sector will obtain a score for experience of a Safety Officer. However, the time of registration of Safety Officer will not impact post qualification number of projects.	Minimum number of civil /building projects completed as Safety Officer is 4

C1.2.1.2.16 Tie-in Limitations

The connection of new infrastructure to the existing infrastructure is limited to low-flow periods and subject to prior arrangement and approval by the Works.

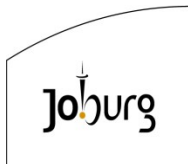
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Witness:		Witness:	

C1.2.1.3 Variations to General Conditions of Contract

Add the following Table:

3.2.4	Employer's Agent for Health and Safety Replace Clause 3.2.4 with the following: ‘In terms of Clause 1.3.2, all parties to the Contract shall be subject to the relevant requirements of the Construction Regulations 2014 (as amended) of the Occupational Health and Safety Act, Act 85 of 1993 (as amended).’ Add the following at the end of the above new replacement Clause 3.2.4: ‘Where the Employer is obliged to appoint an Employer's Agent for Health and Safety in terms of the Construction Regulations 2014 (as amended) of the Occupational Health and Safety Act (Act 85 of 1993 as amended), and where such Employer's Agent for Health and Safety has complied with the registration requirements of a Construction Health and Safety Agent as a specified category in terms of section 18 (1) (c) of the Project and Construction Management Professions Act (Act 48 of 2000), the applicable clauses of the latest edition of the “Standard Scope of Services for Construction Health and Safety Agents Registered In Terms Of Section 18(1)(c) of the Project And Construction Management Professions Act (Act No. 48 Of 2000)”, including Clauses 2.2.5 “STAGE 5 - CONSTRUCTION DOCUMENTATION AND MANAGEMENT”, and 2.2.6 “STAGE 6 - PROJECT CLOSE – OUT”, and 2.2.7 “ADDITIONAL RELATED SERVICES”, as published in “Registration Rules for Construction Health and Safety Agents in Terms of Section 18 (1) (c) of the Project and Construction Management Professions Act, 2000 (Act No. 48 of 2000)” by the South African Council for Construction and Project Management Professionals in terms of the Project and Construction Management Professions Act (Act 48 of 2000 as amended), shall also apply.’
5.1.1.2	Time Calculations SEPARATE THE PHRASE “shall be excluded from the calculation of the time-span concerned.” BY MOVING IT ONTO A NEW LINE AS A NEW PARAGRAPH, AND PROMOTE THAT PARAGRAPH BY ONE PARAGRAPH LEVEL TO A POSITION WHERE IT FORMS THE LAST PART OF SUB-CLAUSE 5.1.1, SO THAT SUB-CLAUSE 5.1.1.2 READS AS FOLLOWS: 5.1.1.2 The day on which the timespan commences shall be excluded from the

Employer:		Contractor:	
Witness:		Witness:	

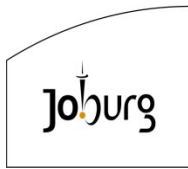


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	calculation of the timespan concerned.”
5.7.1	Rate of progress ON PAGE 25, IN THE TOP PARAGRAPH, FOR THE SENTENCE COMMENCING WITH “Such steps shall...” REPLACE THE SENTENCE “Such steps shall be approved by the Employer's Agent, which approval shall not be unreasonably withheld.” WITH “Such steps shall be subject to the approval of the Employer's Agent, which approval shall not be unreasonably withheld.”
6.5.1.3	Basis of payment for dayworks ON PAGE 40, IN THE LAST LINE OF THE SUB-CLAUSE, REPLACE THE PHRASE “ruling plant hire rates” WITH “ruling construction equipment hire rates”

Employer:		Contractor:	
Witness:		Witness:	



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C1.2.2 Part 2: Data Provided by the Contractor

GCC Clause	Information																
Clause 1.1.9	The name of the Contractor is..... The Contact person is.....																
Clause 1.2.1.2	The address of the Contractor is: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: #d3d3d3;"> <th style="width: 50%;">Physical Address:</th> <th style="width: 50%;">Postal Address:</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr> <td>Tel:</td> <td>Fax:</td> </tr> <tr><td> </td><td> </td></tr> <tr> <td>Email</td> <td> </td> </tr> </tbody> </table>	Physical Address:	Postal Address:									Tel:	Fax:			Email	
Physical Address:	Postal Address:																
Tel:	Fax:																
Email																	
Clause 6.2.1	The security to be provided by the Contractor shall be one of the following: The Performance Guarantee shall be irrevocable, On-Demand Performance Guarantee, to be issued exactly in the form of the proforma document provided in favour of the Employer by a Bank or Recognised Financial Institution or Cash in lieu of bond will apply.																
Clause 6.8.3	The variation in cost of special materials is <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="width: 30%;">Type</th> <th style="width: 30%;">Unit</th> <th style="width: 40%;">Rate</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;">NOT APPLICABLE</td> </tr> </tbody> </table>	Type	Unit	Rate	NOT APPLICABLE												
Type	Unit	Rate															
NOT APPLICABLE																	

Employer:		Contractor:	
Witness:		Witness:	

Johannesburg Water (SOC) Ltd



CONTRACT NO: JW14481

**CONSTRUCTION OF NEW PERIMETER WALL
 AND GUARDBOUSES AT ENNERDALE DEPOT**

VOLUME 1

PART 1.3: FORMS AND SECURITIES

Employer:		Contractor:	
Witness:		Witness:	

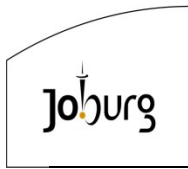


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C1.3.2 Blasting Indemnity	C.102
C1.3.3 Health and Safety Contract Between Employer and Contractor in Terms of Section 37(2) of the Occupational Health and Safety Act No 85 Of 1993	C.104
C1.3.4 Health and Safety Contract: General Information	C.105

Employer:		Contractor:	
Witness:		Witness:	

C1.3 FORMS AND SECURITIES

FORMS FOR COMPLETION BY THE CONTRACTOR

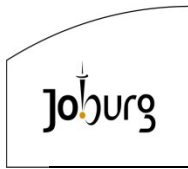
**THE FOLLOWING FORMS ARE TO BE COMPLETED BY THE CONTRACTOR
 AFTER THE TENDER HAS BEEN AWARDED TO THE SUCCESSFUL TENDERER**

- a) Form of Guarantee
- b) Blasting Indemnity
- c) Agreement in terms of the Occupational Health and Safety Act
- d) Occupational Health and Safety Indemnity Undertaking

The forms will be completed by the Contractor who will be instructed to do so in the Form of Acceptance. The completed forms will become part of the Contract.

The Form of Guarantee is a pro forma document. The Contractor will provide an original document, from a financial institution, with the same text within the time stated in the Contract Data. Only a Bank or approved Insurance Company or Guarantee Corporation is acceptable as Guarantor.

Employer:		Contractor:	
Witness:		Witness:	



TO BE PRINTED ON THE OFFICIAL LETTERHEAD OF THE GUARANTOR.

PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, Edition,

GUARANTEE REFERENCE NUMBER: [*]**

Whereas [insert the full name of the Employer], registration number: [insert registration number], of [insert full physical address] (the “Employer”) has awarded a contract for [insert a detailed description of the contract], under contract number: [insert details] (the “Contract”), to [insert full names of the Contractor], registration number [insert details], of [insert full physical address] (the “Contractor”).

And whereas the Contract requires the Contractor to provide to the Employer an on-demand performance guarantee for the due and proper performance by the Contractor of its obligations in terms of the Contract.

Now therefore:

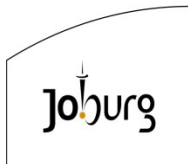
[insert full names of the Guarantor], registration number [Insert details], of [insert the full physical address] (the “Guarantor”), duly represented by the undersigned: [insert the full names of the signatory], and [insert the full names of the signatory], acting herein in their respective capacities as: [insert full title] and [insert full title] respectively, of the Guarantor, and being duly authorized to sign this on demand performance guarantee (this “Guarantee”) and to incur obligations in relation thereto, in the name, and on behalf, of the Guarantor under, and in terms of, a Resolution of the Board of Directors or other written authority of the Guarantor, hereby irrevocably and unconditionally guarantees and undertakes:

1. To pay the Employer the sum or sums not exceeding the following aggregate amount:
R [insert the amount] (the “Guaranteed Amount”) upon receipt of the documents identified in clauses 1.1 to 1.3 below
 - 1.1. A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 1.2;
 - 1.2. A first written demand issued by the Employer to the Guarantor e-mailed towith a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 1.1 above and the sum certified has still not been paid;
 - 1.3. A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum.
2. To pay to the Employer the Guaranteed Amount or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor emailed to calling up this Performance Guarantee, such demand stating that:

Employer:		Contractor:	
Witness:		Witness:	

- 2.1. The Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 2; or
- 2.2. A provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 2; and
- 2.3. The aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
3. To pay to the Employer on demand any sum or sums not exceeding the Guaranteed Amount on presentation of a written demand signed by the Employer (the "**Demand**"), supported by a written statement signed by the Employer certifying that the Contractor, in the opinion of the Employer as at the date of issue of such Demand, is in breach of its obligations under the Contract or that a defect had occurred following the performance by the Contractor of its obligations under the Contract, and without being required to prove or set out the nature of any such breach or defect.
4. Payment by the Guarantor in terms of 1 to 3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
5. The Guarantor hereby acknowledges that:
 - 5.1. Any reference in this Performance Guarantee to the Contract 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;
 - 5.2. Its obligation under this Performance Guarantee is restricted to the payment of money.
6. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
7. Neither the failure of the Employer to enforce strict or substantial compliance by the Contractor with its obligations under the Contract nor any act, conduct or omission by the Employer prejudicial to the interests of the Guarantor will discharge the Guarantor from liability under this Guarantee.
8. This Performance Guarantee, with the required demand notices in terms of 1 to 3, shall be regarded as a liquid document for the purpose of obtaining a court order.
9. This Performance Guarantee is neither negotiable nor transferable.
10. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the date on which the Certificate of Completion of the Works has been issued or payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

Employer:		Contractor:	
Witness:		Witness:	



11. The Guarantor chooses the physical address **[insert the full physical address]** care of **[insert the full names]**, as well as the e-mail address, for the service of all notices for all purposes in connection herewith.

12. This Guarantor is governed by the laws of the Republic of South Africa and any dispute arising hereunder shall be subject to the jurisdiction of the South African courts. In respect of such proceedings, each of the Parties specifically consents to the non-exclusive jurisdiction of the High Court of South Africa (Gauteng Local Division, Johannesburg).

Signed at for and on behalf of

Guarantor's signatory (1)

Name:

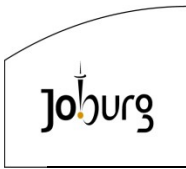
Designation:

Guarantor's signatory (2)

Name:

Designation:

Employer:		Contractor:	
Witness:		Witness:	



Contract: JW14481
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Section C1 Forms and Securities



Employer:		Contractor:	
Witness:		Witness:	

C1.3.2 Blasting Indemnity

Given by

*Company Registration

No. _____

Address

—

a *Company incorporated with limited liability according to the company laws of the Republic of South Africa, *Partnership, *Close Corporation, *Public

Company (hereinafter called the Contractor), represented herein by

_____ in his capacity as the Contractor's

_____ duly authorised hereto by

a resolution of the Contractor dated _____ a certified copy

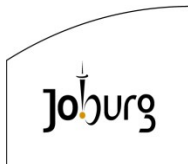
of which resolution is attached to this Indemnity.

WHEREAS the Contractor has entered into a Contract with the Johannesburg Water (SOC) Ltd (hereinafter called the Employer) for,

and the Company requires this Indemnity from the Contractor

NOW THEREFORE THIS DEED WITNESSETH that the Contractor does hereby indemnify and hold harmless the Company in respect of all loss or damage that may be incurred or sustained by the Employer by reason of or in any way arising out of or caused by blasting operations that may be carried out by the Contractor in connection with the aforementioned Contract and also in respect of all claims that may be made against the Employer in consequence of such blasting operations, by reason of or in any way arising out of any accidents or damage to persons, life or property or any other cause whatsoever, and also in respect of all legal or other expenses that may be incurred by the Employer in examining, resisting or settling any such claims; for the due performance of which the Contractor binds itself according to law.

Employer:		Contractor:	
Witness:		Witness:	



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THUS, DONE AND SIGNED for and on behalf of the Contractor at

_____ on the _____ day of

_____ 20 _____ in the presence of the subscribing
witnesses.

As witnesses:

1. _____
Name & Surname Signature

2. _____
Name & Surname Signature

Duly authorised to sign on behalf of: _____

Address: _____

Employer:		Contractor:	
Witness:		Witness:	

C1.3.3 Health and Safety Contract Between Employer and Contractor in Terms of Section 37(2) of the Occupational Health and Safety Act No 85 Of 1993

Written agreement between Johannesburg Water ((Proprietary) Limited (hereinafter referred to as “the Employer) and _____
(hereinafter referred to as “the mandatory”) as envisaged by Section 37(2) of the Occupational Health and Safety Act, No. 85, of 1993 as amended.

I _____
representing _____
(mandatory) do hereby acknowledge that
_____ (mandatory) is an employer in its own
right and shall be regarded as the employer for purposes of the contract work specified
in the body of the principal agreement with duties as prescribed in the Occupational
Health and Safety Act, No. 85 of 1993 as amended so as to ensure that all work will be
performed or machinery and plant used in accordance with the provisions of the said
Act. I furthermore agree to comply with the requirements of the Employer as
contained in the Occupational Health and Safety Specification included with the
principal agreement and to liaise with the employer should I, for whatever reason, be
unable to perform in terms of this agreement.

Signed this _____ day of _____ at _____

Signature on behalf of mandatory _____

Signature on behalf of Employer _____

Compensation Fund Registration No. of mandatory _____

Good Standing Certificate : ☐ yes ☐ no (tick one box)

Employer:		Contractor:	
Witness:		Witness:	

C1.3.4 Health and Safety Contract: General Information

1. The Occupational Health and Safety Act comprises Sections 1 to 50 and all un-repealed regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended, as well as other regulations which may be promulgated in terms of the OHS Act.
2. 'Mandatory' is defined as including an agent, a contractor or a subcontractor for work, but without derogating from his status in his own right as an employer or user of plant and machinery
3. Section 37 of the Occupational Health and Safety Act potentially punishes employers (principals) for the unlawful acts or omissions of mandataries (contractors) save where a written agreement between the parties has been concluded containing arrangements and procedures to ensure compliance with the said Act by the mandatory.
4. All documents attached or referred to in the above agreement form an integral part of the agreement.
5. To perform in terms of this agreement mandataries must be familiar with the relevant provisions of the Act.
6. Mandataries who utilise the services of their own mandataries (subcontractors) are advised to conclude a similar written agreement.
7. Be advised that this agreement places the onus on the mandatory to contact the Employer in the event of inability to perform as per this agreement. The Employer, however, reserves the right to unilaterally take any steps as may be necessary to enforce this agreement.
8. The contractor shall be responsible for the full and proper implementation of the terms and provisions of the Act and its regulations in the area in which the work is to be undertaken by the Contractor.
9. The Contractor shall be responsible for the well-being, in relation to health and safety, of all persons coming upon or into such area in accordance with that legislation, including the implementation of any directives issued by management of the Employer in this respect.
10. The work to be done is **JW14481: CONSTRUCTION OF NEW PERIMETER WALL AND GUARDHOUSES AT ENNERDALE DEPOT**
11. The area in which the work is to be conducted is _____
12. The Contractor shall familiarise himself with such area and all risks existing thereon and undertakes to report to the representative of the Employer any hazard or risk to health and safety which arises during the contract work in the area concerned and over which the Contractor may have no control. All necessary and appropriate safety / health equipment shall be issued by the Contractor to all persons working on or coming into the area.

Employer:		Contractor:	
Witness:		Witness:	

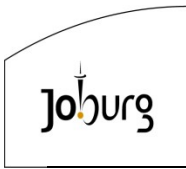
C1.3.4.1 Occupational Health and Safety Indemnity Undertaking

I, the undersigned _____
in my capacity as _____
of the firm _____

1. Hereby undertake to ensure that I/my firm and/or employees and/or subcontractors and/or his employees -
 - 1.1 comply strictly with the provisions of the Occupational Health and Safety Act of 1993 (as amended) and/or the regulations promulgated in terms thereof, with specific reference to section 37(2) of the said act, as well as any relevant legislation, in the course of the performance/execution of any service and/or work in, to or on any of the Employer's buildings, construction sites and/or premises;
 - 1.2 ensure that consultants and/or visitors comply with any instructions and measures relating to occupational health and safety, as prescribed by the Employer; and
 - 1.3 comply strictly with the statutorily prescribed work systems, operational equipment, machinery and occupational health and safety conditions;
2. And as an independent employer and contractor, hereby indemnify, in terms of the above undertakings, the Employer -
 - 2.1 in respect of any costs that I/my firm and/or employees and/or subcontractors and their employees may incur of necessity in compliance with the above undertakings; and
 - 2.2 against any claims that may be instituted against the Employer and/or any liability that the Employer may incur, whether instituted and/or caused by me/my firm's employees, agents, consultants, subcontractors and/or their employees and visitors or the Employer's clients or neighbours in respect of any incidents related to my/my firm's activities and as a result of which the occupational health and safety of the persons involved have been detrimentally affected; and
 - 2.3 against similar claims that I, managers or directors of my firm may have against the Employer and any damages for which I, managers or directors of my firm hold the Employer liable.
3. My firm's compensation commissioner number _____
is _____
and I confirm that my firm and its subcontractors' fees have been paid up and obligations in respect of the compensation commissioner have been complied with and further that I shall furnish proof thereof in writing on request.
4. I hereby confirm that I have the authority to sign this indemnity undertaking and that the Employer is not obliged to confirm such confirmation.

Signed at _____ This _____ day of _____

Employer:		Contractor:	
Witness:		Witness:	



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	Signature	Capacity
As witnesses:		
1		
2		

Employer:		Contractor:	
Witness:		Witness:	

Johannesburg Water SOC Ltd



Johannesburg Water

CONTRACT NO: JW14481

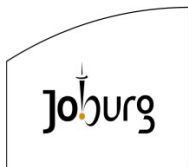
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VOLUME 1

PART 2: PRICING DATA

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Witness:		Witness:	



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C2.1.3.3 Working outside normal hours	PD.5
C2.1.4 SMME Portion of the Works	PD.5
BILL OF QUANTITIES	PD.7

Employer:		Contractor:	
Witness:		Witness:	

C2 PRICING DATA

C2.1 Pricing Instructions

C2.1.1 General preamble to the bill of quantities (Engineering works)

- a) All items in the Bill of Quantities, except where otherwise specified in Clause 8 of a Standardised Specification or in the Project Specification, shall be measured and shall cover operations as recommended in the standard system of measurement of civil engineering quantities, published under the title "Civil Engineering Quantities", by the South African Institution of Civil Engineering.
- b) The basis and principles of measurement and payment are described in this section (Pricing Instructions) and Clause 8 of each of the Standardised Specifications for Civil Engineering Construction. The applicable SANS 1200 Standardised Specifications are listed in the Scope of Work, Portion 1: Project Specifications. Variations and amendments to the Project Standard Specifications are contained in the Scope of Work, Portion 2: Variations and/or Additions to the Project Standard Specifications.
- c) Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each Standardised Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification or the Scope of Work, conflict with the terms of the Bill of Quantities, the requirements of the Standardised Specification or Scope of Work, as applicable, shall prevail.
- d) The clauses in a specification in which further information regarding the Schedule item may be found are listed in the "Payment Refers" column in the Schedule. The reference clauses indicated are not necessarily the only sources of information in respect of listed items. Further information and specifications may be found elsewhere in the Contract Documents. Standardised Specifications are identified by the letter or letters which follow SANS in the SANS 1200 series of specifications, e.g. G for SANS 1200G.
- e) Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.
- f) The quantities set out in the Bill of Quantities are the estimated quantities of the Contract Works, but the Contractor shall be required to undertake whatever quantities may be directed by the Employer's Agent from time to time. The Contract Price for the completed Works shall be computed from the actual quantities of work done, valued at the relevant unit rates and/or prices. The Contractor must not order the quantities of materials stated in the Bill of Quantities until he has confirmed from the Construction Drawings or measurement on Site that such quantities are in fact the correct quantities.
- g) The rates and/or prices to be inserted in the Bill of Quantities are to be the full inclusive prices for the work described under the several items. Such rates and/or prices 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, as well as overhead charges and profit. Reasonable charges shall be inserted as these shall be used as a basis for assessment of payment for additional work that may have to be carried out.
- h) A price or rate is to be entered against each item in the Bill 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 Schedule.
- i) The units of measurement described in the Bill of Quantities are metric units. Alternatives used are as follows:

mm	=	millimetre	=	hour
m	=	metre	kg	= kilogram
km	=	kilometre	t	= ton (1000kg)
m ²	=	square metre	No.	= number
m ² pass	=	square metre pass	sum	= lump sum

Employer:		Contractor:	
Witness:		Witness:	

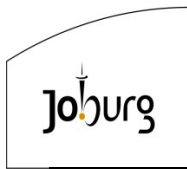
ha	=	hectare	MN	=	mega-newton
m ³	=	cubic metre	MN.m	=	mega-newton-metre
m ³ km	=	cubic metre-kilometre	PC sum	=	Prime Cost sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	percent
MPa	=	megapascal	kW	=	kilowatt
W/day	=	Workday	R/only	=	Rate only

- j) For the purpose of this Bill of Quantities, where applicable, the following words shall have the meanings hereby assigned to them:

Unit	:	The unit of measurement for each item of work as defined in the SANS 1200.
Quantity	:	The number of units of work for each item.
Rate	:	The agreed payment per unit of measurement.
Amount	:	The product of the quantity and the agreed rate for an item.
Lump sum	:	An agreed amount for an item, the extent of which is described in the Bills of Quantities but the quantity of work of which is not measured in any units.

- k) Arithmetical errors in the Bill of Quantities shall be corrected in accordance with Clause C3.9 of the Conditions of Tender. Should there be any discrepancy between rates and/or prices written in the Assessment Schedule and the Bill of Quantities, the latter shall govern.
- l) While the Employer has every intent to complete the full scope of works, the Employer reserves the right to reduce or increase the scope of works according to the budget, or to terminate this contract, with adjustment to the agreed rates, sums or fees and without payment of any penalty in this regard. The Service Provider shall however be entitled to pro-rata payment for all services carried out in terms of any adjustment to the Scope of Work or, in the case of termination, remuneration and/or reimbursement.
- m) The Bill of Quantities shall be completed by hand in INK or TYPED. The Bill of Quantities in the tender document may be replaced with the typed electronic Bill of Quantities, without changing the quantities, items and description.

Employer:		Contractor:	
Witness:		Witness:	



C2.1.2 Sufficiency of tender

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the construction of the Works and of the rates and prices, which rates and prices shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and completion of the Works.

C2.1.3 Special payment conditions

This clause shall be read in conjunction with the 'Penalties' clause(s). Where the penalty clause shall always receive precedence over this clause, should it be found that duplicative financial corrective measures exist.

C2.1.3.1 Applicability of payment items

All payment items forming part of this Contract shall not apply to ordered Works completed by the Contractor under this Contract, where completed Works:

- are not completed to acceptable quality;
- are not issued by the Employer's Agent;
- are still within the defects and liability period; or
- are not accepted by the Employer's Agent or his duly authorised representative.

C2.1.3.3 Working outside normal hours

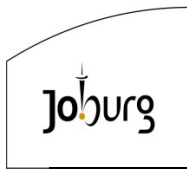
The additional costs, if any, to perform works outside normal working hours shall be deemed to have been allowed for in the provided activity pricing rates and/or prices.

C2.1.4 SMME Portion of the Works

A portion of the works must be allocated for completion by appointed SMMEs.

The Main Contractor shall retain liability and responsibility for the management, scheduling, and quality control of all works performed by the sub-contractors. After appointment of the Main Contractor, Johannesburg Water will supply the Main Contractor with a list of SMMEs which the Main Contractor can approach to provide rates for the items envisaged for subcontracting. The Main Contractor will be expected to conduct a competitive process to recommend a Sub-Contractor or Sub-Contractors to Johannesburg Water. Johannesburg Water will then evaluate all rates provided by the Sub-Contractor for fairness. Johannesburg Water will then either a) approve the appointment of the Sub-Contractor or Sub-Contractors or b) enter into negotiations with the Main Contractor and Sub-Contractor / s or c) request that the Contractor recommend a different Sub-Contractor.

Employer:		Contractor:	
Witness:		Witness:	



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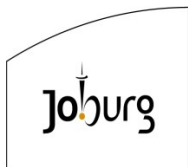


Further an allowance has been made for the Contractor to complete the following tasks:

- The Contractor shall ensure that the Sub-Contractor(s) complies with paying all amounts due in respect of his employees and himself in terms of all relevant legislation and regulations including, but not confined to, the
 - Income Tax Act, the
 - Compensation for Occupational Injuries and Diseases Act,
 - Unemployment Insurance Act,
 - Basic Conditions of Employment Act
- Monitoring of the Quality of Work completed by the Sub-contractor/SMME
- Skills transfer during the execution of the project
- Compliance with all aspects of the Scope of Work
- Assistance with sourcing of applicable material in line with the technical data sheets

Further an allowance has been made for "Training" – this is related to CETA accredited training which is to be agreed with the Employer during project execution. No amount can be claimed under this item for on-site or on-the-job training, only for accredited training which the SMME receives.

Employer:		Contractor:	
Witness:		Witness:	

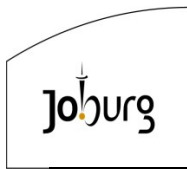


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BILL OF QUANTITIES

Employer:		Contractor:	
Witness:		Witness:	

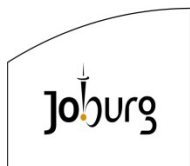


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SUMMARY OF BILL OF QUANTITIES	
Description	Amount
SECTION 1: PRELIMINARY AND GENERAL	R
SECTION 2: GUARDHOUSE NO. 1	R
SECTION 3: GUARD HOUSE NO. 2	R
SECTION 4: MAIN ENTRANCE GUARD HOUSE NO. 3	R
SECTION 5: BOUNDARY WALL	R
SUB-TOTAL A	R
Plus 15% for Contingencies (Compulsory)	R
SUB-TOTAL B	R
PLUS 15% VAT	R
TENDER SUM CARRIED TO FORM OF OFFER	R

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Witness:		Witness:	



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Part 3: Scope of Work

Johannesburg Water SOC Ltd



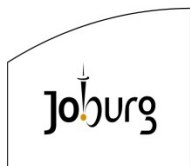
CONTRACT NO: JW14481

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DEPOT**

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C3 PREAMBLE TO SCOPE OF WORK

GENERAL

This section specifies and describes the supplies, services and Employer's Agent and construction works which are to be provided and any other requirements and constraints relating to the manner in which the contract work is to be performed.

SCOPE

Volume 2A is set out in five portions:

- Portion 1: covers a general description of the project, the facilities available and the requirements to be met.
- Portion 2: covers variations to the Civil standardised specifications, which are applicable to the contract.
- Portion 3: covers particular Civil specifications, which are applicable to this contract.
- Portion 4: Covers specifications applicable to electrical works for this contract.

Volume 2B contains Generic Specifications.

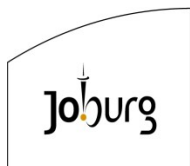
STATUS

The Project Specifications together with the drawings and Schedule of Quantity indicate the section of Standard Specification applicable to this Contract.

In the event of any discrepancy between parts of the Standard Specification and the Project Specifications, the latter shall take precedence and shall govern.

Should any requirement of the Particular Project Specification conflict with any requirement of the Project Specification or Variations and Additions to the Standardised Specifications, the requirements of the Particular Project Specifications shall prevail.

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Witness:		Witness:	



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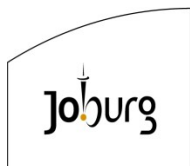


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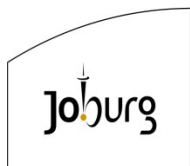


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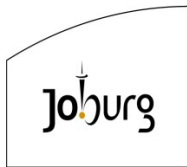


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PORTION 1: PROJECT DESCRIPTION AND GENERAL INFORMATION

PS 1 DESCRIPTION OF THE WORKS

PS 1.1 EMPLOYER'S OBJECTIVES

The objective of this contract is to construct Perimeter Wall with Razor wire and build X2 Guard Houses at Ennerdale Depot.

The Consultant has been appointed by the Employer (Johannesburg Water), to produce the tender design and act as Employer's Agent for the implementation of this project.

PS 1.2 OVERVIEW OF THE WORKS OBJECTIVES

Perimeter Wall with the following:

- Build a new 3m high and 340m perimeter double skin face brick wall at the depot
- Extension of the existing 305m face brick wall up to 3m height
- Install security razor wire fence on top of the boundary wall.

Guard Houses

- Construction of 2 security guard houses with ablutions
- Renovation of main entrance guardhouse and adding ablutions

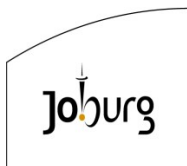
PS 1.3 EXTENT OF THE WORKS

PS 1.3.1.1 SUMMARY OF WORKS

The scope of works for the Ennerdale Depot can be summarised as follows, but may not be limited to:

- Install wall top specialized security fence on the boundary wall.
- Build a new 3m high and 340m perimeter double skin face brick wall at the depot.
- Remedial construction works for the extension of the existing 305m face brick wall up to 3m height
- Construction of two (2) guard houses with a capacity of two guards inclusive of ablution facilities.
- Renovation of main entrance guardhouse and adding ablutions

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PS 1.4 LOCATIONS OF THE WORKS

The Ennerdale Depot is located on an existing municipal stand within the Ennerdale Area, 2 James St, Mid-Ennerdale, Ennerdale, 1830, Erf 1701

Access to the site is from the N1 highway, off ramp to Grasmere North Offramp Plaza and turn left into R558 Road if coming from Free State direction however if coming from Johannesburg direction, off ramp left soon after the Grasmere Plaza (S) tollgate and turn right into R558 Road. Continue straight along R558/Ennerdale Road and turn right into James Street. The site is on your immediate right along James Street. At the first T-Junction on James Street turn right and travel for approximately 20m to the site. A security check point is available at the main entrance and entrance to and from the site and access to the site will be controlled via the security check point.

PS 1.5 TEMPORARY WORKS

No Temporary works are envisaged under this contract.

PS 2 ENGINEERING

PS 2.1 EMPLOYER'S DESIGN

The Employer's design has been completed by Keon Techno JV (the Employer's Agent) on behalf of the Employer.

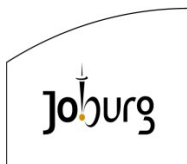
When and where specific reference is made or preference shall be given to specified equipment, the Tenderer shall include such as his main offer in the Tender. Should the Tenderer fail to comply with these requirements, this may lead to the disqualification of the tender submitted.

Tenderers are free to propose alternative equipment to that proposed in the specifications and, provided that drawings with details of each alternative proposal are submitted with the Tender, such alternative proposals shall be considered in the adjudication of a Tender. Full details of any changes must be included with the tender. The cost of any changes to the Employer's design shall be for the Contractor's account where full details of the changes were not submitted with the tender.

The Contractor undertakes only construction on the basis of designs issued by the Employer's Agent. The Contractor is to follow the specifications, the design and construction drawings as laid out by the Employer's Agent. Tenderers must satisfy themselves that the layouts as provided in the tender documentation suit in all respects the equipment proposed by the Employer or by the Tenderer as the case may be. Where equipment other than that proposed by the Employer's Agent is accepted, it will be the sole responsibility of the Contractor to ensure that the associated equipment including pipe work is compatible with the accepted material and proposed structures.

In the case of the Employer's Agent's acceptance of an alternative proposal, the Contractor shall submit in triplicate to the Employer's Agent for his approval, detailed

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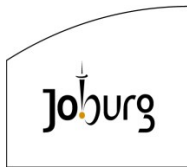
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working drawings of the Contractor's alternative design proposal before any related work is executed.

An extension of time for Practical Completion of the Contract due to time spent on the alteration of the tender drawings to suit the Contractor's alternative proposals or, due to time spent in obtaining the Employer's Agent's approval of such alternatives, shall not be considered.

Acceptance of an alternative proposal or offer shall not relieve the Contractor of any of his obligations in terms of the Contract. The Contractor's cost of preparation and submission of an alternative proposal shall be deemed to be included in the rates tendered for the execution of the Works.

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Witness:		Witness:	



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PS 2.2 DRAWINGS
PS 2.2.1 VOLUME 4

Drawings are included in Volume 4 of this Contract Document based on current available information and are for tender purposes. Sufficient drawings to enable the Contractor to start with work will be issued to the Contractor at commencement of the works. Such drawings may be updated (based on actual site situation uncovered during carrying out the Works) and re-issued during the Contract Period as required.

PS 2.2.2 CONSTRUCTION DRAWINGS

Upon receiving the instruction to commence with the Works the Contractor shall receive 3 sets of construction drawings, of which 1 set shall be designated for as-built records and updated by the Contractor. The latter shall be:

- a) made available to the Employer's Agent or his duly authorised representative within 24 hours on request.
- b) submitted to the Employer's Agent with the Contractor's request for issue of the Practical Completion Certificate.

PS 2 PROCUREMENT

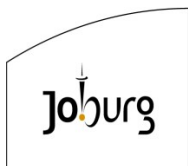
PS 3.1 Preferential procurement procedures

The Contractor's attention is drawn to the following returnable schedules contained in Part T2:

- a) Empowerment and Preferential Procurement (MBD 6.1); and
- b) Enterprise Declaration Affidavit (to be endorsed by a Commissioner of Oaths) (JW11).

These schedules contain all requirements with regard to preferential procurement.

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PS 3.2 Subcontracting

PS 3.2.1 Definitions

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

1. Start-up Enterprises

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

2. Small Enterprises

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

3. Micro Enterprises

An enterprise that has a CIDB grading designation of 3.

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

5. 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.

6. Contract Participation Goal (CPG)

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

7. Contract Participation Performance (CPP)

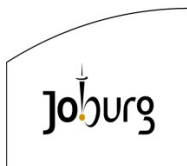
Contract Participation Performance is the measure of the Contractor's progress in achieving the CPG.

The commitment of the Employer to Government Policy concerning the empowerment of the SMMEs shall be noted and adhered to by the Contractor. It is against this background that Johannesburg Water has made provisions under this contract to ensure that the Contractor impart skills to the SMME within the project area during the project implementation.

The onus is upon the Contractor to handle and manage the procurement process of the Sub-Contractors and once appointed, should be dealt with in accordance with the provisions of Clause 4.4 of the General Conditions of Contract 2015 (3rd Edition).

The Contractor shall obtain the written approval of the Employer's Agent before appointing any Sub-Contractor. The Contractor shall be solely responsible for the supervision of and payments to such a Sub-Contractor(s) and the approval of a Sub-Contractor by the Employer's Agent shall not indemnify the Contractor from any of his liabilities in terms of the Contract.

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PS 3.2.2 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.

PS 3.2.3 Scope of Work

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.

This tender is subject to the sub-contracting condition as described in item C1.2.1.2.14 of the Tendering Procedures and must be adhered to by the main contractor. It is also the obligation of the main contractor to impart skills to the subcontractor/s on the project during implementation. Although a minimum subcontracting percentage of the contract value is indicated in the Contract Data, the contractor may increase this percentage at his discretion.

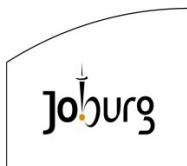
NB: all sub-contractors appointed on this contract must comply with the Central Supplier Database (CSD) requirements, i.e. they must be registered on the CSD.

It is a condition of this contract that the Contractor is required to sub-contract a minimum value of work to **SMMEs** equal to the subcontracting percentage of the Contract Sum indicated on the Contract Data.

The minimum requirements of the sub-contractors are as follows:

1. Valid CK registration
2. SA ID copies of owners
3. Active CIDB membership
4. Valid Tax clearance certificate
5. Valid BBBEE certificate
6. COID certificate
7. Company Profile including similar experience and skilled personnel CVs
8. Health and Safety Plan

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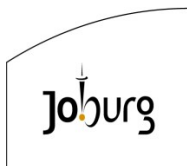
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In order to achieve the goals of this policy and to ensure that the SMMEs are treated fairly and given every opportunity to advance their business whilst delivering a successful project, the Contractor is to note the following and provide for any cost that may be associated therewith.

1. The Contractor shall subcontract local SMME works to be determined, as feasible and in consultation with the Employers' Agent.
2. The Contractor will be expected to have clearly specified the programme dates to the SMME and these dates are to be included in the contractual agreement between the two parties. The Contractor is to monitor the SMME'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. Before site establishment, the Contractor will provide each appointment letter and contractual agreement that the Contractor engages with for each SMME on this Project. The Agreement must include agreed work values agreed upon with the Contractor and SMME.
4. Before site establishment, the Contractor will provide the following for all SMMEs:
 - a) SMME company registration
 - b) SMME CIDB proof of registration.
5. The Contractor is to assess the skills of the SMME and provide the relevant support and training for the SMME to complete the works to programme, budget and specification. The Contractor will be expected to provide training to the SMME that will ensure that the SMME's staff is suitably trained to execute the works and that they receive sufficient relevant experience on the project.
6. 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 with developing their safety files, legal appointments, etc.
 - b) Assisting the SMME with achieving safety on site.
 - c) Having toolbox talks with the SMME Contractor's employees on a daily basis.
 - d) Providing all safety equipment and signage.
 - e) Providing safety training where necessary.
7. The 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. The Contractor will be expected to monitor the SMME's works for quality compliance and provide all the necessary support to the SMME in order to achieve quality requirements. The Contractor is to ensure that if the SMME's quality of works does not achieve specification, the Contractor will assist the SMME to achieve specification and not allow the works to continue until the quality requirements are achieved.
8. The Contractor is to generate monthly reports for the Johannesburg Water SOC. which includes the following:
 - a) Per SMME: resources on the site, i.e. supervisors, labour, plant tools and equipment

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- b) Per SMME: progress of works on site.
 - c) Per SMME: quality control on site.
 - d) SMME expenditure on the project versus target expenditure including payment progress
 - e) Copies of minutes of the SMME and Contractor progress meetings.
 - f) Concerns and improvements to be made.
 - g) Items listed in PS 5.10
9. In the execution of the Subcontract Work, the Contractor shall ensure that the Sub-Contractor(s) comply with all relevant legislation and regulations including, but not confined to, the Occupational Health and Safety Act. The Contractor hereby indemnifies the Employer against any loss, damage, or claim for Subcontract Works arising out of the former's failure to comply with instructions issued to him in regard to these requirements.
10. The Contractor shall be required to adopt labour intense construction techniques where feasible to do so and in consultation with the Employers' Agent, with the proviso that the Employer's specific objectives regarding time and quality are not compromised. Maximisation of employment shall be the aim on this contract.
11. Together with their tenders, all Contractors 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 Employers' Agent to monitor and compare it with the implementation plan.
12. The Contractor shall be required to submit employment data on a monthly basis to the Employer's Agent.
13. Contractors are to also note that it is an explicit condition of this Contract 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.

PS 3.2.4 Retention Monies

The Employer will deduct Retention money for the overall works including the Subcontract Work at the percentage stated in the Contract Data.

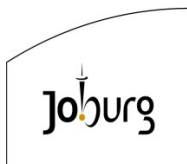
PS 3.2.5 Resolution of Disputes

Should any dispute between the Contractor and the Subcontractor arise out of the provisions of the Subcontract, or the execution of the Subcontract Work, every effort shall be made by the Parties to resolve the matter themselves without the intervention of the Employer. The agreement signed between the contractor and sub-contractor should state dispute resolution procedure and address late payment issues should it arise.

PS 3.2.6 Measurement and Payment

Payment for the Contractor's obligations in respect of socio-economic requirements shall be made through the fixed charges, time related charges and provisional sum items. The payment shall include full compensation for local SMME mentoring, training, legislation compliance assistance, auditing in respect of compliance with and attainment of the socio-economic objective.

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PS 3.3 Supply and Delivery of Equipment

A delivery period of 24 weeks, within which all materials and equipment must be delivered to the Site, is envisaged. If the Tenderer considers the delivery time of 24 weeks inadequate for particular items, he must specify the delivery period required for each item in the covering letter to this Contract Document.

The term "supply and deliver" of materials and equipment includes the purchase thereof from commercial sources, manufacturing thereof, factory corrosion protection, factory testing, provision of test certificates certifying compliance of the goods in accordance the Specifications, provision of drawings and details, provision of special tools and keys, the handling thereof and delivery to Site.

Tender rates must provide for all the costs by the Contractor to "supply and deliver".

No other payment for materials and equipment shall be considered other than that under the "supply and deliver" items in the Schedule of Quantities.

PS 3.3.1 Purchasing of Equipment

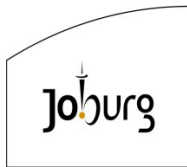
The Contractor is required to purchase the materials and equipment necessary for the Contract at the earliest possible date thus limiting the effect of inflation. The Contractor must strive to keep the number of suppliers to a minimum.

Payment for materials and equipment shall only be effected if the Contractor can prove ownership of the items.

In the case that off-site storage is agreed by the Project Manager and the Employer then payment shall only be effected if the Contractor can prove ownership and that cession of ownership from the Contractor to the Employer takes place.

NOTE: It shall be the Contractors responsibility to ensure that the necessary warranties from the equipment suppliers is negotiated such that it only comes into effect once the Employer takes over the portion of the works relevant to that equipment which may only take place any time up to 15 months after delivery of the equipment.

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PS 3.3.2 Guarantee of Equipment

It is an express condition of this Contract that the guarantee period on all equipment given by the suppliers to the Contractor shall only commence once the Employer takes over the works or a portion thereof.

PS 3.3.3 Particulars of Equipment Offered

Upon start of the Contract, the Contractor shall submit full details of all equipment to be supplied under the Contract, for acceptance by the Project Manager and prior to placing orders for the equipment. The Project Manager shall be able to determine, without reference to the suppliers, any information regarding delivery, drive, power consumption, efficiency, accuracy, etc. applicable under the specified range of operation conditions. The Project Manager may refuse acceptance of the equipment if it does not comply to the contract specifications or the Tender offer. Approval of equipment by the Project Manager does not relieve the Contractor from ensuring that the equipment comply with the requirements of the specifications or accepted Tender offer.

Technical information regarding medium voltage switchgear, motor control centres, busbar trunking, transformers, flow meters, valves, dimensions, etc. shall also be supplied.

Failure to comply with the above requirement may lead to the disqualification of the Tender submitted.

PS 3 CONSTRUCTION

PS 4.1 General Conditions and Applicable Standards

PS 4.1.1 General Conditions

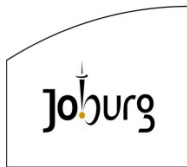
The "Special Condition of Contract" to be read in conjunction with the "General Conditions of Contract for use Civil Engineering Works (GCC 2015, Third Edition).

PS 4.1.2 Applicable Standardized Specifications

The Standard Specifications for all associated civil work applicable to this Contract shall be:

SANS 1200AA	:	GENERAL (SMALL WORKS)
SANS 1200AB	:	EMPLOYER'S AGENT 'S OFFICE
SANS 1200C	:	SITE CLEARANCE
SANS 1200DA	:	EARTHWORKS (SMALL WORKS)
SANS 1200DB	:	EARTHWORKS (PIPE TRENCHES)
SANS 1200GA	:	CONCRETE (SMALL WORKS)
SANS 1200GE	:	PRECAST CONCRETE (STRUCTURAL)
SANS 1200H	:	STRUCTURAL STEELWORK
SANS 1200HA	:	STRUCTURAL STEELWORK (SUNDRY ITEMS)
SANS 1200L	:	MEDIUM PRESSURE PIPELINES
SANS 1200 LB	:	BEDDING (PIPES)

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SANS 1200 LD	:	SEWERS
SANS 1200 LE	:	STORMWATER DRAINAGE
SANS 1200 MJ	:	SEGMENTED PAVING
SANS 1200 MK	:	KERBING AND CHANNELLING

Unless and to the extent that it is otherwise stated in the Contract Data, the scope of work or the specifications, the Contractor shall carry out the actions and arrange for the facilities as described in part 1 of SANS 1921..

Reference is made to certain provisions of:

SANS 1921-5 Construction and management requirements for works contracts:
Earthworks activities which are to be performed by hand

SANS 1914-5 Targeted construction procurement: Participation of targeted labour

All the above specifications are not issued with this volume but are available at the Contractor's expense from: Standards South Africa,

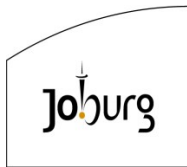
Office Address:	Postal Address:	Telephone:	Telefax	Email:
1 Dr Lategan Road Groenkloof Pretoria	Private Bag X191 Pretoria 0001	(012) 428-6883	(012) 428-6928	sales@sabs.co.za

PS 4.1.3 Particular Specifications

The following Project and Particular Specifications forming part of the Contract have been written to cover phases or items of work involving a specialist type of operations or material to be encountered on this Contract and that are not adequately covered by the general specifications.

General	
G01	Colour Coding of Equipment
G02	Corrosion Specification

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Civil	
PSAA	General (Small works)
PSAB	Employer's Agent 's Office
PSC	Site Clearance
PSDA	Earthworks (Small works)
PSDB	Earthworks (Pipe trenches)
PSGA	Concrete (Small works)
PSLB	Bedding (Pipes)
PSMJ	Segmented Paving
PQA	Brickwork, Blockwork and Plastering
PQB	Floor Finishes and Wall Tiling
PQF	Plumbing
PQH	Painting
PZA	Cleaning of Sewers
PZC	Closed Circuit Television (CCTV) Inspection of sewers
PZE	Trenchless Replacement of Existing Pipes

PS 4.2 Plant, Equipment and Materials

Where any of the operations or the movement of any of the construction vehicles or mobile construction equipment, or any combination of these activities, causes damage to the surface of an area normally open to the public, such surface shall be repaired as a matter of urgency.

Construction equipment shall be suitable for the production of the end result required under the conditions applicable to the site and shall conform to all relevant safety aspects required by the OHS Act.

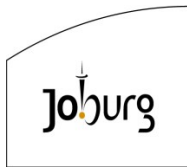
Unless otherwise indicated in the Contract Documents, the Contractor shall provide all such plant and equipment complete with operating personnel, fuel and power as required.

If the Contractor fails, in the opinion of the Employer's Agent due to his own negligence, to enable the plant or equipment to be efficiently or fully utilised, the costs of under-utilisation of plant or equipment shall be borne by the Contractor to the extent determined by the Employer's Agent.

If a vehicle or item of construction equipment is required to operate on any public highway, road or street or on any private road or parking area that has been surfaced, it shall comply with the requirements of the applicable road traffic ordinance.

The Employer or the Employer's Agent shall have the right to refuse acceptance of any material or workmanship which is found to be unsound, damaged or contrary to the specification, or which is found to be defective or in any way contrary to the specification due to causes within the Contractor's control or responsibility. All material or construction rejected by the Employer's Agent shall be replaced or repaired by the

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Contractor at his own expense to the satisfaction of the Employer's Agent, whose decision with regard to this matter shall be binding on the Contractor.

All materials used shall be the best of their respective kinds and shall be suitable for working at the pressures and temperatures involved under all working conditions, without distortion or deterioration or the setting up of undue stresses in any part and without impairing the efficiency or reliability of the plant and the strength of its component parts. No welding, burning, filling or plugging of defective castings shall be permitted without the Employer's Agent approval in writing.

PS 4.3 Engagement of Labour

PS 4.3.1 Provision of a Temporary Workforce for the Contract

The Contractor shall have regard for the stipulation laid down for all Labour-Intensive projects that he employs labour from the local community through the Labour Desk and/or CLO that has been established for this purpose.

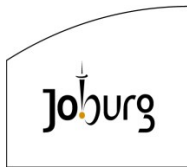
The Labour Desk shall assist in identifying available local labour and, where available, semi-skilled labour as well as local sub-Contractors. The Labour Desk and/or CLO shall also assist and advise regarding conditions of employment, minimum wages, disputes and disciplinary procedures.

The workforce that is employed on Site shall consist of local labour where applicable, except for approved key staff, to the extent that is compatible with the requirements of Clause 4.11 of the General Conditions of Contract 2015 (3rd Edition).

The Occupational Health and Safety Act must be adhered to with reference to the safety of any employee irrespective of whether such employee is employed by the Contractor or by a local sub-contractor. Furthermore, a contract of employment must be signed between the Contractor and each of his employees and sub-contractors and between such sub-Contractors, and each of the sub-contractor's employees with clear reference to the following conditions:

- The minimum agreed wage rate per hour in respect of labourers;
- The agreed pay rate per unit of production where applicable;
- UIF and WCA payments;
- Minimum working hours per day;
- Start and end times of a daily shift;
- Lunch break times;

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Company Policy regarding the following:

- Rain time
- No work no pay - sick, absent
- Disciplinary policy
- Grievance policy
- Method of payment
- Workers' clothing and safety equipment to be issued.
- The Contractor is required to show these items to the Employer's representative for approval before construction commences.

PS 4.3.2 Transportation of labourers

The labour employed on this contract shall be local labour from the nearest local community, where possible. Transportation should be arranged from their homes to the site.

PS 4.4 Existing Services

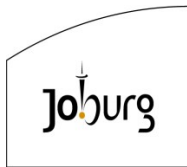
The Contractor shall make himself acquainted with all existing services such as stormwater drains, water mains, power lines, cables, gas pipelines, telephone and lighting poles, water meters, stopcock boxes, valve boxes, hydrants, air mains, trees, sewers, etc. before any excavation commences. Special care and due diligence shall be exercised when working adjacent to the abovementioned existing services. **Under no circumstance is the Contractor to alter or in any way interfere with existing works or underground services unless authorised by the Employer's Agent.**

Where, in the opinion of the Employer's Agent and if ordered by him, there is sufficient uncertainty as to the existence of, or the position or depth of any underground services, the Contractor shall first make use of specialist equipment such as ground penetrating radar before carrying out exploratory excavations using hand tools, in order to obtain the required information without causing damage. Exploratory excavations shall be carried out, refilled and reinstated in an approved manner as expeditiously as possible. Where existing works are of such a nature that the Employer's Agent may require them to be moved by the Contractor, the cost of such work will be paid for at scheduled rates or on a Day works basis.

The Contractor shall take adequate measures approved by the Employer's Agent to protect and prevent damage to existing works and services. The Contractor shall immediately notify the Works Manager as well as the Employer's Agent, of any damage caused to existing works and services. All cables and pipes shall be considered "live" unless confirmed otherwise by the relevant service authority. Any damages caused by the Contractor shall be repaired at the cost of the Contractor.

The existing treatment works must remain in operation during the execution of the contract. The Employer must have access to the treatment works at all times. If the work to be done requires the treatment works to be out of operation for a short period, prior arrangements must be made at least two weeks in advance with the Employer's Agent.

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There are a number of points of connection to the existing structures, channels, pipelines, as well as electrical and control networks with the new works that should be regarded by the Contractor as being tie-ins to live systems. The Contractor must give the Employer's Agent and the treatments works manager ten days written notice of any disruption to the normal plant operations and shall comply with all requirements of the treatment works manager in arranging the required connection.

PS 4.5 Site Establishment, Facilities Available and Required

The Contractor shall be required to establish all facilities, including, as necessary, construction camps, offices, stores, workshops and testing facilities required for the due and proper performance of the contract in the vicinity of the Works.

The Contractor shall supply and maintain adequate and suitable sheds for the storage of materials that might deteriorate if exposed to the weather. The Employer has no storage facilities available for use by the Contractor.

The Contractor shall, as specified in the specification data, provide, maintain and keep clean

- a) office accommodation and equipment for use by the Employer and his agents,
- b) air-conditioned boardroom for site meetings, and
- c) all other facilities for all persons engaged in the works.

The Contractor shall provide and maintain all first-aid facilities required by law.

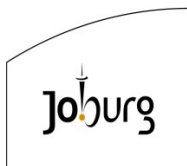
The Contractor shall provide, maintain, move to positions required and finally remove, proper latrines in compliance with the relevant Municipal Sanitation General By-laws. Ablution facilities must be properly screened and secluded from public view and their use shall be strictly enforced. The Contractor shall provide chemical toilets (minimum acceptable standard or other approved toilets). Soak-aways and septic tanks will not be allowed on the site. Temporary latrines must be sited so that they are within reasonable distance of the working place. Sufficient latrines must be provided having regard to the number of persons employed on the Works. All latrines shall be adequately ventilated, properly disinfected and kept in a clean and sanitary condition.

At the time of erecting the sheds and offices, the Contractor shall erect on or adjacent to the site, in a conspicuous place to be agreed upon by the Employer's Agent, contract name board as detailed in PSAB 3.1

On completion of the works, or when the facilities provided by the Contractor are no longer required, the Contractor shall remove them and clear away all surface indications of their presence.

The Contractor shall maintain the site in a clean, orderly and sanitary condition and shall take all the necessary steps and precautions to prevent the pollution on the surrounding area by his employees in any way. These steps and precautions shall be to the satisfaction of the Employer's Agent and Employers H&S and Environmental officers.

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The Contractor will be required to obtain a cellular telephone for his own and Employer's Agent's representative's use on the site.

PS 4.5.1 Water Supply for Construction Purposes

The Contractor shall make his own arrangements for the supply and storage of all water required for this contract. Only sources approved by the Employer's Agent shall be used. No direct payment will be made in respect of the procurement, transporting and distributing of water, however these costs shall be deemed to be covered by the Contractor's rates for the various other items of work in this contract requiring the use of water.

The Contractor shall make a connection to the existing potable water pipeline (at the existing Unit two Ferric tanks) within approximately 150 metres from the area available for the erection of site offices and stores. Any use of this connection shall be measured and the Contractor shall be held responsible for payment of the water measured at the current municipal rates. The connection to the existing network shall include an approved water meter (supplied by the Contractor), that will be used to measure the quantity of the water used by the Contractor. The Contractor shall also provide, at his own cost, all connections fittings, pipework, temporary plumbing and pumps necessary to distribute the water on Site.

Delivery pressures at the take-off points on the water main cannot be guaranteed.

The Employer does not guarantee continuity of supply and in such cases the Contractor shall make his own provision for standby supplies to maintain continuity. The variation of pressure in the water supply and or breakdown in the supply shall not be grounds for a Compensation Event.

Treated effluent for carrying out any water test will be made available by the Employer. Used effluent water must be returned and discharged as required by the Employer.

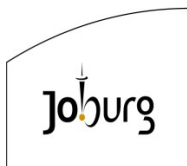
PS 4.5.2 Power Supply for Construction Purposes

The Contractor must make his own arrangements for any power he considers necessary. Should the Contractor utilise a portable power source, all electrical installations connected thereto shall comply with the provisions of the Mines, Works and Machinery Regulations and the Standard Regulations for the Wiring of Premises. No direct payment will be made to the Contractor. All costs in this respect shall be deemed to be covered by the various other items of work included under this contract.

PS 4.5.2.1 *Supply of Electricity*

The Contractor shall make a connection to an existing power distribution point (from the existing Unit 3 Thickened raw sludge MCC room) within approximately 300 metres from the area available for the erection of site offices and stores. Any use of this connection shall be measured and the Contractor shall be held responsible for payment of the amount measured at the current municipal rates. The connection to the existing network shall include an approved meter (supplied by the Contractor), that will be used to measure the power used by the Contractor. The Contractor shall also provide, at his own cost, all transformers, HT and LT cables required to distribute the power on site.

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PS 4.5.2.1 *Conditions of Supply*

All installations connected to a supply of electricity provided by the Employer shall comply with the regulations. Failure to comply with the safety requirements may lead to immediate disconnection.

No connection shall be made to the permanent installation without the prior approval of the Employer's Agent's and the treatment works manager.

No guarantees of power supply quality are given and power supply breaks of some duration may occur without warning. The Contractor shall make arrangements at his own expense to maintain continuity and quality of power. Any breakdown in power supply or reduction of power supply shall not be grounds for an extension of time or compensation.

PS 4.5.2.1 *Application for Supply*

A request for power shall be submitted to the treatment works manager via the Employer's Agent at least two weeks before a power supply is required.

PS 4.5.3 Lifting Equipment

Lifting equipment is not available on the site.

PS 4.5.4 Site Office, Store and Housing

The Employer shall make available a suitable area for the Contractor's site offices, workshops and stores. The area available may be shown on the construction drawings.

Although the security of the treatment works is outsourced by the Employer to a security firm, the Contractor shall make his own arrangements to secure the site facilities provided and the Contract works.

No employees, apart from a security guard, may be housed on the site of the treatment works.

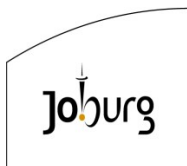
Upon completion of the work in terms of this Contract, the Site must be cleared of all structures, concrete slabs and waste and excavations must be backfilled.

The Contractor must make the necessary arrangements with the Employer to obtain access for the vehicles and personnel he intends to employ on Site.

PS 4.5.5 Telephone Facilities

The Contractor shall be responsible for arranging his own telephone facilities and shall be responsible for all costs relating thereto.

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PS 4.6 Waste Disposal Site

The Contractor shall make his own arrangements for solid and liquid waste disposal. Disposal shall take place at an approved site/s.

PS 4.7 Site Usage

The Employer may make available, as part of or by reference in the Tender Documents, site data relating to hydrological and subsurface conditions relevant to the construction of the Works. The Employer does not guarantee that such site data is fully representative of

- a) all information (as far as practicable) as to risks, contingencies and all other circumstances which may influence or affect the Tender
- b) all conditions that may be encountered by the Contractor during the execution of the Works.

The Tenderer shall visit the Site of the Works and shall satisfy himself as to the means of access and all matters affecting the Works, including the extent to which mechanical plant can be used for executing the Works.

Visits to the site shall be at the sole risk of the Tenderer and the Employer shall not be liable for any loss or damage to persons or property as a result of or arising from the site inspection.

Access to the Site is by means of existing tarred and gravel roads through the main access gate, which is controlled by a security company appointed by Johannesburg Water. No restriction on access to the site of works shall be placed on persons or vehicles involved with the execution of the works. All traffic must be restricted to the maximum speed of 40 km/h and vehicles must be driven with extreme caution. The Contractor shall only make use of the site area as indicated on the drawings or as directed by the Employer's Agent.

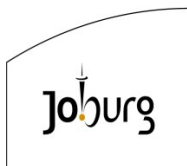
The Contractor shall be required to report daily to management personnel of the treatment works.

The Contractor's staff shall be identified by either clothing or an identification tag, which shall be displayed when entering the Site of works.

Movement within the Site of works is restricted so as to avoid damage to the existing services, structures, trees and, where practical, to the gardens. The making good of any damage caused by non-observance of such restrictions shall be for the Contractor's account.

Access is to be made available to the Employer's employees to any portion of the Site whenever required.

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PS 4.8 Permits and Wayleaves

Work permits shall be completed and shall be area specific.

As the Contract shall require the removal of equipment from the treatment works, the Contractor shall acquire permits as required by the Employer.

No wayleaves are envisaged under the Contract. The works called for under this Contract shall be executed within the works site boundaries.

Whatever import, transport, equipment certification permits etc. are necessary for the completion of the works to be carried out under this contract shall be the Contractor's responsibility to obtain.

PS 4.9 Alterations, Additions, Extensions and Modifications to Existing Works

The Contractor shall, within 20 working days or 10 % of the construction period after taking possession of the site (whichever is the lesser), satisfy himself that the dimensional accuracy, alignment, levels and setting out of existing structures or components thereof are compatible with the proposed works, and notify the Employer of any areas of dissatisfaction.

The Contractor shall, on becoming aware of a defect in existing works which will have an impact on the current works, notify the Employer of such a defect without delay.

The Contractor must ensure necessary resources and equipment, and safety procedures are included in the tender price to carry out this work under the limitations and shall include the provision of temporary works.

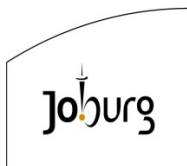
All proposed interruptions and tie-ins to the existing treatment process shall be discussed and agreed with the Employer's Agent and the treatment works operational staff. Where necessary, detailed method statements will be required to be provided. Allow four weeks for approval of method statements.

PS 4.10 Inspection of Adjoining Structures, Services, Buildings and Properties

The Contractor shall, before commencing with works which have the potential to damage surrounding structures, services, buildings or property, arrange an inspection with the owners of such structures, services, buildings and property and representatives of local or controlling authorities, as appropriate, to determine the condition of buildings, structures, services, paved surfaces, roads, kerbs, perimeter walls, channels and the like, that the works could affect, and document their current condition in sufficient detail to enable disturbances or damage which might be caused by the works to be evaluated. The Contractor shall furnish the Employer with copies of all such documentation and shall be held responsible for any disturbance and damage to such structures, services, buildings and property arising from the performance of the contract.

It is envisaged that the Contract does not require the Contractor to perform inspections of adjoining properties.

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PS 4.11 Survey Control and Setting Out of the Works

The methods of setting out employed by the Contractor shall be such that they ensure positive control.

The Contractor shall set out the works strictly according to the Employer's Agent construction drawings and/or site instructions and where relevant, prior to the ordering of equipment.

The Contractor shall provide permanent beacons marking the main setting out grid lines for all construction works and permanent level benchmarks. An item for this work has been provided in the Schedule of Quantities. The Employer shall not be held responsible if any of the beacons are removed as long as there are other beacons existing.

The Contractor shall take reasonable steps to preserve beacons and benchmarks they have provided.

All necessary pegs, profiles, site rails and other devices required for the setting out of works from the main beacons shall also be supplied and erected by the Contractor to the satisfaction of the Employer's Agent. The cost of these secondary setting out points shall be borne by the Contractor and shall be deemed to be included in his rates and prices.

The Contractor shall be responsible for the setting up, marking and executing the necessary activities for the construction and installation of relevant components of the work.

PS 4 MANAGEMENT OF THE WORKS

PS 5.1 Planning and Programming

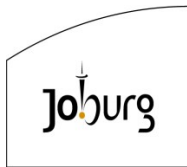
PS 5.1.1 General

The preparation of a preliminary programme (with tender submission), an initial programme prior to commencement of works and up-to-date programmes during construction, at intervals as required is an essential requirement for the proper planning and management of the Contract. Programmes shall include supporting reports, resource levels (supervision, labour and Contractor's equipment) and method statements all in accordance with the Contract, and shall reflect, correctly and in the required detail, the progression of the Contract.

Such programmes, supporting reports and method statements shall be used by the Contractor to plan, execute and control the works, inter-alia:

- To monitor and record progress relative to Completion and Key Dates and for the preparation of schedules and graphs for progress meetings and reports;
- As the basis for scheduling the issuing by the Employer's Agent of construction drawings;
- As the basis for scheduling submissions by the Contractor to the Employer's Agent of his various plans, method statements, designs, drawings and other Contractor's documents;

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- As the basis for scheduling quality inspections, monitoring at hold points and tests by the Employer's Agent and/or his designated Approved Inspection Authority as covered in more detail in the Specification;
- As a basis for planning and monitoring resource allocations;
- To assess interaction and co-ordination with subcontractors from various disciplines;
- As the basis for planning, scheduling and coordinating dry season construction activities;
- As the basis for planning and scheduling testing on the pipelines;
- As the basis for scheduling tests and inspections;
- To assess the need for formal revised programme as described the Conditions of Contract;
- To generate input to cost flow and cash flow forecasts/actuals; and
- As an indication of the timing of key events such as resources mobilisation and delivery to Site of plant and materials.

PS 5.1.2 Planning

The works under this project will be on a live, operational site and the proposed tenders must therefore take cognisance of project interface with operational activities, the alterations, additions, extensions and modifications to existing plant and tie-ins are to be considered in the detailed programme.

PS 5.1.3 Programmes

Preliminary Contract Programme

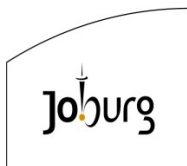
The Contractor shall have submitted a programme with his Tender to define the duration of the construction activities in connection with the various portions of the works. Such programme shall have been designated the "Preliminary Contract Programme", and in accordance with this clause and shall form the basis of the first programme pursuant to the Conditions of Contract.

The Preliminary Contract Programme shall be based on the Tenderer's own comprehensive plan, programme and resource usage. The Tenderer shall ensure that the Preliminary Contract Programme meets the requirements of the Contract. The Preliminary Programme shall be based on network logic diagrams showing all construction activities and logic relationships between activities.

The programme shall be computerised using planning software. Tenderers shall note that it will be a requirement that planning software be used in the Contract for all programme submissions to the Employer's Agent and the Employer.

The entire programme shall be suitable for future expansion for the development of the first programme required by the Conditions of Contract, inter alia through the addition of more detailed programme activities for construction of the works, for monitoring progress and changes therein, planning of critical activities and generation of progress and planning reports related to the execution of the works.

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It is expected that this Contract will be awarded prior to December 2025 and the works must be operational by September 2026.

The Preliminary Contract Programme submission shall further include as a minimum:

- Activity listing.
- Logic linked bar chart (Gantt chart).
- A clearly defined critical path.

In relation to each activity the following minimum information shall be presented:

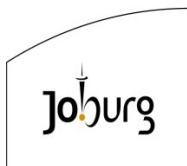
- Identification number (ID).
- Description.
- Duration in working days for each activity.
- Calendar.
- Bar indicating early start date, early finish date and duration.
- Linkages to and constraints by other activities.
- Activities shall include:
 - As separate activities: mobilisation, design, procurement, fabrication, delivery, installation, testing and ancillary works.
 - Construction of all structures and related facilities.
 - Work carried out by Subcontractors divided into separate activities.
- The programme shall include the following key dates:
 - Letter of Acceptance.
 - Starting date.
 - Submission of securities and Contractor's insurances.
 - Completion Date.
- The programme shall include the following significant dates:
 - Order and delivery of key plant and long lead items for the permanent works.
 - Mechanical and electrical installations.
 - Other relevant dates.

Initial Programme

An Initial programme in terms of the Conditions of Contract, complete with a cash flow budget for the execution of the works must be made available to the Employer's Agent for approval within 21 days after the receipt of the letter of acceptance. Aspects that shall require co-ordination with the Employer must be indicated clearly and provision must be made for it in the programme.

No work of a permanent nature may be executed before the programme has been approved by the Employer's Agent.

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The Employer's Agent retains the right to alter, as circumstances may require, the sequence in which installation is to be executed. Such alterations shall only be made after consultation with all parties concerned.

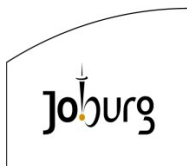
In drawing up the programme, reference shall be made to clauses PS 3.3, PS 4.4 PS 5.4 and PS 5.4 Also allow for the stipulation that the new works as a whole must be fully operational for an uninterrupted period of 14 days before the equipment shall be considered as being successfully installed and commissioned (PS 5.7).

There may be numerous subcontractors at work on the same site. The Contractor will be required to adjust his programme to accommodate the access and working needs of subcontractors. The Contractor will be required to interface his programme with the programmes of the subcontractors in consultation with the Employer's Agent during the construction period.

The Contractor shall submit his first programme for approval by the Employer's Agent. Thereafter, the Contractor may not deviate from his proposed sequence of construction without the prior approval of the Employer's Agent. The programme submitted shall show the manner and order of all proposed work fronts. The Contract programme shall take account of the following:

- The Contractor shall appoint a project programmer/planner for liaison during the Contract.
- No deviation from the approved sequence of construction shall be accepted without prior written approval.
- The programme shall not be in the form of a bar chart only but shall be in MS project format complete with resources for each activity and show clearly the anticipated quantities of work to be performed each month, together with the anticipated cashflow for each month of the project.
- If, during the progress of the work, the quantities of work performed per month fall below those shown on the programme or if the sequence of operations is altered, or if the programme is deviated from in any other way, the Contractor shall, within one week after being notified by the Employer's Agent, submit a revised programme.
- If the programme is to be revised by reason of the Contractor falling behind his programme, he shall produce a revised programme showing the modifications to the original programme necessary to ensure completion of the works or any part thereof by the Completion Date.

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PS 5.1.4 Programming

The Contractor shall provide and regularly (maximum monthly) update a Contract Programme. The programme shall at minimum contain:

PS 5.1.4.1 Time Scale (minimum):

- i. Days, where the period does not exceed three months.
- ii. Weeks, where the project period exceeds three months.
- iii. Months, where the period does not exceed one year.
- iv. Years, where the project period exceeds one year

PS 5.1.4.2 Tasks:

Where phases or stages are anticipated, this shall be the highest level of division, and all tasks related to the successful accomplishment of that phase of the area shall be grouped. Resources allocation and task dependency shall be indicated.

PS 5.1.4.3 Start and Finish Dates:

All tasks shall have specific start and finish dates.

PS 5.1.4.4 Critical Path:

All tasks forming the programme line that will establish any delays in the overall Contract Period shall be clearly indicated and an indication of their sensitivity characteristics shall be provided.

PS 5.1.4.5 Progress Tracking:

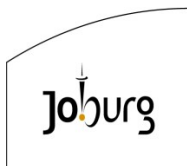
The Contractor shall be required to periodically indicate progress per task graphically and on a percentage basis.

PS 5.1.4.6 Non-working Time:

South African public holidays, weekends and the local traditional annual builder's break shall be incorporated in the programme.

The Contractor shall submit to the Employer's Agent for his approval a detailed programme within the period stated in the Contract Data showing the order of procedure and method in which he proposes to carry out the work, his method of measurement of progress as well as the resources that will be allocated to each item or phase of the works. On a fortnightly basis throughout the contract, the Contractor shall submit the accepted programme marked to show actual progress. Quantities proposed for execution during each month must be shown. In addition, the anticipated cash-flow for the Contract, based upon these quantities, shall be shown as per prescribed format as

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provided by the Employer's Agent. The Contractor must include in his programme all necessary details pertaining to the lead-time required for the supply of materials.

The Contractor shall, whenever required by the Employer's Agent, furnish for his information particulars in writing of the Contractor's arrangements for the carrying out of the works and of the plant and temporary works, which the Contractor intends to supply, use or construct as the case may be. The submission to and approval by the Employer's Agent of such programme, or the furnishing of such particulars will not relieve the Contractor of any duties or responsibilities under the contract.

The Contractor will be expected to progress with the Works in accordance with the approved programme and shall not deviate from the order of execution shown in the programme without the prior approval of the Employer's Agent or his Representative. Should such approval be given, an adjusted programme shall be produced within seven (7) days and submitted to the Employer's Agent for evaluation.

The Contractor must carry out the work at a rate not less than that stated in his programme. Should the work not be executed with the diligence and labour specified, meant and intended in and by the terms of the contract, then the Employer shall institute the remedies under Clause 9.2 of the General Conditions of Contract 2015(3rd Edition).

PS 5.2 Sequences of the Works

The Contractor shall submit for approval to the Employer's Agent, within the time stated in the Contract Data, a detailed programme showing the order of, procedure and method in which he proposes to carry out the works and as well as his method of measurement of progress.

Details of certain mechanical equipment will have an influence on the final design of certain components and drawings thereof of some of the civil works to be constructed under this contract. The Contractor will, therefore, be required to take this into account in drawing up his programme.

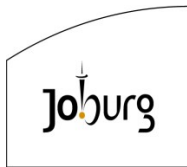
The Contractor shall, whenever required by the Employer's Agent, furnish for his information particulars in writing of the Contractor's arrangements for the carrying out of the works and of the plant and temporary works that the Contractor intends to supply, use or construct as the case may be. The submission to and approval by the Employer's Agent of such programme, or the furnishing of such particulars will not relieve the Contractor of any of his duties or obligations under the contract.

The Tenderer shall submit with his tender separate management and supervisory organisation charts and supervisory and labour histograms as well as an estimated cash flow for the project.

Points for consideration, specific to the works are:

- Conducting the ground penetrating radar and topographical surveys to provide feedback for design finalisation. This work must be scheduled early in the programme to avoid design delaying the construction activities.

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- Carrying out of certain construction activities outside of the rainy season where higher river flows may impact replacement of that portion of the existing pipes or investigations thereof, as well as ground water that may affect excavations and work within the pump station pump well.
- Security measures implementation (temporary and permanent) prior to commencement of construction activities to ensure safe and secure working conditions.
- Dealing with water (including subsoil drainage) that may impact certain construction activities.
- Operational interruptions as a result of construction activities can be scheduled to coincide with each other, to minimise such.
- Where flow accommodation is required at the incoming sewer manhole feeding the pump station, these operations should be scheduled during low flow periods.
- See Part 4 - Site Information for additional information.

The Contractor shall obtain approval from the Employer's Agent at each stage to proceed with subsequent stages.

PS 5.3 Quality Plans and Control

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the specifications and drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced personnel, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the works at all times.

The cost of supervision and process control will be deemed to be included in the rates tendered for the related items of work.

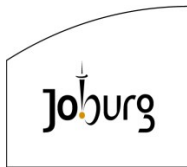
On completion and submission of every part of the Works to the Employer's Agent for examination, the Contractor shall furnish the Employer's Agent with proof of quality in the form of a data pack containing measurements, levels and all compaction and hydraulic test results to indicate compliance with the scope of work.

Quality plans and the control shall be in accordance with the requirements of the Particular Specifications as compiled and included herein after and forming part of the Contract document. These shall be completed and inserted in the data books after commissioning.

PS 5.4 Other Contractors on Site

This contract entails civil, mechanical, electrical and control and instrumentation works and shall be awarded to one main contractor. The Contractor shall be responsible to co-ordinate all works of a civil, mechanical, electrical and control and instrumentation nature.

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It is expected of the Contractor to schedule his work in such a way to ensure optimal completion of the work as a whole. The Employer's Agent retains the right to intervene and prescribe where and when work must be executed in order to ensure a well-coordinated Completion of the works as a whole.

Access is to be made available to employees of Johannesburg Water to any portion of the works whenever required for normal operation and maintenance of the existing treatment works.

The Employer's Agent shall, prior to the commencement date of the contract, determine the scope of work and the amount of work that is to be carried out by the nominated sub-Contractor(s). If applicable, the Contractor shall be expected to enter into a contract with the nominated sub-Contractor(s) in accordance with the requirements of Clause 4.4 of the General Conditions of Contract 2015 (3rd Edition).

The Contractor shall provide the following general attendance on nominated and selected sub-Contractors executing the works:

- a) access to the site and places where the subcontracted work shall be carried out, including the reasonable use of any temporary personnel, hoists erected by the Contractor;
- b) the provision of water and lighting and of single phase electric power to a position within 50 m of the place where the subcontracted work shall take place;
- c) the provision of an area for the sub-Contractor to establish temporary facilities;
- d) the use of erected scaffolding that belongs to the Contractor, in common use with others, while it remains erected;
- e) the use of ablution facilities and the like; and
- f) access to telecommunication facilities.

PS 5.5 Testing, Completions, Commissioning and Correction of Defects

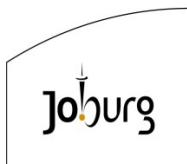
The onus is on the Contractor to produce work that will conform in quality and in accuracy of detail to the requirements hereinafter specified. The Contractor shall clearly understand that it is not a duty of the Employer's Agent or his representative to act as foreman or surveyor on the Works.

The Contractor shall, at his own expense, provide an experienced Site Agent, foremen and surveyors together with all transport, instruments and equipment for supervising, checking and controlling the work.

The Contractor shall allow in his general inspections and tests and for the supply of all necessary equipment that may be required for these tests and/or inspections by the Employer's Agent. The Contractor shall make good any defects prior to commissioning of the works.

The act of passing any completed work for payment by the Employer's Agent shall not be construed as signifying approval or acceptance thereof. Failure on the part of the Employer's Agent to reject any defective work or material shall not in any way relieve the Contractor of his obligations under the Contract, nor prevent later rejection when such

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work or material is discovered. In this regard, it is emphasised that notwithstanding anything contained in this document, any tests that may have been carried out, any consent that may have been given, either directly or implied, and anything that may be construed to the contrary, the Contractor shall remain fully and solely accountable for the Works and for compliance with the specifications and the drawings.

The Contractor shall, when submitting any work to the Employer's Agent for examination, satisfy himself by testing, measurement and otherwise as may be necessary that the work does in fact meet with the requirements of the Specifications. This information shall be submitted with the Contractor's request for examination and the Employer's Agent shall decide on the number and type of tests, measurements, etc. required to enable him to judge the quality of the work. The submission of this information shall in no way diminish the authority of the Employer's Agent to conduct such tests as he may consider necessary in order to determine the quality of the work performed by the Contractor, nor will he be bound to take account of the Contractor's tests, measurements, etc. should he consider these to be either incorrect or not representative.

Quality control and completion tests shall be in accordance with the relevant standard and amended specifications and additional specifications.

The tendered rates shall include the cost of all control testing, and no additional claims shall be entertained in this respect. This includes the supply of all necessary equipment required for these tests and/or inspections by the Employer's Agent.

Should the control testing performed or arranged by the Contractor not meet the requirements of the specification, the Employer's Agent shall have the right to conduct all such testing at the Contractor's expense.

In such a case, the Employer's Agent shall be given at least 72 hours' notice when testing is required. No claims, however, shall be considered in respect of delays resulting from such testing.

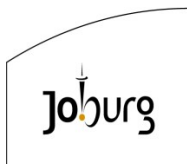
Whenever the Employer's Agent conducts control testing on behalf of the Contractor, charges shall be levied. The Employer's Agent may, from time to time, carry out his own check tests on the work performed by the Contractor. Should such check tests show the Contractor's control testing to be such that the quality of the Contractor's work can be called into question, then the Employer's Agent may order further check tests to be carried out on work already completed by the Contractor.

All costs associated with such check tests shall be for the Contractor's account as shall the costs of any other check test whose results do not comply with the specification.

Where the Employer's Agent is required to witness certain control tests, such as the pressure testing of pipelines, and the results of such tests do not comply with the specifications, then charges will be levied against payments to the Contractor in order to recover the costs of the Employer's Agent's presence at the test.

The requirements of the Local Authority, insofar as their witnessing of tests, shall be adhered to.

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The Contractor shall carry out sufficient tests to ensure that the contract requirements for all materials incorporated in the works are complied with. The Employer is at liberty to carry out such tests as he deems necessary to determine compliance with the contract requirements and will make available the results of all tests to the Contractor. The Contractor shall keep systematic records of the test results and all worksheets relating thereto.

Installation and Commissioning

The Contractor shall be responsible for co-ordinating all works of a civil, mechanical and electrical and control & instrumentation nature, all to the approval of the Employer's Agent. The time for achieving Practical Completion in the Contract Data make's provision for statutory or other holidays which may occur during that time.

The Contractor shall be responsible for commissioning the equipment which shall comprise putting it into operation, testing, calibration, proper adjustment of the equipment, and thoroughly running it. After the entire installation has been completed and the individual installations have been tested, the Contractor shall commission the equipment supplied and installed by him as required by the Employer's Agent. After the works for each section, as agreed with the Employer's Agent, has been put into operation, the Contractor shall operate the equipment installed under this contract for a continuous period of 14 successive days and simultaneously train the Employer's plant supervisors in the correct operation and maintenance thereof. Completion shall only be certified if all the equipment within a section has passed the 14-day continuous test run and the Employer's plant supervisors have been sufficiently trained to continue with the operation of the plant.

A Partial Certificate of Completion refers to equipment within a section having passed the 14-day continuous test run and the Employer's plant supervisors have been sufficiently trained to continue with the operation of the plant.

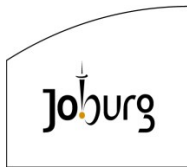
The term "installation and commissioning" of material and equipment shall include the on-site handling, on-site transport, positioning, erection, connection, anchoring, installation and protection thereof, as well as the successful completion of all the specified tests on completion as defined under PS 5.8 and the successful completion of the commissioning period, including the training of the Employees plant supervisors. The tendered rates shall cover all costs for installation and commissioning by the Contractor, including all cost of consumables, labour, erection gear, testing equipment, attendance, additional site visits and profit.

Section payments against each item in accordance with the progress of the work shall be made on a pro rata basis for up to seventy-five (75) percent of the amount tendered against each item on completion of installation and site testing, but with the 14-day continuous plant test pending.

No other payment for installation and commissioning of materials and equipment shall be considered other than that under the "installation and commissioning" items in the Schedule of Quantities.

Testing

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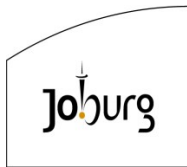
General

The Contractor shall be responsible for the completed installation passing any tests specified or required by the relevant Local Authority or ACT. The Employer's Agent shall be entitled to be present at such test and the Contractor shall give the Employer's Agent reasonable notice of the dates of the test. Where test certificates are required in terms of any clause of the Specifications or ACT, such certificates shall be submitted to the Employer's Agent immediately after the relevant test have been completed and before the tested equipment is delivered, installed or commissioned as the case may be.

Before handing over the plant the Contractor must carry out tests as specified in detail in the various Sections. The entire cost of testing, including supply of test equipment must be borne by the Contractor and an adequate allowance for such tests must be made in the tendered price. The results of all performance tests shall be fully documented and copies in triplicate submitted to the Employer's Agent prior to final acceptance of the equipment and/or infrastructure.

The Completion Date will be taken as the date on which the relevant portion of the plant as a complete unit is commissioned or when all the performance tests, have been completed to the satisfaction of the Employer's Agent, whichever date is the later. The Employer will accept the plant in question on the completion date as herein defined.

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Factory Tests

The Contractor shall carry out tests in accordance with the requirements of the recognised SANS, IEC or BS standards. Comprehensive details of the standards used and to which equipment applicable shall be supplied. Such additional tests in the manufacturer's "Works", which in the opinion of the Employer's Agent are necessary to determine that the Contract work complies with the requirements of the Specification, whether under test conditions or in normal service, may be called for at no additional cost to the Employer.

Tests on Site

All Site tests shall normally be carried out in the presence of, but always to the satisfaction of the Employer's Agent and at such times as he may reasonably require. The Contractor shall provide all the relevant test equipment and bear the costs of all testing to be done. All equipment must be tested to ascertain whether it performs its intended duties in a manner as specified.

Accepted Laboratories

Unless otherwise stated in a specification that forms part of this Contract, only the testing laboratories of the South African Bureau of Standards, the Council of Scientific and Industrial Research, the relevant Government Departments and Local Authorities shall be accepted as approved laboratories in which tests or design work required in terms of a specification may be carried out.

Methods of Testing

Unless otherwise prescribed in a specification that forms part of this Contract, all testing shall be carried out and interpreted in strict accordance with the methods specified in relevant SANS, IE or BS Specification(s).

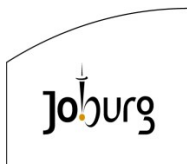
Servicing

Without limiting in any way, the obligations or responsibilities of the Contractor for maintenance, the Contractor shall make regular quarterly visits to the plant during the maintenance period to supervise the maintenance of the plant. During these visits, he shall make all adjustments and do everything necessary to ensure the proper running of the plant. After each supervising visit to the Site, the Contractor shall submit to the Employer's Agent a report on: -

- (a) The condition of the equipment and the servicing work carried out, and
- (b) Any adjustments which may have been made.

The last servicing visit shall be carried out during the last week of the maintenance period during which visit the Contractor's representative shall carry out full checks on the equipment to ensure that the alignment, clearances and any other setting are correct, and he shall carry out any adjustments necessary. The maintenance period shall not

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terminate until the Employer's Agent is satisfied that the Contractor has finally checked the adjusted equipment.

Servicing shall be measured as scheduled by the number of visits.

The tendered rate shall exclude the cost of providing lubricants but shall cover the cost of servicing visits and operation as specified above.

PS 5.7.1 Inspection of Works by Local Authority

The Contractor shall afford inspectors from the Local Authority reasonable access to all parts of the site. The Employer's Agent in the presence of representatives of the Local Authority will generally undertake testing of the works. Accordingly, the Contractor shall notify the Employer's Agent at least 24 hours in advance as to when the various sections of work will be available for testing. The Employer's Agent may require the Contractor to submit a weekly schedule of times, based on his programme, that he envisages work to be available for testing.

PS 5.6 Recording of Weather and Abnormal Rainfall

If during the time for completion of the Works or any extension thereof should abnormal rainfall or wet conditions occur, then an extension of time in accordance with Clause 5.12 of The General Conditions of Contract 2015 (3rd Edition) hereof shall be granted by the Employer, calculated on the critical path method. It shall be applied as follows:

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

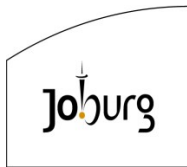
V	Extension of time in calendar days in respect of the calendar month under consideration.
Nw	Actual number of days during the calendar month on which a rainfall of Y mm or more has been recorded.
Nn	Average number of days, as derived from existing rainfall records, on which a rainfall of Y mm or more has been recorded for the calendar month.
R/0w	Actual rainfall in mm recorded for the calendar month under consideration.
Rn	Average rainfall in mm for the calendar month as derived from existing rainfall records.

For purposes of the contract Nn, Rn, X and Y shall have those values assigned to them in the Contract Data and/or the Specification.

The total extension of time shall be the algebraic sum of all monthly totals for the period under consideration, but if the total is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for part of a month to be calculated using pro rata values of Nn and Rn.

This formula does not take account of flood damage that could cause further or concurrent delays and will be treated separately as far as extension of time is concerned.

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The factor (Nw-Nn) shall be considered to represent a fair allowance for variations from the average number of days during which rainfall exceeds Y mm. The factor (Rw-Rn)/X shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work.

The following average rainfall figures are applicable:

INFORMATION SOURCE: South African Weather Service, Midrand, Tel.: 012 367 6014

Y = 10 mm/24-hour day

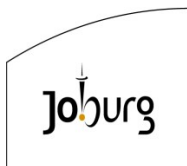
X = 20 mm

A delay caused by inclement weather conditions will be regarded as a delay if, in the opinion of the Employer's Agent, all progress on an item or items of work on the critical part of the working programme of the Contractor has been brought to 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 15 (fifteen) working days caused by normal rainy weather, for which he will not receive any extension of time.

Daily records of rainfall and activities within the critical parts affected shall be kept by the Contractor and signed by the Employer's Agent's representative on the site. For this, accurate rain gauging shall be taken at a suitable point on the site, and the Contractor shall, at his own expense, take all necessary precautions to ensure that unauthorised persons do not interfere with the rain gauges. Failure to produce signed copies of the above records on a daily basis to the Employer's Agent's representative on the site after the event having occurred will be deemed to be in breach of this Clause and will not be admissible for purposes of seeking an extension of time.

The Contractor shall be permitted to take his own rainfall measurements on site subject to the Employer's Agent's approval, but access to the measuring gauge(s) shall be under the Employer's Agent's control. The Contractor is to provide and install all the necessary equipment for accurately measuring the rainfall as well as to provide, erect and maintain a security fence plus gate, padlock and keys at each measuring station, all at his own cost.

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PS 5.7 Format of Communications

The Contractor and Employer shall follow the communication protocol through the Employer's Agent and Contractor representatives. Communication media applicable shall be site meetings, telephone, letter and email.

All communication shall be in writing and any verbal agreements shall only be binding once confirmed and agreed to in writing. Communication by registered post or email is acceptable.

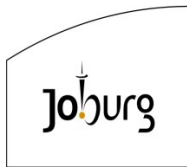
The Contractor and the Employer shall follow the correct communication protocol applicable to a normal civil engineering contract. The Contractor shall not put into effect any instructions received by him, other than through such protocol.

Should the Contractor be unclear in this regard, he shall obtain a ruling from the Employer's Agent.

Contractor to provide the following reporting on a monthly basis, Local resources reporting shall include but not be limited to;

- a) Number (labourers, SMMs and suppliers),
- b) Labour:
 - Process of recruitment, selection and appointment
 - Name and surname
 - Gender and age
 - Certified copies of ID not validated older than three months.
 - Proof of Compliance with COIDA Act, which will be valid for the duration of the Construction period.
 - Contact details (address, telephone numbers and ward number)
 - Contract signed
 - Duration of appointment
 - Commencement date
 - Termination date
 - Activity performed
 - Classification (Skilled, semi-skilled or unskilled (labourer))
 - Time or task rate
 - Allocated Supervisor/foreman
 - Health and Safety induction undergone
 - Training provided
 - i. Trainer details
 - ii. Type of training
 - iii. Duration of training
 - iv. Cost of training
 - v. Attendance register

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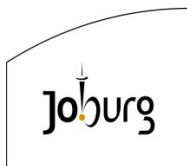
Part 3: Scope of Work

- Performance rating (good, fair, poor)
 - i. For training
 - ii. Work execution
 - iii. Health and safety awareness
- Additional training or supervision to be provided
- Proof of Monthly and cumulative payments, including salaries or wages
- UIF Returns
- Certified copy of the contractual agreement not validated older than three months.

c) SMMEs

- Process of recruitment, selection and appointment
- Company name
- Company contact details (address, telephone numbers and ward number)
- Company registration (also VAT and TAX)
- Company age (months or years)
- Type of company
- Company size (number of permanent employees)
- Name and surname of owner
- Owner contact details (address and telephone numbers and ward number)
- Gender, age and PDI status
- Contract signed
- Certified copies of ID
- Proof of Compliance with COIDA Act, which will be valid for the duration of the Construction period.
- Duration of appointment
 - i. Commencement date
 - ii. Termination date
- Resources provided (labour and/or plant and/or materials)
- Activity performed
- Classification
- Time or task rate
- Allocated Contractor Supervisor/foreman
- Health and Safety induction undergone
- Training provided
 - i. Trainer details
 - ii. Type of training
 - iii. Duration of training
 - iv. Cost of training
 - v. Attendance register

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- Performance rating (good, fair, poor)
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 - ii. Work execution
 - iii. Health and safety awareness
- Additional training or supervision to be provided
- Proof of Monthly and cumulative payments , including salaries or wages
- UIF returns
- Certified copy of the contractual agreement not validated older than three months.

PS 5.8 Key Personnel

Tenderers shall state the details of the key personnel as required in the Tender returnable documents.

The same key personnel shall be deployed onto site on start of the works. The Contractor shall not change or withdraw from the Site of the works any of his erection and installation staff until such time as the plant has been completely erected and installed, except with the written consent of the Employer's Agent.

The Contractor is to provide the Curricula Vitae of key personnel to be employed on the project as well as the person's position and responsibilities within the project team.

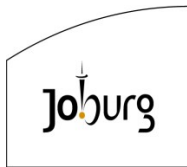
The Contractor shall provide the following minimum key staff:

- a) Contracts Manager
- b) Site Agent;
- c) Civil, Mechanical and Electrical and C&I Engineering Senior Foremen
- d) Safety Officer/s;

The key role players involved or associated with the contract are listed below with references made to the General Conditions of Contract.

- The Employer (GCC, Clause 1.1.1.15)
- The Employer's Agent (GCC, Clause 1.1.1.16)
- The Employer's Agent 's Representative (GCC, Clause 1.1.1.17)
- The Contractor (GCC, Clause 1.1.1.9)
- The Contractor's Site Agent (GCC, Clause 4.12.2)
- Responsible person in terms of the OHAS Act

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PS 5.9 Management Meetings

The Employer's Agent shall hold regular (monthly) site progress meetings with representatives of the Contractor, and the Employer. Minutes of such site meetings shall be kept and distributed by the Employer's Agent. Senior Contractor management staff attendance shall be compulsory. The Contractor must include for attending technical meetings fortnightly or as required by the Employer's Agent.

The Contractor shall be required to provide reporting project progress, resources (human, plant and equipment), community issues, environmental and health and safety aspects.

PS 5.10 Forms of Contract Administration

The Contractor shall maintain a file which shall contain project information related to project progress, resources (human, plant and equipment), community issues, environmental, health and safety aspects, penalties imposed, claims lodged and outcomes, disputes and resolutions, payment and variations.

The Employer shall provide all standard forms for the administration of the contract. The Contractor shall be required to correspond on the standardized format.

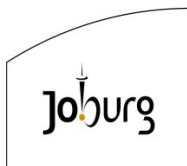
PS 5.11 Daily Records

In addition to records on rainfall and weather, labour, plant, and materials, a site diary (site activities, progress made, all material deliveries for the day, personnel employed on the Site of works, equipment delivered to site or storage and the number of man-hours for the week in question), site instruction book (both in triplicate) and safety documents are to be provided and maintained by the Contractor on site and updated daily.

Such records is the property of the Employer and shall be made available to the Employer or his representative within 24 hours from being requested to do so.

The site diary shall be submitted to the Employer's Agent representative for signature daily. These shall also be submitted to the Employer's Agent on completion of the contract.

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PS 5.12 Bonds and Guarantees

The Contractor shall within the period stated in the Contract Specific Data, of this document, provide the Employer with a Surety Bond in the form of a On-Demand Bank Guarantee, Bank Transfer or a Guarantee from an approved Insurance Company to the satisfaction of the Employer in the form included in the Tender Documents. The Bank Guarantee shall be for an amount equal to ten per cent (10%) of the Tender Sum, for the due and punctual fulfilment and completion of all the Contractor's obligations under the Contract. No Extension of Time or any variation of the Contract nor the termination of the Contract by the Employer in terms of GCC 2015 hereof shall in any way impair or diminish or terminate any liability to the Employer under and by virtue of such Surety Bond. The cost of the Surety Bond to be so entered into, shall be at the expense in all respects of the Contractor; the Surety Bond to be released upon issue of the Employer's Agent's Certificate of Completion of the Works, unless otherwise stated in the Contract Data

Should the Contractor, when notified of the acceptance of his offer, fail to provide an approved Surety Bond within the stated period, then the Employer may, at his sole discretion:

- (a) Grant the Contractor a further reasonable period in which to provide the bond; or
- (b) Withdraw his acceptance of the tender, in which case the Contract shall be deemed to be void, but without prejudice to the Employer's rights to recover whatever damages he may have suffered by virtue of the Contractor's failure to fulfil his obligations.

PS 5.13 Payment Certificates

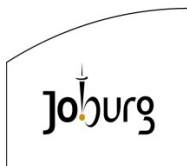
Measurements will be done continuously between the Employer's Agent's Representatives and the Contractor on dates and times agreed on. Dates must be arranged by these parties.

Monthly payment certificates shall be submitted by the Contractor in the format approved by the Employer's Agent. Payment for particular items scheduled shall conform to the payment clauses of the Project Specifications and that of the Particular Specifications.

The progress of the following items will be recorded hereunder:

- The Contractor will provide a certificate with quantities to the Employer's Agent before or on by the 20th day of each month every month.
- If any material on site is claimed, proof of ownership must be provided either by means of the necessary receipts or a letter from the supplier stating that ownership has been transferred to the Contractor upon delivery.
- After the payment certificate has been approved by Employer's Agent, the Contractor must issue a VAT invoice. The certificate will then be ready for handing in.
- The Contractor must familiarize themselves with the payment circle under Clause 6.10.4 of the General Conditions of Contract for Construction Works 2015.

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PS 5 FEATURES REQUIRING SPECIAL ATTENTION

PS 6.1 Community Liaison and Community Relations

The Contractor shall in consultation with the local ward councillor employ a full time Community Liaison Officer for the duration of the contract.

In all dealings with the community and workers employed from within the community, the Contractor shall take due cognizance of the character, culture and circumstances of the community involved and shall at all times use his/her best endeavours to avoid the development of disputes and to foster a spirit of co-operation and harmony towards the project.

The Contractor shall at all times, keep the Employer's Agent fully informed on all matters affecting the community and shall at all times maintain good public relations with the public. The Contractor shall at all times, keep the Employer's Agent fully informed of progress and planned interruption on all matters affecting the community.

PS 6.2 Environmental Management

Various existing infrastructure and planned scope of work falls within Environmentally sensitive areas (within the 1:100-year flood line, wetland buffer zones and the wetland itself). It is imperative that the Contractor adheres to all the Environmental specifications and guidance (as outlined in PS 8).

PS 6.3 Setting-Out Verification

The contractor shall satisfy themselves that the setting-out of the various scope of work, for construction and installation has been checked, especially prior to any permanent work being undertaken.

Allowance and co-ordination for the works to arrange for their waste collection service provider to do a "dry run" of their waste skips truck manoeuvrability should be made, once the setting out has been done for the new screenings' facility and perimeter walls extent.

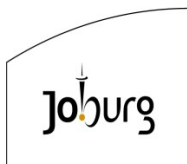
PS 6.4 Access

Access to the site is from the N1 highway, off ramp to Grasmere North Offramp Plaza and turn left into R558 Road if coming from Free State direction however if coming from Johannesburg direction, off ramp left soon after the Grasmere Plaza (S) tollgate and turn right into R558 Road. Continue straight along R558/Ennerdale Road and turn right into James Street. The site is on your immediate right along James Street. At the first T-Junction on James Street turn right and travel for approximately 20m to the site. A security check point is available at the main entrance and entrance to and from the site and access to the site will be controlled via the security check point.

PS 6.5 Schedule of Quantities for Mechanical, Electrical and C&I Work

The schedules for the electrical, control and instrumentation works differentiate between the supply and delivery of equipment and the installation and commissioning thereof so

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as to avoid delays in payment after equipment has been supplied and to improve the Contractor's cash flow. The installation and commissioning items shall therefore not be paid for under materials on site.

It is an explicit requirement of the Contract that specialist contractors are engaged for the electrical, control and instrumentation works.

PS 6.6 Conditions and Procedures for Existing Services

The Contractor shall throughout the Contract take adequate precautions to protect all existing services from damage whether or not they have been pointed out to him. The Contractor shall as soon as practically possible inform the Employer's Agent of any damages to services and shall not repair any such damage unless instructed to do so.

All cables and pipes shall be considered "live" unless confirmed otherwise by the relevant service authority.

PS 6.7 Additional Meetings

The costs of all additional meetings or inspections over and above the normal, that take place because of the Contractor not keeping to his program or because or due to the poor quality of his work shall be for the account of the Contractor and shall be deducted from the following month's payment certificate. An amount of R 5 000.00 per meeting shall be paid by the Contractor to compensate for the travelling cost, time, etc. of both the Employer's Agent and the Employer.

PS 6.8 Certificate of Completion

A Certificate of Completion of the works shall be issued after the successful commissioning of all equipment and in accordance with the Conditions of Contract. The twelve months defects liability period shall start on the date stated in the Certificate of Completion.

Guarantees shall be reduced or returned to the Contractor after issuing of the Certificate of Completion and retention monies shall be paid out after the defects liability period has elapsed. The Certificate of Completion shall not be issued until the documents required in terms of this Contract have been lodged with and accepted as satisfactory by the Employer's Agent.

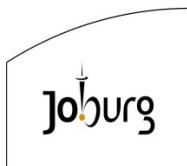
The issuing of the Certificate of Completion could be delayed if the equipment supplied under this contract cannot be commissioned. If the issuing of the Certificate of Completion is delayed for reasons beyond the Contractor's control, the Contractor shall be compensated for his expenses because of the time delay between the Completion of the works and the commissioning of the equipment. The rate tendered for the payment item for the postponement of the issuing of the Certificate of Completion must include for all the Contractor's expenses.

Measurement and Payment

Unit

Compulsory postponement of the issuing of the Certificate of Completion Rate/day

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PS 6.9 Foreign Exchange Risks

The provision of forward cover against foreign exchange fluctuations on the imported content of all equipment required under the contract might be required. In his Tender, the Tenderer must state the value of the imported content of each item and the applicable currencies and the exchange rates on which his tender was based.

The successful Tenderer might be required to take out forward cover on all foreign exchange transactions required in his tender for this contract, the rate applied shall be that ruling at the starting date of the Contract when that is stated in the Letter of Acceptance.

Amounts tendered shall be adjusted for foreign exchange variations up to the starting date of the Contract; any fluctuations after this date shall be for the Contractor's account.

PS 6.10 Tools and Spares

As part of the equipment supplied, the Contractor shall supply all special tools or keys required for adjustment to any parts of such equipment.

The Contractor shall supply such spares ordered by the Employer's Agent.

The cost of special tools and keys shall be covered by the tendered rate or price for the Supply and Delivery of the relevant equipment.

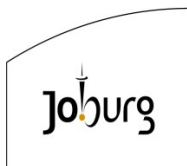
Payment for spares and standard spanners and cabinet(s) shall be made out of the Prime Cost Sum allowed in the Schedule of Quantities for such items. The Contractor's profit, administration and delivery charges shall be paid at the tendered percentage of the actual purchase price of the goods.

PS 6.11 Operation Manual

The Contractor must compile and provide three copies of a complete operation manual for the pump station, including the equipment provided. This manual shall contain comprehensive information as set out hereafter.

- (a) Drawings of the pump station and equipment detailing all part numbers and materials.
- (b) A complete spares list.
- (c) A lubrication and maintenance schedule showing all maintenance and lubrication operations, their recommended frequency and the grades of lubricant required.
- (d) A maintenance brochure describing all maintenance, adjustment and replacement procedures.
- (e) Operating manual describing the automatic and manual operation of the equipment with performance curves where applicable.

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- (f) A manual detailing all dismantling and reassembly procedures.
- (g) Maintenance procedure for corrosion protection painting systems.
- (h) Complete Data book of the equipment on Completion of the Contract.

The Contractor shall amplify and amend such drafts until the Employer's Agent is satisfied that they shall fulfil the purpose of ensuring that the Employer's staff is adequately instructed to operate and maintain the works. Once the drafts have been approved by the Employer's Agent, the Contractor shall prepare three suitably bound copies and deliver them to the Employer's Agent.

The manuals shall be drawn up in English.

In addition to the above, the Contractor, and where necessary the suppliers of equipment, shall be required to instruct the works personnel in the proper and correct operation of the equipment installed for a maximum period of 1 day. The timing of this training shall be determined in consultation with the Employer and the Employer's Agent.

PS 6.12 General

PS 6.18.1 Abbreviations

Wherever abbreviations for published national Standard Specifications or named Standard Specifications are used, they shall be deemed to refer to the latest edition of the Specification concerned, including all amendments, published 30 days before the closing date for receipt of tenders. Typical abbreviations are:-

ASTM	: American Society for Testing Materials
BS	: British Standard
BSCP	: British Standard Code of Practice
SANS	: South African National Standards
SABS	: South African Bureau of Standards
SIS	: Standards Institute Sweden
IEC	: International Electrotechnical Commission

PS 6.18.2 Metric Symbols

Symbols prescribed by the System Internationale (SI) are used in these Specifications.

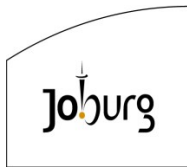
PS 6.18.3 Definitions

OHS ACT : Occupational Health and Safety Act, 1993 (Act 85 of 1993), as amended and including any regulations made thereunder.

PS 6.18.4 SANS Standard

All materials used and the standards of workmanship employed for the execution of the works shall comply with the appropriate SANS Standard and or Code and if they do not carry the SANS mark, the Contractor shall obtain a certificate from SANS stating that the items comply with the appropriate SANS standard.

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PS 6.13 Installation of Equipment

PS 6.19.1 Safety

The Contractor shall at all times observe proper and adequate safety precautions on the Site. Where adequate, safety precautions are not being observed, the Employer's Agent may order the Contractor to comply with minimum safety requirements at the Contractor's expense and compliance with such an order shall not absolve the Contractor from any of his responsibilities and obligations under the Contract and the Occupational Health and Safety Act.

PS 6.19.2 General

A skilled erector shall be in charge of the work at all times and any instructions and explanations which the Employer's Agent shall give to him, shall be deemed to have given the Contractor.

The work shall be neat and workmanlike true to line and level, plumb and in proper working order.

Where any item of plant is mounted on a frame or bed plate, packers of 10 mm minimum thickness machined to size shall be provided and fitted by the Contractor to ensure accurate alignment.

Where required to correct alignment, all mounted units shall be shimmed with non-corrosive metal shims. Shims shall be the shape and size as the contact area of the parts and slotted so that the shims can be removed without removing the mounted bolts.

All cut edges shall be without burrs. Shims with wrinkles in the material shall not be permitted.

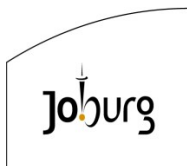
Only small lugs shall protrude after completion.

All equipment shall be properly assembled and mounted to avoid the setting up of initial stresses in the materials and to ensure perfectly free running of all moving parts.

PS 6.14 Work Outside Normal Working Hours

Should the Contractor wish to work outside normal working hours (Monday to Friday 07h00-17h00) he shall obtain permission from the Employer's Agent. This permission shall not be unreasonably withheld.

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PS 6 HEALTH AND SAFETY SPECIFICATION FOR CONSTRUCTION WORK

The Occupational Health and Safety Specification of the Employer's is bound in Volume 3 of these contract documents. Volume 3 forms an integral part of the Contract Specification and, in particular, shall be a part of the HEALTH AND SAFETY SPECIFICATION FOR CONSTRUCTION WORK.

In terms of Construction Regulations 4 (1) (a) of the Occupational Health and Safety Act, Act No 85 of 1993, the Employer is required to compile an occupational health and safety specification for any intended project and to provide the specification to prospective tenderers.

The objective of this specification is to ensure that the principal Contractor entering into a contract with the Employer achieves and maintains an acceptable level of occupational health and safety performance.

The specification provides the requirements that the principal Contractor and other Contractors shall comply with in order to reduce the risks associated with the contract work, and that may lead to incidents causing injury and/or ill health, to a level as low as reasonably practicable and possible.

The Contractor, appointed by the Employer in terms of Regulation 4 (1) (c), is required to prepare an occupational health and safety plan.

This plan has to be prepared in terms of Regulation 5 (1) as well as the Employer's occupational health and safety specification. In terms of Regulation 4 (2), the Employer and the principle Contractor are required to agree on the occupational health and safety plan before any work may commence.

The principal Contractor's health and safety plan has to follow the framework in Volume 3, as a minimum.

PS 7.1. Site Specific Health and Safety Issues

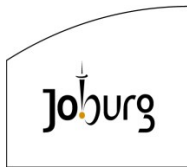
Tendering Contractors are to refer to Johannesburg Water's Health and Safety Specification (refer to Volume 3: OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL SPECIFICATION AND ENVIRONMENTAL MANAGEMENT PLAN).

PS 7.1 Barricading of Trenches

The Contractor shall ascertain himself of the nature, volume, stability, depth and possible safety risks of the excavations, before any decision with regards to the method of excavation is made.

Allowance for hand excavation has been made for the location of services. Extreme caution shall be taken when excavating for existing services and structures. Any damages and or repairs to the existing infrastructure will be for the Contractor's account.

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The length of open excavation must at all times not exceed 100m

Adequately protected by a barrier or fence comprising fluorescent orange plastic netting of height at least 1 000mm and as close to the excavation as practicable; and

- Provided with notice boards marked "CLOSED" at each end of closed or partially closed roads,
- The barrier or fence (at least 1m high) shall be suitably wrapped with reflective red and white danger tape or provided with flashing orange lights, placed at 15m intervals along the barricading at night.
- Where the depth of an excavation or the nature of the material excavated renders the sides of the excavation liable to movement that might endanger the works or the workers engaged on the excavation,
- the sides of the excavation shall be supported by suitable timber or other sheeting adequately strutted and braced, all properly assembled and of sufficient strength and stiffness to prevent movement in the materials supported, or, alternatively,
- the slope of the excavated face or faces shall be reduced so that any danger to the works or workers is removed.

Any cavities formed by the fall of rock or earth due to rain, flooding, insufficient timbering or other causes, shall be adequately filled.

The Contractor shall so maintain borrow pits that they do not become a danger to persons or livestock.

Trenches may not be left open during the builder's holidays or for any shutdown period exceeding 5 calendar days. Should the Contractor not comply with this requirement without the written approval of the Employer's Agent ; the Employer's Agent shall have the open trenches closed by others at the expense of the Contractor. Furthermore, all further opening-up of the backfilled excavation and dealing with the excavated material and subsequent making good will all be to the Contractor's cost.

PS 7 ENVIRONMENTAL MANAGEMENT

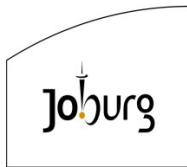
Feedback may include additional remedial measures and conditions that may be attended to by the Contractor with the provisional sum included in the Schedule of Quantities.

Appointment of the Contractor and commencement of construction shall only take place once the necessary approvals from the authorities have been received.

The contractors' camp, storage and temporary facilities are limited to 300 m2 extent of vegetation clearance, where it may fall within the wetland buffer zone. A proposed area for the contractors' camp has been identified but is subject to confirmation prior to site establishment, by the Employer.

The Contractor shall acquaint himself and his staff with the provisions of any potential EMP and applicable regulations, duties, obligations and prohibitions and shall accept

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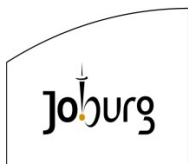


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responsibility for due compliance with the aforementioned. In the case of failure to comply with any requirements of any potential EMP, the Employer shall be entitled to employ and pay other persons to undertake any remedial work or measures to rectify any consequences or prevent possible consequences resulting from the non-compliance by the Contractor and all costs consequent thereto shall be borne by the Contractor and shall be recovered from him by the Employer. If it is not practical to rectify any consequence resulting from the non-compliance of the Contractor with the requirements of the EMP, the Employer will be entitled to impose a penalty on the Contractor which penalty shall be in relation to the expense which the Contractor would have incurred to comply. A generic EMP is attached in Volume 3.

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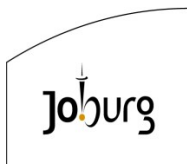
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PORTION 2: VARIATIONS AND ADDITIONS TO THE STANDARDISED SPECIFICATIONS

The following variations and additions to the SANS 1200 Standardized Specifications referred to in the last clause of Portion 1 apply to this Contract. The prefix PS indicates an amendment to SANS 1200. The letters and numbers following these prefixes respectively indicate the relevant Standardized Specification and clause numbers in SANS 1200.

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Witness:		Witness:	



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PSAA: GENERAL (Small Works)
(Applicable to SABS 1200 AA – 1986)

PSAA 3 MATERIALS

PSAA 3.1 QUALITY AND SAMPLES

ADD TO THE SUBCLAUSE:

"No used or recycled material may be used in the Works unless expressly authorised by the Engineer.

All materials to be provided under this Contract shall bear the mark of the South African Bureau of Standards wherever such materials are the subject of a SABS standard.

Samples of concrete aggregates and pipe bedding material are to be delivered to an approved laboratory for analyses."

PSAA 4 PLANT

PSAA 4.1 CONTRACTOR'S OFFICE AND STORES (Refer SANS 1921-1 Clause 4.14)

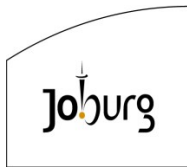
ADD TO THE SUBCLAUSE:

"Neither housing nor shelters are available for the Contractor's employees, and the Contractor shall make his own arrangements to house his employees and transport them to site.

The Employer will place an area of ground at the disposal of the Contractor at the Ennerdale WwTW site to enable him to erect his site offices, workshops and stores. The temporary facilities and ablution facilities shall comply with the requirements of the Local Authority.

On completion of the Works or as soon as the Contractor's facilities are no longer required the Contractor shall remove such facilities and clear away all surface indications of their presence. The site is to be rehabilitated as described elsewhere."

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PSAA 5 CONSTRUCTION

PSAA 5.1 SURVEY

**PSAA 5.1.2 Preservation and Replacement of Pegs subject to Land Survey Act
(Refer SANS 1921-1 Clause 4.15)**

ADD TO THE SUBCLAUSE:

"Before the commencement of construction work in the vicinity of boundaries, the Contractor, under the direction of the Engineer, shall search for plot pegs where boundaries have not been established by the erection of walls or fences and the Contractor shall compile a list of such pegs that are apparently in their correct positions. At the completion of the contract, the Contractor shall expose the pegs that were listed at the commencement of the construction and the Engineer will arrange for any such pegs that are missing to be replaced at the Contractor's expense. e
All plot boundary pegs shall be marked with fencing droppers which shall be painted.

As the construction of the Works may necessitate the removal and re-siting of certain survey beacons the Employer will make the necessary application to the Surveyor-General and, notwithstanding the provisions of Subclause 5.1.2 will meet the costs of the re-survey by a Land Surveyor of these servitude beacons in their new position.

The Employer will accordingly indemnify the Contractor against all costs implied in Subclause 5.1.2 in respect of those beacons which may have to be removed by the Contractor.

The Engineer will arrange for any pegs that are missing to be replaced at the Contractor's expense.

All survey reference marks shall be clearly marked and protected by the erection of three fencing standards."

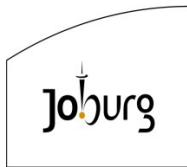
ADD NEW ITEM

"PSAA 5.1.3 Topographical survey

An adequate number of survey points (spot shots) must be surveyed to ensure that the true topography and features of the surveyed area are accurately and correctly reflected when the data is plotted.

All topographical features such as banks, ditches, drains, natural water courses, existing infrastructure (structures, manholes, roads, tracks, cable markers, poles, overhead power lines, pipelines, houses, fences, etc) must be accurately surveyed and clearly annotated both on the drawings and as part of the electronic data. For existing structures, all significant features shall be surveyed (structure outline, top of wall, invert levels, floor levels, etc.). Prior to commencing work on site, the Employer's Agent may require certain special/specific key features to be included and if so these

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will be pointed out to the surveyor.

The surveyed data and information shall be suitable for plotting at a scale of 1 : 250 showing 0,5 m contours.

All survey should be undertaken according to the Hartebeesthoek94 datum with WGS84 as the reference ellipsoid and a Transverse Mercator projection about the closest odd-numbered line of longitude unless specific instructions are given to the contrary.

Each survey point should include a survey code, and a list of codes must be provided.

A coordinated DXF or DWG drawing file showing information must be provided.

A triangulated DTM is required with the preferred formats being AutoCAD DXF with 3D polylines for all triangles, as well as an ASCII XYZ file. The file should include the survey code for each point. Triangulation must take proper account of topographic features. Automatic triangulation is not acceptable.

All documents and data produced as a result of work performed on the project shall remain the property of the Employer and shall not be traded or made available to any third party without prior written consent of the Employer.

PSAA 5.2 PROTECTION OF UNDERGROUND SERVICES

DELETE THE TITLE AND REPLACE WITH THE FOLLOWING:

"PROTECTION OF VISIBLE AND UNDERGROUND SERVICES (Refer SANS 1921-1 Clause 4.17)"

PSAA 5.3 DEALING WITH WATER ON WORKS (Refer SANS 1921-1 Clause 4.16)

ADD TO THE SUBCLAUSE:

"For this purpose he shall provide, operate and maintain in sufficient quantity such pumping equipment, well points, pipes and other equipment as may be necessary. He shall also provide any sumps, furrows, cross-embankments, coffer-dams and other temporary works as may be necessary to minimise damage, inconvenience, or interference."

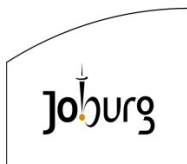
PSAA 5.4 SAFETY (Refer SANS 1921-1 Clause 4.18)

ADD TO THE SUBCLAUSE:

"All work and particularly work carried out in the proximity of buildings, bridges, tanks or other structures shall be carried out in conformance with the regulations framed under the Occupational Health and Safety Act, 1993 and the Minerals Act, Act 50 of 1991, including shoring where necessary, to ensure the safety of structures that are at risk.

The Contractor shall make available for the duration of the contract safety helmets, gumboots, shoes, and any other necessary safety equipment for sole use by the Engineer and his/her Representative(s)."

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PSAA 6 TOLERANCES

PSAA 6.2 DEGREES OF ACCURACY

ADD TO THE SUBCLAUSE:

"Generally, Degree of Accuracy II shall be applicable to the whole of the Works, unless specified otherwise (refer specifically to PSDA 6 and PSGA 6)."

PSAA 7 TESTING

PSAA 7.2 APPROVED LABORATORIES

ADD TO THE SUBCLAUSE:

"The Contractor shall establish a testing laboratory equipped in such manner that it may be deemed by the Engineer to be an approved laboratory. Alternatively, he may use the services of an established testing laboratory which the Engineer has approved. The Engineer shall be given free access to the testing laboratory."

PSAA 8 MEASUREMENT AND PAYMENT

PSAA 8.5 PROVISIONAL SUMS, PRIME COST ITEMS, DAYWORK AND TEMPORARY WORKS

ADD NEW ITEMS:

PSAA 8.5.1 Temporary Works Dealing with Water on the Works Unit: Sum

The tendered sum(s) shall cover the cost of providing, operating and maintaining the necessary equipment and other temporary works for dealing with groundwater and flow accommodation (such as isolating or diverting) where necessary to carry out construction activities without adversely affecting normal operating conditions.

PSAA 8.5.2 Daywork

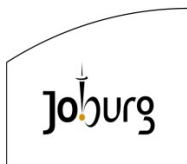
a)S
 killed labour..... Unit: Rate/hr

b)U
 nskilled labour Unit: Rate/hr

PSAA 8.5.3 Accredited Training Unit: Provisional Sum

The training of locally sourced labour and upskilling of the community members as determined by the local councillor and approved by the Client, is to be inclusive of all related expenses.

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PSAA 8.5.4 Ground penetrating survey Unit: Sum

To investigate and determine the positions of existing services and/or potential obstructions and risks at the areas of work as defined in the Bill of quantities or as indicated on drawings; the tendered sum(s) shall be all inclusive.

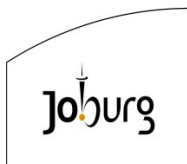
PSAA 8.5.5 Topographical survey Unit: Sum”

“PSAA 8.7 NEW BEACONS Unit: No

Supply and erect survey beacons as shown on the drawings.

The rate shall cover all costs of manufacture of the beacons, transporting to site, excavation, setting up of the beacons, backfilling and disposing of surplus material.”

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PSAB: ENGINEER'S OFFICE

(Applicable to SABS 1200 AB - 1986)

PSAB 2 INTERPRETATIONS

PSAB 2.1 (b) Supporting Specifications

Delete the Sub-Clause and substitute the following:

"b) SABS 1200 AA"

PSAB 2.3 Definitions

Delete the first two lines and substitute the following:

"For the purposes of this specification the definitions given in SABS 1200 AA shall apply:"

PSAB 3 MATERIALS

PSAB 3.1 Nameboards

In the 3rd line delete "South African Institution of Civil Engineers" and substitute with "Consulting Engineers South Africa".

PSAB 3.2 Office Building(s)

Delete the first sentence and substitute the following:

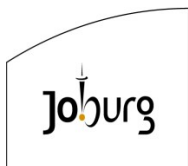
"The Contractor shall supply and furnish one air-conditioned "Kwikjack" (6 m x 3 m) office for the use of the Engineer and his/her staff, and one air-conditioned "Kwikjack" (9 m x 3.4 m) conference facility for conducting meetings".

Add to the Sub-clause:

"In addition to the furnishings listed under sub-items (a) to (i), the following shall be provided and properly maintained:

- (j) electrical installation to include a light and two 15 A plug points plus an adequately sized air conditioning unit (for heating and cooling) for each room, with minimum 1,5 kW capacity
- (k) one refrigerator of at least 100 litre capacity
- (l) one kettle of at least 2 litre capacity
- (m) one microwave of at least 20 litre capacity with minimum output 700W
- (n) one tea set comprising six cups and saucers, six teaspoons, one teapot, one sugar bowl and one milk jug
- (o) covered parking for two vehicles

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- (p) un-covered parking space for two vehicles
- (q) two "Barhold" or similar wall mounted racks each with 6 clamps suitable for hanging A0 sized drawings
- (r) Desk lamp – Architect spring balanced swing arm type
- (s) 8 additional chairs
- (t) A white board of area 1,5 m² with a set of whiteboard marker pens

PSAB 3.3 Ownership

Add new Sub-Clause:

The ownership of all offices, furnishings and equipment, car ports, sanitary equipment, and all other items provided by the Contractor shall, when they are no longer required by the Engineer, revert to the Contractor upon written advice of the Engineer and shall be dismantled and removed from site.

All equipment listed above shall be delivered and maintained in good working order for the duration of the Contract.

The Contractor shall keep the equipment continuously insured against any loss, damage or breakage and he/she shall indemnify the Engineer, his staff and the Employer against any claims in this regard."

PSAB 4 PLANT

PSAB 4.1 Telephone

Delete the Sub-Clause and substitute the following:

"In addition to the fixed telephone line and at least 4G router including sim (with uncapped, unshaped high-speed internet data package) that the Contractor is to provide, the Engineer's Representative and his/her staff will provide their own mobile phones."

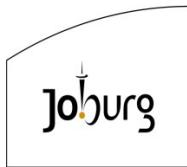
PSAB 4.2 Survey Equipment (New Sub-Clause)

Add new Sub-Clause:

"The Contractor shall provide the following survey equipment on the Site from the commencement to the completion of the Works:

- One automatic reading Engineer's level plus tripod
- Two tachometric staffs (5 m long, 1 cm graduations)
- Two steel-tipped ranging rods, each 2,5 m long
- One staff angle bubble
- One metal change-point for levelling
- One separate plumb-bob
- One spirit level (one metre long)

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- One hammer (2 kg) with steel or wooden pegs as necessary
- One 50 m steel tape
- A 5,0 m and 10,0 m retractable steel tapes

The "Total Station" or tachometer, if required, will be shared by arrangement between the Contractor and the Engineer or his representative on Site. All other survey equipment shall be for the sole use of the Engineer's Representative and his staff. The Contractor shall keep the equipment continuously insured against any loss, damage, or breakage and he shall indemnify the Engineer and the Employer against any claims in this regard. Upon completion of the Works the survey equipment as listed above shall revert to the Contractor.

The Contractor shall maintain the equipment in good working order and keep it clean until the completion of the Works."

PSAB 4.3 Computer Equipment (New Sub-Clause)

Add new Sub-Clause:

"The Contractor shall provide a 23.6" (56cm) wide LED Monitor (1920x1080) or better complete with HDMI cable and an A3 printer/scanner/copier, of approved manufacture and of standard acceptable to the Engineer. The Contractor shall keep this equipment continuously and comprehensively insured and shall indemnify the Employer and the Engineer against any claims in this regard. The Contractor shall maintain this equipment in good working order until the completion of the Works, whereupon ownership of said hardware and software shall revert to the Contractor."a

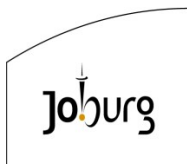
PSAB 5 CONSTRUCTION

PSAB 5.2 Engineer's Office (Refer SANS 1921-1 Clause 4.14)

Add to the Sub-Clause:

"The toilet facilities provided for the sole use of the Engineer, or his representative(s) shall be maintained in a hygienic and sanitary condition and shall be removed on completion of the Works. The facilities provided shall conform to the local health authority's requirements as applicable and the Contractor shall pay all sanitary fees and charges."

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Witness:		Witness:	



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PSAB 5.4 Telephone

Add to the sub-clause:

"The Engineer's Representative and his staff will each pay their own mobile phone accounts, and they will be reimbursed by the Contractor for those calls that are authorised as being project related. The amounts paid by the Contractor will be recoverable from the Employer. A Sum has been included in the Bills of Quantities to cover these costs."

PSAB 5.5 Survey Assistants

Delete the first sentence and substitute the following:

"The Contractor shall make available to the Engineer two suitably educated labourers for use on and about the site on survey and other work directed by the Engineer at all reasonable times."

PSAB 5.6 Computer Equipment (New Sub-Clause)

"The Contractor shall ensure that adequate supplies of consumables (paper and ink cartridges) are available on site at all times. The amounts paid by the Contractor will be recoverable from the Employer – a Provisional Sum has been included in the Bills of Quantities to cover these costs."

PSAB 8 MEASUREMENT AND PAYMENT

PSAB 8.1 Scheduled Items

Delete the 1st sentence and substitute the following:

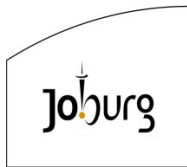
"Items will be scheduled in terms of Sub-Clauses 8.3.2 & 8.4.2 of SABS1200 AA."

PSAB 8.2.1 Fixed and Time-related Charges

Delete the 1st sentence and substitute the following:

"The terms of Sub-Clause 8.2 of SABS 1200 AA shall apply."

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PSC : SITE CLEARANCE

(Applicable SABS 1200 C - 1980 as amended 1982)

PSC 3 MATERIALS

PSC 3.1 DISPOSAL OF MATERIAL

*DELETE THE FIRST THREE SENTENCES "Material obtained by the Engineer."
AND REPLACE WITH:*

"Material obtained from clearing must be disposed of offsite by the Contractor at his expense. Disposal of combustible material by burning will not be permitted. The Contractor will be held responsible for observing the by-laws and regulations of the local authority and for any injury to persons and damage to property caused by any fire starting on site, in his/her camp, or a fire started for any reason by his/her employees, regardless of whether such injury or damage is the direct or indirect result of such fire. The Contractor shall indemnify the Employer and the Employer's Agent against all claims or damages arising from this source."

PSC 5 CONSTRUCTION

PSC 5.2 CUTTING OF TREES

PSC 5.2.3 Preservation of Trees

PSC 5.2.3.2 Individual trees

*DELETE THE SECOND SENTENCE OF THE SUBCLAUSE AND REPLACE WITH
THE FOLLOWING:*

"The amount of the penalty payable by the Contractor for the removal or damage by him of a tree designated for preservation shall be R750 for each tree having a girth of less than 1 000 mm and R1500 for each tree having a girth of 1 000 mm or more."

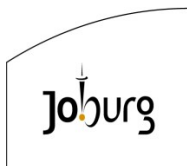
PSC 5.3 CLEARING

ADD NEW SUBCLAUSES:

"PSC 5.3.1 Restoration of Fences

Where existing fencing is encroaching in the area of work, such fencing shall be removed prior to construction and re-erected to a condition no worse than that pertaining prior to the removal. For the period that the fence or wall is dismantled and not yet re-erected, the Contractor shall erect, at the end of each day's operations, a temporary fence to close the gap in the existing fence or wall and shall maintain adequate security to prevent use of the temporary fence as a point of access by unauthorised persons.

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PSC 5.3.2 Temporary Fencing Closures

Where the construction activities are obstructed by an existing fence or wall, a section of fencing or wall not exceeding 10,0 m in length may be removed temporarily during construction and thereafter reinstated to a condition no worse than the original condition as soon as the works have been completed in the immediate vicinity of the fence. For the period while the existing fence or wall is dismantled, the Contractor shall erect, at the end of each day's operations, a temporary fence to close the gap in the existing fence or wall and shall maintain adequate security to prevent use of the temporary fence as a point of access by unauthorised persons.

PSC 5.3.3 Demarcation Fencing

The Contractor shall also supply, install, and maintain, temporary fencing on all sides of the working area and around the perimeter of all additional working areas during construction for prevention of unauthorised access and shall remove on completion of the works. The fencing shall comprise 1,8 m high 2 mm diameter wire mesh fencing with a mesh spacing not exceeding 100 mm in both the vertical and horizontal directions and with intermediate posts and straining posts and straining wires according to supplier's recommendations. Chevron tape shall be interwoven in a zig zag pattern from the top to the bottom of the fence thereby clearly marking off the working areas.

Gates shall be provided by the Contractor at all points as required for construction access purposes. The Contractor shall be held responsible for the control of access at these gates at all times, as well as to the worksite during removal and re-erection of fencing. No other opening in the fence shall be permitted and the Contractor shall be responsible for monitoring the fencing on a daily basis and repairing any such opening within the same day that it is detected. Notices in two official languages (English and isiZulu/Xhosa) shall be attached to the fence where appropriate to indicate that the site is for personnel employed on the Contract only and that unauthorised entry is forbidden.

PSC 5.3.4 Childproof Barrier

In proximity to residential areas, and wherever ordered, the Contractor shall provide and fix to the demarcation fencing described in PSC 5.3.3 above, approved and substantial plastic square mesh to act as an additional childproof barrier and shall remove it on the completion of the works."

PSC 5.4 GRUBBING

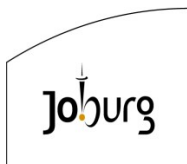
IN THE FOURTH LINE DELETE "200 mm" AND REPLACE WITH "300 mm".

PSC 5.6 CONSERVATION OF TOPSOIL

ADD TO THE SUBCLAUSE:

"All topsoil shall be conserved for later use by stockpiling clear of the working area."

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PSC 5.8 DEMOLITION OF STRUCTURES

ADD NEW SUBCLAUSES:

“PSC 5.8.1 Removal and Re-Erection of Structures

Where the Contractor is directed to dismantle structures to facilitate construction and thereafter to re-erect the same structures, the structure shall be erected at the same location, or such other location as may be required by the owner within the same property, using the same or similar materials as those set aside when removing the structure. The acceptance of the work by the Engineer and certification for payment shall be subject to the Contractor submitting to the Engineer documentary evidence of the owner's satisfaction with the re-erected structure, the over-riding consideration being that it shall be in a condition no worse than that pertaining prior to its removal.

The tendered rates shall include for the provision of a detailed photographic and written record of all of the affected structures before dismantling commences and following re-erection.

PSC 5.8.2 Demolition of Buildings or Structures

Where the Contractor is directed to demolish structures, the Contractor shall provide a Method Statement for the approval of the Engineer. Entering upon the premises for the purpose of the demolition shall not commence before the Contractor has received a release form, duly authorised by representatives of the Employer and the Engineer, in which any special conditions applicable to the demolition are documented."

PSC 8 MEASUREMENT AND PAYMENT

PSC 8.2 SCHEDULED ITEMS

PSC 8.2.10 Remove topsoil to nominal depth of 150 mm and stockpile

DELETE FROM THE SUBCLAUSE HEADING THE WORDS: "to nominal depth of 150 mm"

ADD TO SUBCLAUSE:

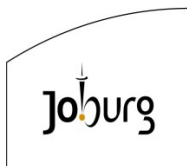
"All topsoil shall be conserved for later use by stockpiling clear of the working area."

ADD THE FOLLOWING PAYMENT ITEMS:

“PSC 8.2.11 Restoration of fences to servitude boundaryUnit: m

Separate payment will be made for dealing with fences in the manner specified in PSC 5.3.1 above as scheduled.

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PSC 8.2.12 Temporary fencing closures..... Unit: No

Separate payment will be made for dealing with fences in the manner specified in PSC 5.3.2 above including re-instatement as scheduled.

PSC 8.2.13 Removal and re-erection of structures Unit: No

Separate payment will be made for removing and re-erecting structures in the manner specified in PSC 5.8.1 above as scheduled, including the costs of photographic and written records.

PSC 8.2.14 Demolition of buildings or structuresUnit: m³

Separate payment will be made for demolishing structures in the manner specified in PSC 5.8.2 above as scheduled, including the cost of removal of rubble to an approved spoil site, backfilling any excavations and compacting to 90% modified AASHTO density and shaping the ground level in line with the natural terrain.

PSC 8.2.15 Demarcation fencing..... Unit: m

Payment will be made per linear metre of temporary fencing installed in the manner specified in PSC 5.3.3 above, and the rate shall include for maintaining such fencing in good condition, including daily surveillance and repair, throughout the duration of construction and removal on completion of the works.

PSC 8.2.16 Childproof barrier Unit: m

Separate payment will be made as an extra-over for the installation of plastic mesh on the demarcation fencing to provide a childproof barrier in the manner specified in PSC 5.3.4 above and the rate shall include for maintaining such barrier in good condition throughout the duration of construction so as to serve its intended purpose and removal on completion of the works."

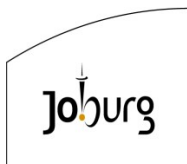
PSC 8.2.17 Remove existing precast kerbing and/or channelling:

- a) To stacking area for reuse:
 - i) Barrier Kerbs **Unit: m**
 - ii) Combination mountable kerb and channel..... **Unit: m**
- b) To approved dump site:
 - i) Barrier Kerbs **Unit: m**
 - ii) Combination mountable kerb and channel..... **Unit: m**

The rate in respect of (a) shall include full compensation for all plant, labour, materials, transport and other incidentals required for the careful removal of existing kerbing and/or channelling and the cleaning and stacking thereof in temporary sites agreed with the Engineer.

The rate shall also include full compensation for the extra care and diligence required

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to remove the units without damage. Only units removed on the instructions of the Engineer will be measured for payment.

The rate in respect of (b) shall include full compensation for all plant, labour, materials, transport and other incidentals required for the marking and removal of damaged kerbing and/or channelling and the disposal thereof in an approved dump site”.

PSC 8.2.18 Remove existing concrete block paving:

a) To temporary sites for reuseUnit: m²

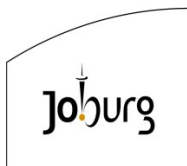
b) To dump in approved siteUnit: m²

The rate in respect of (a) shall include full compensation for all plant, labour, materials, transport and other incidentals required for the careful removal of existing concrete block paving and the cleaning and stacking thereof at temporary sites agreed with the Engineer.

The rate shall also include full compensation for the extra care and diligence required to remove the units without damage. Only units removed on the instructions of the Engineer will be measured for payment.

The rate in respect of (b) shall include full compensation for all plant, labour, materials, transport and other incidentals required for the marking and removal of existing concrete block paving and the disposal thereof in an approved dump site. Should the existing base be damaged by the Contractor's operations during the removal process, it shall be repaired to the Engineer's satisfaction at the Contractor's own cost”.

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PSDA: EARTHWORKS (SMALL WORKS)
(Applicable to SABS 1200 DA – 1988 (as amended 1990))

PSDA 2 INTERPRETATIONS

PSDA 2.3 DEFINITIONS

DELETE THE SENTENCE FOLLOWING THE WORDS "Restricted excavation." AND REPLACE WITH:

"An excavation so restricted in area or width as to preclude removal of material by excavating machinery used for bulk excavation measured in terms of Subclause 8.3.1(b). Restricted excavation may be carried out by smaller machinery or by hand, as selected by the Contractor. The extent of restricted excavation shall be as scheduled and/or shown on the drawings; all other excavation shall be regarded as bulk excavation."

PSDA 3 MATERIALS

PSDA 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

PSDA 3.1.1 Method of Classifying

DELETE THE FIRST PARAGRAPH AND REPLACE WITH:

"The Contractor may use any method he chooses to excavate, subject to the requirements of the project specifications, but his chosen method of excavation shall not determine the classification of the excavation."

PSDA 3.2 EMBANKMENTS AND BACKFILL

PSDA 3.2.1 General

ADD THE FOLLOWING:

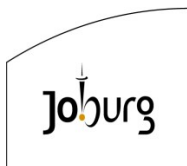
"Embankment material shall be compacted to 90% modified AASHTO density."

ADD NEW SUBCLAUSE:

"PSDA 3.3 EMBANKMENTS

Sufficient material arising from excavations for structures, foundations, footings and the like and which is suitable for forming embankments and backfilling against finished structures shall be temporarily stockpiled in the vicinity of the structures. All other material from the excavations shall be disposed of as directed by the Engineer."

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PSDA 4 PLANT

ADD NEW SUBCLAUSES:

“PSDA 4.3 COMPACTION PLANT

Where plant is used for applying the dynamic load, controlling the moisture content and grading or mixing, the plant shall be capable of achieving the compaction specified using the material available for the construction of the Works.

PSDA 4.4 RESTRICTION ON USE OF PLANT

Where the Contractor finds it impractical to use mechanical plant for excavation or to complete portions of the work due to restrictions caused by difficult access or the presence of existing structures, pipelines or services shown on the tender drawings, the Contractor shall satisfy himself as to the alternative requirements when entering rates against the appropriate items in the Bill of Quantities as no claim for extra payment based on the inability to use plant in such circumstances will be considered...

PSDA 4.5 VIBRATION LOADINGS FROM USE OF PLANT

The onus will be on the Contractor, when proposing to use heavy plant or equipment to complete work in close proximity to existing structures, pipelines or services, to determine the effect of the vibration loading from the plant or equipment on the supporting ground or foundation and the structure, pipeline or service and take all necessary steps to ensure that the stability or integrity of the element concerned is not compromised by the particular selection and use of plant or equipment.

Any damages caused to existing elements directly or indirectly arising out of the use of plant and equipment in close proximity shall be made good, to the satisfaction of the Engineer by the Contractor at his own expense."

PSDA 5 CONSTRUCTION

PSDA 5.1 PRECAUTIONS

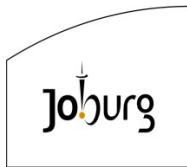
PSDA 5.1.1 Safety

PSDA 5.1.1.1 Barricading and lighting (Refer SANS 1921-1 Clause 4.18.2 and 4.18.3)

DELETE THE SUBCLAUSE AND REPLACE WITH:

"Without limiting any obligation which the Contractor may have in terms of any Act, Ordinance or other legislation, the Contractor shall ensure that all excavations which are accessible to the public or which are adjacent to a public road or thoroughfare, or by which the safety of persons may be endangered are protected as set out in the General Safety Regulations of the Occupational Health and Safety Act, 1993 and that watchmen are employed to ensure that barricades, barriers and lights are effective at

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Trench excavations shall be protected by means of at least two horizontal double sided 'red/white' chevron tapes approved by the Engineer. The tapes shall be stretched tightly between supports along both sides and ends of the excavation at levels approximately 0,45 m and 1,12 m above the ground. The supports shall consist of poles or iron standards securely planted in solid ground at not more than 10 m centres so as to enclose the spoil and the excavations.

Bridges for vehicles and/or pedestrians shall be provided along the route of the work as and where may be considered necessary by the Engineer. They shall consist of a number of suitably sized steel plates laid across open excavated trenches. They shall be protected on each side by a stout two rail timber safety barrier, at least 1 m high, consisting of 150 x 75 mm timber verticals set firmly into the ground, 75 mm x 50 mm rails securely fastened to them. At least 4 lamps or reflective markers must be provided at each crossing.p

Where construction is in, or across, public roads the barricades or barriers and temporary road signs shall be erected. All such signs and positioning thereof shall comply with the requirements set out in Road Signs Note 13 read in conjunction with the SA Road Traffic Signs Manual."

PSDA 5.1.1.2 Safeguarding of excavations (Refer SANS 1921-1 Clause 4.18.3)

IN SUBCLAUSE (a) DELETE THE WORDS "Machinery and Occupational Safety Act" IN THE THIRD AND FOURTH LINES AND REPLACE WITH "regulations to the Occupational Health and Safety Act, 1993."

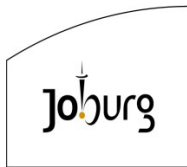
PSDA 5.1.1.3 Explosives (Refer SANS 1921-1 Clause 4.7)

ADD NEW SUBSUBCLAUSES:

"(a) Notwithstanding Subclause 5.1.1.3, the Engineer shall be notified at least 48 hours beforehand of the Contractor's intention to use explosives on site.

It shall be incumbent on the Contractor to make himself aware of the restrictions to blasting imposed by electric transmission or telephonic lines and other similar services. Where the presence and location of electric transmission or telephonic lines, etc, are known or are shown on the Engineer's drawing at tender stage; the Contractor must make allowance in his rates and programmes for restrictions and delays which may result from restrictions imposed by the authorities.

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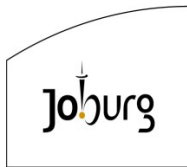


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- (b) Generally, the Contractor will be permitted to use explosives for breaking up rock and hard material during excavations, for demolishing existing structures and for such other purposes where it may normally be required, subject to the following conditions:
- (i) The Engineer or Inspector of Explosives shall have the power to prohibit the use of explosives in cases where in his opinion, the risk of injury or damage to persons, property or adjoining structures is too high. Such action by the Engineer shall not entitle the Contractor to any additional payment for having to resort to other less economical methods of construction unless otherwise provided in the Contract Data or Bill of Quantities.
 - (ii) Should blasting be necessary, the Contractor shall take every precaution to protect the Works and persons, animals and property in the vicinity of the site. The Contractor will be held responsible for any injury or damage caused by any blasting operations and shall make good such damage at his own expense.
 - (iii) The requirements for the Explosives Regulations Act (Act 26 of 1956) and the requirements of the Inspector of Explosives shall be complied with. In addition, where applicable, the requirements of Chapter 9 of the Regulations published in terms of the Mines and Works Act (Act 27 of 1956) and the requirements of the Government Mining Engineer shall be complied with.
 - (iv) A copy of each blasting permit issued to workmen, and of each permit issued to the Contractor to cover the purchase, storage and transport of explosives, shall be handed to the Engineer. The Contractor shall grant the Engineer access to all records maintained for the Inspector of Explosives or the Government Mining Engineer, as the case may be.
 - (v) Before any blasting is undertaken, the Contractor, together with the Engineer shall examine and measure up any buildings, houses or structures in the vicinity of the proposed blasting and establish and record together with the owners thereof the extent of cracking or damage that may exist before commencement of blasting operations. It is advised that a photographic record will be required of neighbouring structures before blasting commences. These structures will be pointed out by the Engineer. It shall be the responsibility of the Contractor to make good at his own expense any further damage to such houses, buildings or structures which is a result of the blasting.
 - (vi) Where there is reasonable danger of damage to power and telephone lines or any other property, the Contractor shall suitably adapt his methods of blasting, the size of the charges and use adequate protective measures such as cover blasting in order to limit the risk of damage as far as possible.
 - (vii) When blasting to specified profiles, the Contractor shall so arrange the holes and charges that the resulting exposed surfaces are as sound as the nature of the material permits. The Contractor shall make good at his own expense any additional excavation necessitated by the shattering of

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rock in excess of any overbreak allowance specified in the Specification Data or in any other specification or given on a drawing."

ADD NEW SUBCLAUSES:

"PSDA 5.1.1.4 Limitations for Blasting

(a) Approval of methods and keeping of records

No blasting work may be carried out prior to the Engineer's approval being given in writing.

Prior to starting any drilling for the first section of blasting, the Contractor shall submit for approval to the Engineer, details of the proposed overall methods of blasting that will be used on site, including spacing, depth and pattern of holes, charging levels (kg/m^3), spacing and positioning of relays, method of blast initiation, precautions to prevent 'fly rock', maximum charge per relay, traffic arrangements during blasting, and any other details he may consider relevant. These details shall be submitted in writing and supported with sketches at least 7 days before the commencement of drilling and blasting.

The Engineer will evaluate these details in relation to the given limitations and prior to giving his approval, will indicate to the Contractor any changes that may possibly be needed to comply with the limitations.

For all subsequent blasts, the Contractor shall, at least 24 hours beforehand, notify the Engineer of the intention to blast and at the same time shall note if any changes will be made relative to the approved method.

The Engineer reserves the right to order the Contractor to modify his method of drilling and blasting, or to employ reduced blasting, without thereby invalidating the Contract. The Contractor shall have no claim for extra payment, over and above his tendered rates, due to his being ordered to use such a different method of drilling or blasting or reduced charges, regardless of any prior approval by the Engineer of any previous method.

After every blast, the Contractor shall, within 24 hours, submit to the Engineer details of the actual total mass of explosives used, the approximate volume of material loosened and the maximum simultaneous mass of explosives detonated (maximum charge per relay).

Notwithstanding any approval given by the Engineer, the Contractor shall at all times be responsible for the safety of the Works, persons, animals and property in the vicinity of the Site during blasting operations.

(b) Vibrations

Blasting vibrations are caused by the transmission of the shock wave from the explosion charge through the material being blasted. This shock wave could

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cause damage to structures in the vicinity of the blasting if the vibrations are not limited to acceptable levels. Damage to structures is closely associated with peak particle velocity of the ground vibrations in the vicinity of the structure. Advisable maximum levels for peak particle velocity are given in Table 2.

Table 2: Maximum Particle Velocities (Vibration)

Maximum Peak Particle Velocity (mm/s)	Effect on People and Buildings
0,5	Threshold of human perception unlikely to cause damage of any type
5	Limit for blasting adjacent to historical monuments
25	Limit for blasting near private dwellings in order to reduce disturbance to residents to a minimum
50	Limit for blasting adjacent to residential structures on good foundations
84	Limit for property owned by concern doing the blasting (i.e. minor plaster cracks acceptable)
120	Recommended maximum level for blasting adjacent to sturdy reinforced concrete structures

The peak particle velocity V is related to the distance D from the blast and the maximum mass of explosive E instantaneously detonated (maximum charge per relay) by the general equation:

$$V = \left(\frac{k}{D} \right)^m \times E^n$$

where k, m and n are constants for a particular set of circumstances. V is in mm/s, D is in metres and E is in kilograms. Experimentation has shown that n = 0,5 but k and m have to be determined for each site by means of vibration measurements. However, blasting can be safely conducted without vibration measurements or expert advice if the following relationship is used:

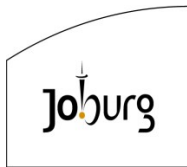
$$V = \left(\frac{1150}{D} \right) \times E^{0.5}$$

which gives the maximum charge levels for V = 50 mm/s listed in Table 3.

Table 3: Maximum Charge Levels

Minimum Distance from Nearest Blast Hole Structure (m)	Maximum Charge Mass per Relay (kg)
10	0,19
20	0,76
30	1,7
40	3,0
50	4,7
60	6,8
70	9,3

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80	12,1
90	15,3
100	18,9

Only detonating relays of at least 20 milliseconds delay interval shall be used. The above relationship can be used to calculate charge mass for other velocity limits. However, if higher charge levels have to be used for practical reasons, expert advice and possibly vibration measurements will be required.

Notwithstanding the above blasting limits, the Contractor shall at all times be responsible for the safety of the Works, person, animals and property in the vicinity of the Site during blasting operations.

PSDA 5.1.1.5 Negligence

The Contractor shall be liable for all damages to services caused as a result of the Contractor's negligence."

PSDA 5.1.2 Protection of Structures

ADD TO THE SUBCLAUSE:

"Protection will be required for every building structure that encroaches within the pipeline servitude as shown on the drawings. Payment items are provided in respect of each of these structures for the protection of the structure and the tendered rates will be deemed to include for all costs associated with working within a restricted working width.

During the site clearance operations, the Contractor shall notify the Engineer of any structure that is not included in the scheduled items in the Bill of Quantities for protection or for demolition but that in his judgment requires protection under Clause PSDA 5.1.2. After due investigation the Engineer will consider the Contractor's proposal regarding the protection or demolition of the structure."

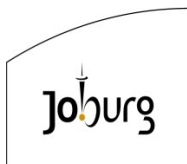
PSDA 5.1.3 Existing Services (Refer SANS 1921-1 Clause 4.17)

ADD TO THE SUBCLAUSE:

"All existing services on the site may not be shown on the Drawings or be visible on the site. The Engineer may order excavation by hand in order to search for and expose services. An item has been included in the Bill of Quantities to cover the cost of such work if so ordered by the Engineer.

Where a service is damaged because of the Contractor's negligence, he shall be liable for the costs involved in the repair of the service and any other costs consequent upon the interruption of the damaged services."

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PSDA 5.1.4 Stormwater and Groundwater

DELETE THE THIRD SENTENCE AND REPLACE WITH:

"Except where the use of tremies has been approved, foundation excavations for structures shall be kept free of water at all times until they have been inspected and approved and the concrete substructures, together with their related superstructures, have been completed."

PSDA 5.1.5 Excessive Pollution (Refer SANS 1921-1 Clause 4.19)

ADD THE WORDS "noise and", BEFORE THE WORD "dust" IN THE SECOND LINE.

PSDA 5.1.6 Excavated Material not to Endanger or Interfere (Refer SANS 1921-1 Clause 4.10)

DELETE THE SENTENCE: "If the necessitywill be borne by the Employer."

DELETE THE LAST SENTENCE AND REPLACE WITH:

"All material that is unsuitable or not required for backfilling (surplus material) shall be disposed of as described in project specification. No additional payment will be made for these activities."

PSDA 5.1.8 Road Traffic Control

DELETE FROM THE THIRD AND FOURTH LINES, THE WORDS "and such barricades and warning lights as are ordered" AND ADD TO THE SUBCLAUSE:

"An item has been included in the Bill of Quantities to cover the relevant costs."

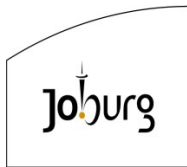
PSDA 5.2 METHODS AND PROCEDURES

PSDA 5.2.1 Site Preparation

DELETE THE LAST SENTENCE AND REPLACE WITH:

"Material so removed shall be disposed of by the Contractor to Sites designated by the Engineer."

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PSDA 5.2.2 Excavation (Refer SANS 1921-1 Clause 4.10)

ADD THE FOLLOWING TO SUBCLAUSE (d):

"In order to minimize potential differential settlement of the shallow foundations for the proposed new works in relation to existing or new valve chambers or undermining of the existing structures, it may be necessary to carry out ground improvement.

Once excavation to the base of the existing structure has taken place, a Dynamic Cone Penetration Test (DCP) shall be carried out to a minimum depth of 1 m to ascertain the necessity or otherwise to carry out the ground improvement. DCP results of ≥ 5 blows per 100 mm are deemed to indicate the presence of stiff clays.

Where stiff clays are encountered in the 1 m zone below the existing structure, it is recommended that the clay is immediately blinded with a lean mix of concrete and construction proceeds on the basis of a 'raft' type foundation / base slab supporting the sidewalls of the new structure.

If the clays are soft or loose sand is encountered, vertical lightweight trench sheeting is to be vibrated or driven down as close as possible to the existing foundations for a distance of at least 1,0 to 1,2 m below founding level.

The base area shall then be over-excavated, both vertically and horizontally, and the material shall be replaced with well compacted granular material (G6 minimum). The surface shall be blinded with a lean concrete mix after removal of the trench sheeting, following which the base slab to support the sidewalls shall be cast."

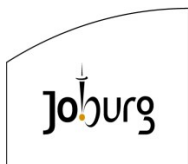
DELETE PARAGRAPH (f) OF THE SUBCLAUSE AND REPLACE WITH:

"(f) Borrow pits where and when ordered shall be so maintained that they do not become a danger to persons and livestock. The necessary access shall be constructed to each site. Topsoil and overburden shall be stockpiled temporarily and, on completion of the work, returned to and spread over the area of the borrow pit in such a manner that the sides are graded 1:2 and the floor is self-draining, or otherwise as directed. Any access constructed by the Contractor shall be scarified and the area reinstated..

ADD THE FOLLOWING SUBSUBCLAUSES:

- "(h) Where outside shuttering is ordered by the Engineer, the excavations shall be carried out for an extra width of not more than 600 mm all around the structure, measured from the base of the face to be shuttered, to allow for the shuttering to be fixed, this extra excavation and refilling where necessary is to be measured and paid for under quantities allowed for this purpose in the Bill of Quantities. Outside shuttering shall be used for the construction of all major structures unless ordered otherwise by the Engineer.
- (i) Where permanent concrete is to be placed against an excavated face, the excavation shall be trimmed to ensure that there is no projection greater than 20 mm protruding into the excavation profile.

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- (j) The Contractor shall not spoil, waste or stockpile excavated material without approval."

PSDA 5.2.3 Placing

PSDA 5.2.3.1 Embankments

IN THE THIRTEENTH LINE DELETE "600 mm" AND REPLACE WITH "300 mm"

IN THE SIXTEENTH LINE DELETE "300 mm" AND REPLACE WITH "150 mm"

DELETE THE NINETEENTH LINE AND REPLACE WITH THE FOLLOWING:

"Each layer shall be compacted to achieve 90% modified AASHTO density except where indicated otherwise on the Drawings."

PSDA 5.2.3.2 Restricted backfill and compaction at structures

DELETE THE EIGHTH AND NINTH LINES AND REPLACE WITH:

"not exceeding 250 mm and compacted by means of mechanical tampers to achieve a 90% modified AASHTO density except where indicated otherwise on the Drawings."

PSDA 5.2.5 Finishing

PSDA 5.2.5.2 Topsoiling

DELETE THE CONTENTS OF SUBCLAUSE 5.2.5.2 AND REPLACE WITH THE FOLLOWING:

"Where scheduled, topsoil shall be placed on all surfaces and on embankments and shall be lightly compacted by wheeled vehicles or by tamping, and trimmed neatly to the required lines grades and levels. The final thickness of topsoil after compaction shall be at least 200 mm. Prior to topsoiling, the surfaces to be topsoiled shall be prepared by pulling horizontal ruts into the soil with the tines of a front-end loader or other suitable method to retard erosion of the topsoil."

PSDA 5.2.6 Transport for Earthworks

PSDA 5.2.6.1 Freehaul

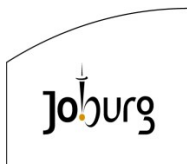
DELETE THE CONTENTS OF SUBCLAUSE 5.2.6.1 AND REPLACE WITH THE FOLLOWING:

"All haul will be regarded as freehaul. No overhaul will be paid under this contract."

PSDA 5.2.6.2 Overhaul

DELETE THE SUBCLAUSE.

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PSDA 6 TOLERANCES

PSDA 6.2 PERMISSIBLE DEVIATIONS

ADD THE FOLLOWING PERMISSIBLE DEVIATIONS FOR WORK TO DEGREE OF ACCURACY II:

“

6.2(a)	1	From direction of slope Between 1/100 and 1/300 1/400 and flatter	+ 300 mm
	2		+ 100 mm
	3		+ 50 mm
	4		Nil
6.2(b)	1		+ 35 mm
	2		+ 50 mm
	3		+ 50 mm
	4		+ 15 mm
6.2(c)	1	Read '-2% + 1%' in place of '+ 2%'	

”

ADD NEW SUBCLAUSE:

"PSDA 6.3 EXCAVATION BY MECHANICAL MEANS

Where bulk excavation is carried out by earthmoving equipment, such excavation will only be allowed to within a level of 300 mm, or less as ordered by the Engineer, above the general level to which the ground has to be reduced, the balance of the bulk excavation being carried out by hand or by other means approved by the Engineer."

PSDA 7 TESTING

ADD NEW SUBCLAUSES:

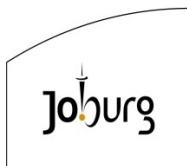
"PSDA 7.4 DELAY FOR INSPECTION AND TESTING FOUNDATIONS

In the case of the structure(s) listed hereunder, the prices quoted in the Bill of Quantities and the programmed time for carrying out foundation excavations shall include for up to seven days delay to permit the Engineer to carry out tests or to get an expert opinion on the exposed foundation, should he consider these to be necessary. No claim for standing time or other extra cost for such delay will be accepted by the Engineer, neither will an extension of time be granted, except where the delay exceeds 7 days.s

The structure(s) to which this Subclause applies is/are as follows:

None

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PSDA 7.5 TESTS FOR THE CONTRACTOR'S ACCOUNT

The Contractor shall make arrangements with a soils testing laboratory to undertake the following tests and to pass the test results to the Engineer. The costs of such tests shall be included in the rates tendered for the appropriate item in the Bill of Quantities.

- (a) Material imported from outside the Contract Site as working surfaces, subgrade improvement or for fill material

One CBR and indicator test per 200 m³ of compacted material brought on to site, (river sand will normally be exempted from this requirement). A sample and one CBR and indicator test of the material proposed for importation shall be submitted to the Engineer for approval prior to the commencement of importation.

- (b) Fill material in place

One density and moisture content test per 100 m³ of compacted fill.

- (c) Compacted subgrade or finished level

One density and moisture content test per 200 m² of compacted surface area. Should any of the above density tests fail to comply with the specified requirements, the Contractor shall at his own expense remedy the failure and submit a new test to the Engineer.

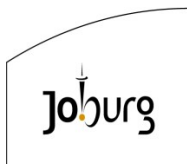
PSDA 7.6 DETERMINATION OF COMPACTION

Determination of the standard of compaction achieved shall be carried out in accordance with Standard methods of testing road construction materials published by the Department of Transport Division of National Roads, Publication TMH.1.

PSDA 7.7 TESTS AT THE EMPLOYER'S REQUEST

Where CBR, indicator tests and the like are required on materials from within the Contract Site the Contractor shall also make arrangements with a soils testing laboratory to undertake these tests, the costs of which have been allowed for in the Bill of Quantities as a Provisional Sum. Payment for such tests will be per sample tested and reported to the Engineer. "

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Witness:		Witness:	



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PSDA 8 MEASUREMENT AND PAYMENT

PSDA 8.1 BASIC PRINCIPLES

PSDA 8.1.1 *DELETE THE THIRD LINE OF THE FIRST SENTENCE AND REPLACE WITH:*

"material in backfilling, forming embankments, etc., including any necessary additional offloading, stock-piling and reloading and the cost of disposal of any"

IN THE SEVENTH LINE DELETE "Drawing DA-2" AND REPLACE WITH "Fig DA-2"

ADD TO THE SUBCLAUSE:

"Unavoidable over-excavation for structures located in boulder formation will be measured and paid for up to a maximum of 600 mm in Class A boulder formation and 300 mm in the case of Class B boulder formation, as applicable, as measured beyond the required outline of the structure and at right angles to it."

PSDA 8.1.2 *DELETE THE FIRST LINE OF THE FIRST SENTENCE AND REPLACE WITH:*

"Excavations which are required to be backfilled, or partially backfilled, will be measured as if taken out"

DELETE THE FIFTH AND SIXTH LINES AND REPLACE WITH:

"other such structures, the volume will be measured from the finished outline of the concrete, or the blinding to the concrete (as the case may be), as shown on the Drawings."

PSDA 8.1.3 *DELETE THE THIRD LINE AND REPLACE WITH:*

"will be measured as part of the bulk excavation or restricted excavation, as applicable".

PSDA 8.3 SCHEDULED ITEMS

PSDA 8.3.1 Excavation

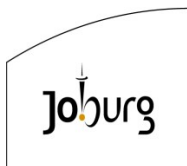
- (a) Remove topsoil to nominal depth, 150 mm, stockpile and maintain

ADD TO THE SUBCLAUSE:

"Where removal to greater depths is ordered, the area measured for payment will unless otherwise scheduled, be increased pro rata to the average increase in depth".

- (b) Excavate in all materials and use for embankment or backfill or dispose, as ordered

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*REPLACE "Drawing DA-1" IN THE THIRD LINE WITH "Fig DA-1".
DELETE THE THIRD LINE OF THE SECOND SENTENCE AND REPLACE
WITH:*

*"-ation, offloading to stockpile, stockpiling and reloading as may be necessary,
spreading or backfilling, compacting and watering"*

(c) Extra-over for

REPLACE "Drawing DA-1" IN THE LAST LINE WITH "Fig DA-1".

PSDA 8.3.2 Restricted Excavation

(a) Excavate for restricted foundations, footings and trenches in all materials and use for backfill or embankment or dispose

REPLACE "Drawing DA-2" IN THE FOURTH LINE WITH "Fig DA-2".

(b) Extra-over for

ADD TO THE SUBCLAUSE:

"(3) boulder excavation Class A Unit: m³

(4) boulder excavation Class B Unit: m³

DELETE THE LAST TWO LINES AND REPLACE WITH:

(a) above for any portion of the excavated material that is classified as intermediate, hard rock, boulder Class A or boulder Class B as applicable."

PSDA 8.3.3 Overhaul

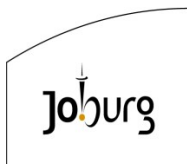
DELETE THE SUBCLAUSE AND REPLACE WITH:

"(a) Overhaul (provisional) Unit m³.km

Overhaul is applicable only when the appropriate information set out in 5.2.6.1(b) was not available to the Contractor at the tendering stage.

Volumes will be computed from designated dimensions. No allowance will be made for bulking. Overhaul distances will be measured to the nearest 0,1 km from the limit of the freehaul range, in one direction only, by the shortest practical route."

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PSDA 8.3.4 Importation of Materials from Commercial Sources or from Borrow Pits

DELETE THE LAST FIVE LINES.

ADD THE FOLLOWING SUBITEMS:

“(a) For Embankment Construction Unit: m³

The rate shall cover the cost of royalties (if any) and acquiring suitable material, loading, transporting with freehaul distance, unloading, spreading in layers not exceeding 150 mm thick, watering, compacting to 90% Mod AASHTO density, trimming slopes of embankment to required outline all in accordance with the Specifications. The rate shall also include for carrying out density testing and the disposal of any surplus material.

(b) For Backfilling around Structures Unit: m³

The rate shall cover the cost of royalties (if any) and acquiring suitable material, loading, transporting with freehaul distance, unloading, spreading in layers not exceeding 150 mm thick, watering, compacting to 90% Mod AASHTO density, trimming upper surfaces to the required outline all in accordance with the Specifications.”

ADD THE FOLLOWING ITEMS IN SUBCLAUSE 8.3:

“PSDA 8.3.9 Additional Compaction Unit: m³

Where so scheduled additional compaction over that required to achieve 90% Mod AASHTO density in order to achieve the scheduled higher density shall be paid for by the volume so compacted.

The rate shall include for all additional plant, labour and materials necessary to achieve the additional compaction scheduled.

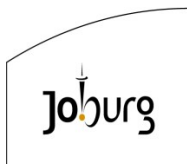
PSDA 8.3.10 Survey of Surrounding Structures before Blasting Unit: Sum

The rate shall cover the cost to examine and measure up any buildings, houses or structures in the vicinity of the proposed blasting and establish and record together with the owners thereof the extent of cracking or damage that may exist before commencement of blasting operations. The rate shall cover the cost of providing a photographic record of neighbouring structures before blasting commences.

PSDA 8.3.11 Protection of Structures: Buildings Unit: Sum

The rates shall cover the cost of examining and measuring up any buildings, or structures that encroach within the area of work and establishing and recording, together with the owners thereof, the general condition and/or damage that may exist before commencement of blasting or excavation operations, including the cost of providing a photographic record, the costs of reduced working width, and the costs of any special working methods required to protect the structure throughout the course of the nearby construction work. This shall include, where required, but is not necessarily limited to, the use of shoring or lateral trench support and the placing of

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barriers to demarcate restricted working area in the vicinity of the structure.

PSDB: EARTHWORKS (Pipe Trenches)
(Applicable to SABS 1200 DB - 1989)

PSDB 3 MATERIALS

PSDB 3.1 CLASSES OF EXCAVATION

ADD TO SUBCLAUSE:

"Notwithstanding the provisions of Subclause 3.1, the materials excavated other than hard rock shall not be classified for purposes of measurement and payment. The unit rate for excavation shall cover excavation in all materials other than hard rock and where scheduled separately boulders classes A and B (as specified in SABS 1200 DA Subclauses 3.1.2(d) and 3.1.2(e))."

PSDB 3.3 SELECTED GRANULAR MATERIAL

ADD TO SUBCLAUSE:

"The requirements for bedding material (padding) for steel pipes is given in PSLB 3.3."

PSDB 3.4 SELECTED FILL MATERIAL

DELETE THE SENTENCE "The requirements shall apply." AND REPLACE WITH:

"All material up to the underside of backfill shall be measured as selected granular. The requirements for bedding material (padding) for steel pipes is given in PSLB 3.3."

PSDB 3.5 BACKFILL MATERIAL

IN THE THIRD LINE OF SUBSUBCLAUSE (a) DELETE "150 mm" AND REPLACE WITH "100 mm".

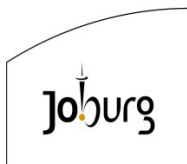
IN THE SECOND LINE OF SUBSUBCLAUSE (b) DELETE "PI not exceeding 12" AND REPLACE WITH "PI not exceeding 6."

ADD THE FOLLOWING NEW SUBSUBCLAUSE (c):

"(c) Cement Stabilised Backfill

Where scheduled, or directed by the Engineer, backfill shall be stabilised with 5% cement by mass. The backfill material shall have a plasticity index not exceeding 10 and all material must pass through a sieve of aperture size not exceeding that specified in SABS 1200 LB, Subclause 3.2, as amended.

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The dry materials shall first be mixed in a concrete mixer, thereafter sufficient water is to be added to produce the stiffest consistency available for placing and compacting with vibrators."

PSDB 3.6 MATERIALS FOR REINSTATEMENT OF ROADS AND PAVED AREAS

DELETE THE SUBCLAUSE AND REPLACE WITH:

"Material used in the reinstatement of roadways shall fall into the following relevant categories:

- (a) Foundation material recovered from the excavation of trenches across existing roadways which, if so instructed by the Engineer, shall be set aside and re-used as sub-base material.
- (b) New material which shall conform to the requirements of:
 - (i) Clause 3.2.1 of SABS 1200 ME for the Subbase
 - (ii) Clauses 3.2 and 3.3 of SABS 1200 MF for the Basecourse
 - (iii) Clause 3.2.2 of SABS 1200 ME for the Gravel Wearing Course
 - (iv) Clause 3 of SABS 1200 MH for the asphalt surfacing."

PSDB 3.7 SELECTION

DELETE THE SECOND SENTENCE AND REPLACE WITH:

"The Contractor is not required to use selective methods of excavating but shall, if so instructed by the Engineer, screen or otherwise treat excavated material in order to produce material suitable for the bedding cradle or the bedding blanket."

PSDB 4 PLANT

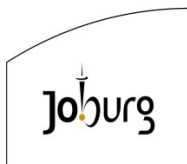
PSDB 4.1 EXCAVATION EQUIPMENT

IN THE FIRST LINE DELETE "The Contractor" AND REPLACE WITH: "In sections deemed to be suitable for excavation by mechanical means, the Contractor"

ADD TO THE SUBCLAUSE:

"Should any portion of a pipe trench exceed the specified depth, the Contractor will be held responsible for any additional costs which may arise as a result of such over-excavation. Concrete filling or imported compacted fill may be ordered by the Engineer to be placed below the bottom of the trench."

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Witness:		Witness:	



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PSDB 5 CONSTRUCTION

PSDB 5.2 MINIMUM BASE WIDTHS

ADD TO THE SUBCLAUSE:

"Trench sides shall be as near vertical as possible in order to minimise the quantity of backfill material required and to avoid possible difficulties where pipelines have to be installed parallel to existing services, fences, hedges, etc and to minimise the loading on the pipe.

The base width for trenches for cables, ducts and unbedded flexible continuous piping, of external diameter less than 125 mm laid at a depth not exceeding 1,5 m, shall be equal to the external diameter of the cable, duct or pipe, plus a side allowance of 200 mm on either side."

PSDB 5.4 EXCAVATION

ADD TO THE SUBCLAUSE:

"Except where otherwise specified, trenches shall be of such depth as to result in a minimum cover over the pipes of 800 mm except at road-crossings where the minimum cover over the pipes shall be 1 000 mm.

Where the pipe trench crosses surfaced roads the Contractor shall neatly cut two parallel grooves into and through the 'black top' before excavating between the grooves. The grooves are to be set back at least 200 mm from the edge of the excavation face to prevent ravelling of the cut edge. The cost of this operation, where not scheduled separately, will be held to be covered in the general rates for excavation."

PSDB 5.5 TRENCH BOTTOM

ADD TO THE SUBCLAUSE:

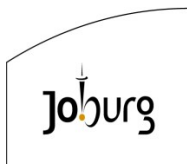
"In waterlogged conditions and/or where so instructed by the Engineer a 200 mm thick layer (See PSLB 5.2.5) of imported single sized stone (19 mm size unless otherwise instructed by the Engineer) with a geofabric filter surround ('Bidim' Grade A4 or similar approved) shall be constructed under the bedding layer specified for the pipes."

ADD THE FOLLOWING NEW SUBCLAUSE:

"PSDB 5.5.1 Jointing Holes

Jointing holes shall be cut of sufficient length and depth to allow for the proper making or bolting of pipe joints and to ensure that joint collars or sleeves do not rest on the trench bottoms. After the pipework has been inspected, tested and approved by the Engineer, the jointing holes shall be refilled with selected soft material free from stone (padding materials as specified under PSLB in the case of coated steel pipes) and then rammed to provide a continuous uniform support for the pipework. No specific

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payment will be made for forming and refilling holes, the cost of which is deemed to be included in the tendered rates."

PSDB 5.6 BACKFILLING

PSDB 5.6.1 General

ADD TO THE SUBCLAUSE:

"Notwithstanding the requirements of Subclauses 5.6.1 and 5.6.6, no pipe joint or pipe fitting shall be covered by either blanket or backfill material prior to the successful completion of the visual inspection and pressure testing of the relevant section of the pipeline.

All backfilling shall be carried out by hand and the Contractor must price his tender accordingly. No mechanical plant shall be used in backfilling without prior written consent of the Engineer."

PSDB 5.6.2 Material for Backfilling

DELETE FOURTH, FIFTH AND SIXTH LINES AND REPLACE WITH:

"Hard rock material shall not be used for, or incorporated into, the backfill above the bedding layers without the Engineer's approval."

PSDB 5.6.3 Disposal of Soft Excavation Material

ADD TO THE SUBCLAUSE:

"Surplus material or unsuitable material shall be disposed of off site by the Contractor."

PSDB 5.6.4 Disposal of Intermediate and Hard Rock Material

ADD TO THE SUBCLAUSE:

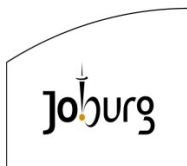
"Surplus intermediate and hard rock material from trench excavations shall be disposed of off site by the Contractor."

PSDB 5.6.8 Transport for Earthworks for Trenches

DELETE THE SUBCLAUSE AND REPLACE WITH:

"The requirements of Subclause 5.2.6 of SABS 1200 DA as amended and as applicable shall apply."

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PSDB 5.7 COMPACTION

PSDB 5.7.2 Areas subject to Traffic Loads

ADD AT THE END OF THE SUBCLAUSE:

"for an extent of 2 m on either side of the carriage-way at each crossing."

PSDB 5.9 REINSTATEMENT OF SURFACES

PSDB 5.9.4 Bitumen Roads, Subbase and Base

ADD TO THE SUBCLAUSE:

"Each Tenderer is required to make provision in his/her tender for allowances to cover the costs of reinstating all surfaces, inclusive of all layers to their conditions pertaining before the commencement of construction.

Items have been included in the Bill of Quantities to cover the reinstatement of certain surfaces (grassed lawns, concrete and/or asphalted/gravel driveways and/or roads) and for payment purposes, the area of those specific surfaces shall be calculated from the product of the length of the trench and the specified trench width plus 400 mm (refer PSDB 5.4)."

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.1 BASIC PRINCIPLES

DELETE SUBCLAUSE 8.1.4 AND REPLACE WITH:

"Except that the volume will be computed as specified in 8.2.3, the requirements of Subclause 5.2.6.1 (Freehaul) of SABS 1200 DA as amended and as relevant, shall apply to freehaul.

No additional payment will be made for excavating and backfilling bell (fox) holes as the cost of that work will be deemed to be included in the rates for trenching."

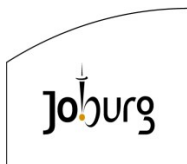
PSDB 8.3 SCHEDULED ITEMS

PSDB 8.3.2 Excavation

- (a) Excavate in all materials for trenches, backfill, compact and dispose of surplus material

IN THE SECOND SENTENCE DELETE "1,0 m" AND REPLACE WITH "as scheduled in the Bill of Quantities"

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Witness:		Witness:	



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(b) Extra-over item (a) above for

ADD THE FOLLOWING SUBITEMS:

- "(3) Hand excavation and backfill only where ordered
by the Engineer Unit : m³
- (4) Backfill stabilised with 5% cement where
directed by the Engineer Unit : m³
- (5) Boulder excavation Class A Unit : m³
- (6) Boulder excavation Class B Unit : m³"

The tendered rates for (4) above shall include full compensation for selecting, mixing, backfilling and compacting of the stabilised material to 90% of modified AASHTO density.

Measurement of extra over for (5) and (6) above will not apply to any length of trench in soft material more than 2 m long. Surplus boulder material from trench excavation shall where applicable, be disposed of to the designated spoil areas except where shown otherwise on the drawings."

PSDB 8.3.3 Excavation Ancillaries

PSDB 8.3.3.1 Make up deficiency in backfill materials (provisional)

ADD TO THE SUBCLAUSE:

"Payment for imported, graded stone laid under pipelines in accordance with PSDB 5.5 shall be paid for under either Subclause 8.3.3.1(c) or as scheduled."

PSDB 8.3.3.4 Overhaul

DELETE THE SUBCLAUSE AND REPLACE WITH:

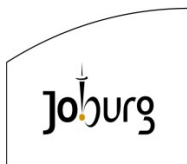
"All haul will be regarded as free haul."

PSDB 8.3.5 Existing Services that Intersect or Adjoin a Pipe Trench

ADD TO THE END OF THE SUBCLAUSE:

- "(v) all work involved in locating the service by hand excavation
(vi) notifying and attending upon the owner of the service
(vii) supporting and protecting the service while the pipeline is installed, inspected, tested and backfilled."

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PSGA: CONCRETE (SMALL WORKS)
(Applicable to SABS 1200 GA - 1982)

PSGA 2 INTERPRETATIONS

PSGA 2.3 DEFINITIONS

(a) General

ADD TO THE SUBCLAUSE:

"Adverse weather. Cold weather or weather in which:

- (i) the ambient temperature is above 25°C, or
- (ii) the relative humidity is low, or
- (iii) the wind velocity is high.

or weather in which any combination of these three conditions occurs, and which tend to impair the quality of fresh or hardened concrete or otherwise causes the concrete to have abnormal properties."

(b) Quality

ADD TO THE SUBCLAUSE:

"Consistency. The extent, as measured by the slump test, to which fresh concrete resists flow or deformation."

ADD NEW SUBCLAUSE:

(d) Exposure Conditions

Mild Conditions. Conditions under which the concrete is protected from the weather and exposed only to air.

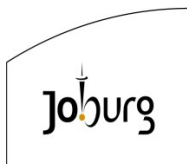
Moderate Conditions. Conditions under which the concrete is:

- (i) sheltered from severe rain and is not subject to freezing when wet, or
- (ii) buried in non-aggressive soil, or
- (iii) continuously under fresh water.

Severe Conditions. Conditions under which the concrete is exposed or subjected to any of the following:

- (i) driving rain
- (ii) alternate wetting and drying out
- (iii) freezing when wet
- (iv) fresh water (at the water-line)
- (v) splashing or spraying with fresh water
- (vi) corrosive fumes or heavy condensation of water
- (vii) aggressive soil

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Witness:		Witness:	



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(viii) salt-laden air".

PSGA 3 MATERIALS

PSGA 3.2 CEMENT

PSGA 3.2.1 Applicable Specifications

DELETE THE CONTENTS OF THIS SUBCLAUSE AND REPLACE WITH:

"The standard cement specifications SABS 471, SABS 626, SABS 831, and SABS 1466, have been withdrawn and are replaced by SANS 50197-1: Common cements, and SANS 50413-1: Masonry cement. These specifications will be applicable to this Contract and the descriptions and types of cements, where specified, will be based on the designations as defined in these specifications.

Unless agreed to otherwise by the Engineer, the cement used on the works shall be either Type Cem 1, Type Cem II A-S, CEM II A-V, CEM II B-S or Cem II B-V.

Pulverised Fly Ash (PFA) used on the works shall be from an approved source and shall comply with the requirements of SANS 50450-1 & 2.

Ground granulated blast furnace slag used on the works shall be from an approved source and shall comply with the requirements of SANS 55167-1 & 2."

PSGA 3.2.2 Storage of Cement

ADD TO THE SUBCLAUSE:

"Cement shall be stored in a closed structure or container and shall not be kept in storage for longer than two months without the Engineer's permission."

PSGA 3.4 AGGREGATES

ADD NEW SUBCLAUSE:

"PSGA 3.4.4 Sand

Sand from a source selected by the Contractor and approved by the Engineer after testing shall be used on this Contract."

PSGA 4 PLANT

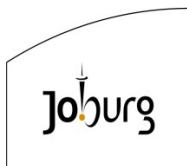
PSGA 4.4 FORMWORK

PSGA 4.4.1 Design

ADD TO THE SUBCLAUSE:

"The Contractor shall arrange for a Professional Engineer to design and sign the

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Witness:		Witness:	



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PSGA 4.4.2 **Finish**

drawings for the formwork (including all supports) to be used for suspended slabs and roofs."

DELETE THE CONTENTS OF THIS SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

"The quality of the finished surfaces of the concrete shall be as scheduled or as shown on the drawings."

PSGA 4.4.3 **Ties**

ADD TO THE SUBCLAUSE:

"After removal of ties all ferrules are to be drilled out of the concrete to provide an oversized reamed hole free of all remnants of the ferrule and blown out to remove all dust and other loose material.

The surface of the hole is to be primed by well wetting with a cement/SBR latex slurry and the hole filled by caulking with a cementitious mortar consisting of 1 part cement to 2 parts concrete sand by volume, well mixed with sufficient clean water to obtain the required consistency. This grout is to be well rodded into the hole to completely fill the void and provide a dense, void-free plug. The surface is to be trowelled to finish flush with the surrounding area."

PSGA 5 **CONSTRUCTION**

PSGA 5.1 **REINFORCEMENT**

PSGA 5.1.2 **Fixing**

DELETE FROM THE EIGHTH LINE, THE FOLLOWING:

"or, if permitted by the Engineer, by welding".

PSGA 5.1.3 **Cover**

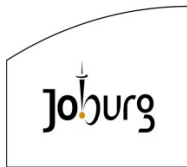
DELETE THE FIRST SENTENCE AND REPLACE WITH:

"The cover of concrete over reinforcement, other than over rail or structural steel reinforcement, shall be at least '30 mm' with a tolerance of +10 mm -0 mm unless otherwise shown on the drawings."

ADD TO THE SUBCLAUSE:

"The clearance between reinforcing and steel pipes and flanges cast into concrete shall be no less than 75 mm."

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Witness:		Witness:	



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PSGA 5.2 FORMWORK

PSGA 5.2.1 Classification of Finishes

DELETE THE EIGHTH AND NINTH LINES OF THE SUBCLAUSE.

(a) Rough

ADD TO THE SUBCLAUSE:

"The finish of the concrete is to be within the tolerances of Degree of Accuracy III as set out in Subclause 6.4."

(b) Smooth

ADD TO THE SUBCLAUSE:

"The finish of the concrete is to be within the tolerances of Degree of Accuracy II as set out in Subclause 6.4."

ADD NEW SUBCLAUSE:

"PSGA 5.2.5 Fixing Blocks for Reinforcing and Fixtures in Concrete

Fixing blocks for the attachment of fixtures may be embedded in concrete provided that the strength and other desirable features such as appearance of the member are not, in the opinion of the Engineer, impaired thereby."

PSGA 5.4 CONCRETE

PSGA 5.4.1 Quality

PSGA 5.4.1.2 Consistency

DELETE THE THIRD LINE AND REPLACE WITH:

"Engineer in respect of prescribed mix and/or strength concrete."

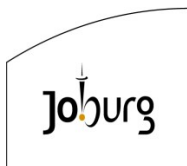
PSGA 5.4.1.4 Prescribed mix concrete

DELETE THE CONTENTS OF THE SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

"The grades of prescribed mix concrete are designated Grades 20/19, 15/19 and 10/40 and shall be composed of cement, sand and stone, as specified hereinbefore, proportioned as follows:

<i>Prescribed Grade</i>	<i>Size of Stone (mm)</i>	<i>Cement (kg)</i>	<i>Sand (m³)</i>	<i>Stone (m³)</i>
20/19	19	50	0,110	0,140
15/19	19	50	0,130	0,160

Employer:		Contractor:	
Witness:		Witness:	



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10/40	37,5	50	0,160	0,225
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The proportion of cement to the combined quantity of sand and stone shall remain constant for each grade of concrete, as set out above, however, the relative proportions of sand and stone shall be adjusted, if required by the Engineer, so as to obtain the most suitable consistency of concrete, due allowance being made for the bulking of sand due to moisture.

The addition of water shall be regulated by the use of properly calibrated containers, only sufficient water shall be added to, in the opinion of the Engineer, afford a workable mix.

The fine and coarse aggregates approved for use in strength concrete Grades 30 and 25 shall be used for prescribed concrete mixes Grades 20 and 15 and 10."

PSGA 5.4.1.5 Strength Concrete

ADD TO THE SUBCLAUSE:

"The three grades of strength concrete used on the works shall be designated Grades 25/19, Grade 30/19 and Grade 35/19.

The use of concrete admixtures (plasticisers, retarders, accelerators, etc) will not be permitted.

Grade 35/19 Concrete for Water Retaining Structures

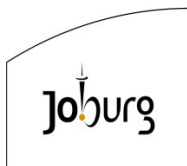
For Grade 35/19 concrete Ordinary Portland Cement (OPC) and Pulverised Fly Ash (PFA) shall be blended together such that the combined cementitious material comprises 70% OPC and 30% PFA by mass.

The minimum content of combined cementitious material shall not be less than 360 kg and not more than 450 kg per cubic metre of concrete and the minimum cement/water ratio shall be 2,0.

The characteristic cube strength at 28 days shall be not less than 35 MPa.

The concrete mix for the above-mentioned grade of strength concrete shall be designed by an approved laboratory. At least four weeks before placing any concrete on the Works, the Contractor shall supply and deliver to the approved laboratory, at his own cost, samples of the aggregates he proposes to use in the concrete mix. While the proportion of cement to the combined quantity of sand and stone will remain constant for each grade of concrete, as set out above, the relative proportions of sand and stone may be adjusted to achieve the required strength. The laboratory will be bound by the requirements of this Specification which are to guide the Tenderers in pricing the grade of strength concrete. The Contractor is to allow in his rate for strength concrete an amount to cover the fees and charges levied by the approved laboratory in designing the strength concrete mix."e

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Witness:		Witness:	



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PSGA 5.4.1.6 Ready-mixed concrete

DELETE THE CONTENTS OF THE SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

"Concrete produced at a central facility, other than at the site of the Works, shall not be accepted for use in the Works except with the prior and express approval of the Engineer. When such approval has been given the Engineer will then decide whether or not to accept the test results obtained by the facility concerned.

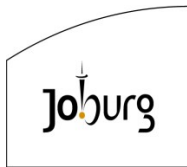
The use of concrete from a ready-mixed concrete facility shall be permitted subject to the following provisos:

- The facility shall be accredited as being compliant with the requirements of the ISO 9001 standard.
- The concrete batching plant shall be inspected by the Engineer for compliance with sans specifications and his approval must be obtained in writing before commencement of the concrete works.
- Before any ready-mixed concrete is used on the works, the contractor shall furnish the Engineer with a copy of his letter to the supplier in which was specified:
 - (i) the type of cement(s);
 - (ii) the nominal maximum sizes of aggregates;
 - (iii) the cement / water ratios;
 - (iv) the required compressive strengths;
 - (v) the required slump at the time and place of delivery; and
 - (vi) the type of additive - documentary evidence proving the suitability of the additive for use in the concrete, particularly in the grade 35/19 water retaining concrete, shall be given to the Engineer for his prior approval.

The following shall be specified in the contractor's contract/order with the ready mixed concrete supplier and a copy of the relevant documentation shall be given to the Engineer's Representative:

- a maximum delivery period of 90 minutes from the time water is added to the concrete mix to the actual completion of the discharge of concrete on site shall be permitted. 90 minutes is a max. the discharge period (including placing the concrete) shall not exceed 30 minutes.
- the concrete slump of every truckload shall be measured on delivery to site as soon as discharge commences and it shall comply with clause sabs 1200 g 5.4.1.2 prior to any concrete from that truck being placed. no additional water may be added to the mix after it has left the batching plant without the written approval of the Engineer's Representative. under no circumstances shall the cement/water ratio for concrete in water retaining structures be less than 2,0.

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- a detailed computer printout of the constituents of the concrete mix from the batching plant is to be handed over to and retained by the Engineer's Representative on site on arrival (i.e. truck registration, mix proportions and the time water was added to the mix). the masses of the concrete constituents of each truck shall be checked against that of those submitted with the trial mix, subject to the batching accuracy as specified in SANS 0100-2: 1992. the arrival time of each truck on site and the time that the concrete discharge is completed shall also be recorded by the Engineer's Representative. Dedicated truck drivers shall be used, where possible, for the delivery of the concrete to site.
- when required the contractor shall satisfy the Engineer that acceptable alternative means of supplying concrete have been arranged and can be brought into operation in the event of disruption in the supply of concrete. in this regard, the Engineer may require that the alternative means of supply shall commence if the disruption in the supply of ready-mixed concrete has lasted for a period of 1½ hours.
- the use of ready-mixed concrete will in no way relieve the contractor of any of his obligations for providing concrete that complies with the specifications."

PSGA 5.4.5 Placing

ADD TO SUBCLAUSE 5.4.5.4:

"In the case of continuous walls these are to be cast in lifts of such height that each lift can be poured uninterruptedly in one continuous operation over the entire length of the wall. No vertical or inclined construction joints of any kind will be permitted in continuous walls unless they have been specifically ordered or authorised by the Engineer. The placing of concrete shall commence at convenient points on the length of the wall and shall proceed both ways simultaneously so that fresh concrete meets fresh concrete. Any rest pauses, such as for meals, shall be avoided as far as possible, and the Contractor may be required by the Engineer to make the operation continuous by working in shifts. A workable arrangement must be made before each concreting operation commences."

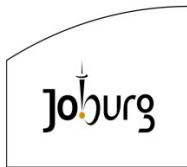
ADD NEW SUBCLAUSES:

"PSGA 5.4.5.5 Adverse weather conditions (See PSGA 2.3(d))

Under adverse cold weather conditions, effective measures shall be taken to ensure that the temperature of the concrete, from the time of placing until it has hardened (i.e. about 24 h), is maintained at not less than 5 °C. If the atmospheric temperature in the vicinity of the concrete is below 2 °C or is expected to fall below 2 °C during the curing period (see Subclause 5.4.7), water shall not be used for curing. All surfaces shall be protected from ice or frost damage.

When the ambient temperature is above 32 °C, the temperature of the concrete when deposited shall not be allowed to exceed 32 °C. Under adverse hot weather conditions, the Contractor shall take all reasonable steps to reduce to a minimum the placing

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temperature of the concrete. Stockpiles of aggregates and all metal surfaces in contact with aggregates and concrete shall be shielded from the direct rays of the sun or cooled by being sprayed with water, and windbreaks shall be erected, if necessary, to prevent the initial rapid drying-out of concrete which would otherwise occur before normal curing procedures can be undertaken.

Concrete shall not be placed during periods of heavy or prolonged rainfall.

PSGA 5.4.5.6 Pumping

The placing of concrete by pumping will not be permitted."

PSGA 5.4.7 Curing and Protection

DELETE SUBCLAUSE (c) IN ITS ENTIRETY, AS THE USE OF CURING COMPOUNDS SHALL NOT BE PERMITTED.

ADD NEW SUBCLAUSE (c):

"(c) Continuously spraying the exposed surfaces with water."

ADD TO THE SUBCLAUSE:

"Notwithstanding the methods of curing itemised under (a) to (c) of the Subclause the walls of all water-retaining structures shall be cured by method (c) continuous spraying or "microjetting" and shall be subject to continuous spray curing for a minimum period of 10 days."

PSGA 5.4.8 Concrete Surfaces

ADD TO SUBCLAUSE 5.4.8.2:

"Concrete surfaces shall be finished as indicated in the Schedule."

PSGA 5.4.9 Watertight Concrete

ADD TO THE END OF THE FIRST SENTENCE:

"and shutter-tie positions"

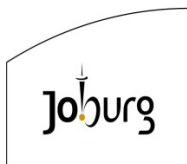
ADD TO THE SUBCLAUSE:

"The following structures shall be subject to water-tightness tests:

All concrete chambers/structures below ground shall exclude water and shall be subject to a visual test for watertightness.

No horizontal or inclined construction joints of any kind will be permitted in the external walls of the inlet control chamber unless these have been specially ordered or

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authorised by the Engineer."

PSGA 6 TOLERANCES

PSGA 6.1 BASIS OF MEASUREMENT

PSGA 6.1.1 General

REPLACE "Degree of Accuracy III" IN THE THIRD LINE WITH "Degree of Accuracy II".

ADD TO THE SUBCLAUSE:

"The Permissible Deviations for the following elements of the Works shall be to Degree of Accuracy III:

- Concrete work which is not exposed after completion of the Works."

PSGA 8 MEASUREMENT AND PAYMENT

PSGA 8.1 MEASUREMENT AND RATES

PSGA 8.1.1 Formwork

IN SUBSUBCLAUSE 8.1.1.4 ADD TO THE FIRST LINE BETWEEN THE WORDS "concrete" AND "and" THE FOLLOWING:

"including forming fillets or splays up to 20 x 20 mm".

PSGA 8.4 SCHEDULED CONCRETE ITEMS

PSGA 8.4.1 Prescribed Mix Concrete

DELETE FROM THE SUBCLAUSE ALL BUT THE FIRST SENTENCE.

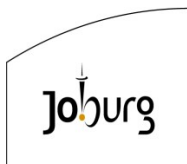
ADD THE FOLLOWING NEW ITEMS:

"PSGA 8.7 GROUTING

This clause is amended to delete the last sentence and to include the following: "Grouting under structural steel column bases or members or under pumps, motors or other machinery will be measured on site as executed provided the concrete is within the specified tolerances. Should the concrete not be within the specified minus tolerance, site measurements will be adjusted accordingly.

Rates for grouting are to allow for all necessary preparatory work (hacking, slurry etc.) and for all necessary formwork".

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PSGA 8.9 MISCELLANEOUS

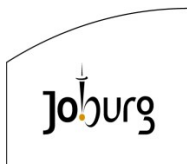
PSGA 8.9.1 Concrete coringUnit: No

The rate shall cover the products, tools and equipment for the coring of openings, in existing concrete structures, complete, as described on drawings or in the Bill of quantities. Any exposed existing reinforcement after coring and the prevention of concrete over-break are to be treated with approved products."

PSGA 8.9.2 Grouting of pipes/specials through walls or slabs Unit: m³

Items, where so required, have been included in the Bill of Quantities for the grouting of pipes and specials through box-outs or broken out openings in walls or slabs. The rates shall include for all necessary labour, plant and materials required to carry out the work described in PSG 5.5.13 and for finishing to the required quality.

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PSLB: BEDDING (PIPES)
(Applicable to SABS 1200 LB - 1983)

PSLB 2 INTERPRETATIONS

PSLB 2.3 DEFINITIONS

IN THE DEFINITION OF "main fill" DELETE "150 mm" IN THE SECOND LINE AND REPLACE WITH "300 mm".

PSLB 3 MATERIALS

PSLB 3.1 SELECTED GRANULAR MATERIAL

IN THE SECOND LINE DELETE "19 mm" AND REPLACE WITH "10 mm".

ADD TO THE SUBCLAUSE:

"Where scheduled and/or shown on the drawings, bedding material (padding) as specified in PSLB 3.3 shall be used in place of selected granular material."

PSLB 3.2 SELECTED FILL MATERIAL

ADD TO THE SUBCLAUSE:

"Where scheduled and/or shown on the drawings, bedding material (padding) as specified in PSLB 3.3 shall be used in place of selected fill material."

PSLB 3.3 BEDDING

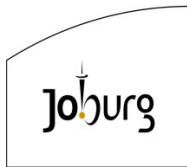
ADD TO THE SUBCLAUSE:

"All PVC and HDPE pipes and fittings and steel pipes and fittings greater than DN500 are deemed to be flexible pipes.

Where scheduled or shown on the drawings, bedding (selected granular and selected fill material) shall be fine sand or fine non-cohesive soil, carefully selected, with maximum particle size of 5 mm and which shall not cake nor form lumps when drying. Material complying with the above requirements may also be referred to in this document as 'padding'. Samples of bedding (padding) material shall be submitted by the Contractor to the Engineer for approval well in advance of construction. Only after the Contractor has received written approval from the Engineer, may he/she proceed with placing bedding (padding) material as selected granular and/or selected fill material.

No sharp-edged stones shall be allowed to come into contact with the pipes or fittings. Joint holes (pockets) shall be provided in the trench bottom and bedding, at each pipe joint to facilitate jointing and/or welding, and no extra payment will be made for forming or filling the joint holes (pockets) with padding material.

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All padding material used for the cradle beneath and surrounding the coated steel pipes shall comply with the following requirements:

Grading Analysis Range	
Sieve Size (mm)	Percentage Passing
6,7	98 to 100
4,76	85 to 100
2,36	55 to 95
1,18	30 to 75
0,60	20 to 50
0,425	16 to 38
0,30	13 to 27
0,15	5 to 18
0,075	0 to 12

The material shall be free of organic matter and shall have a compatibility factor of not more than 0,4. The material should be classified as silty to fine sand having a stiffness ratio of not less than 5,0 MPa. Furthermore, the origin of the materials should, preferably, be river transported since it is preferable that the larger grains (3,0 to 4,8 mm in size) be rounded and not sharp and angular.

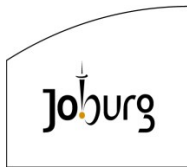
The Contractor will be required to carry out his/her own quality control testing of the material to ensure that it meets the padding sand requirements and complies with this specification at all times. At least one grading analysis shall be carried out for every 100 lineal metres of bedding placed. The results of these tests shall be forwarded to the Engineer within 24 hours of completion of the test. Should the material not comply with the specification, the Contractor shall remove and replace it with approved material at his/her own cost.

Depending on the actual material supplied by the Contractor, the moisture content may be critical to enable satisfactory placing and compaction and the Contractor will be deemed to have allowed in his tendered rate for any and all adjustments required to the moisture content of the padding material at all times.

Where applicable, items have been provided in the Bill of Quantities for the provision of approved bedding material from approved Commercial or other approved off-site sources for padding sand.

No extra payment shall be made for forming or filling joint holes/bell holes/fox holes (pockets)."

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PSLB 3.4 SELECTION

PSLB 3.4.1 Suitable Material Available from Trench Excavation

DELETE THE CONTENTS OF THE SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

"The excavation of a pipe trench shall comply with the requirements of Subclause 5.4 of SANS 1200 DB and the provisions of Subclause 3.7 of SANS 1200 DB (in terms of which, for the purposes of providing bedding materials, the Contractor is not required to use selective methods of excavating) shall apply. Nevertheless, the Contractor shall take every reasonable precaution to avoid burying or contaminating material that is suitable and is required for bedding or covering the pipeline. If, in the opinion of the Engineer, bedding material can be produced from the excavated material, the Contractor shall, if so ordered by the Engineer, screen or otherwise treat (as scheduled) the excavated material in order to produce material suitable for bedding (see also Subclause PSLB 8.2.1)."

PSLB 5 CONSTRUCTION

PSLB 5.1 GENERAL

PSLB 5.1.2 Details of Bedding

ADD TO THE SUBCLAUSE:

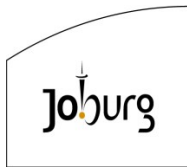
"The pipelines shall be laid on the class of bedding indicated in the Bill of Quantities and/or on the drawings."

ADD NEW SUBCLAUSE:

"PSLB 5.1.2.1 Stone drainage layer beneath bedding

Where indicated on the drawings, or as otherwise indicated by the Engineer, a 200 mm thick layer of 19 mm stone shall be placed beneath the bedding layer to act as a drainage channel for excessive groundwater. This layer shall be wrapped in approved geofabric and provided with outlet pipes if and where required or indicated by the Engineer's Representative."

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PSLB 5.1.4 Compacting

DELETE THE SECOND LINE AND REPLACE WITH:

"top of the pipeline) shall be 93% mod AASHTO."

ADD TO THE SUBCLAUSE:

"Steps will have to be taken by the Contractor to ensure that flexible pipes do not deform excessively in cross-section during and after construction and backfilling operations. The maximum deflection which will be acceptable at any stage during or after construction is 2% of the pipe diameter horizontally or vertically. The Contractor will be required to provide the necessary apparatus and to monitor deflection during construction.

Pipe deformations will only be maintained within the specified tolerances by correct backfilling practice. No heavy compaction equipment will be permitted for compaction of any pipe bedding, only pneumatic or hand rammers being acceptable. To this end, and to achieve the 93% compaction specified, it is required that the bedding material be brought up evenly on either side of the pipe. The use of complete saturation of the material as a method of achieving the specified compaction may, subject to the Engineer's approval, be used. However, in this regard, Contractors are advised that the presence of excessive quantities of water in the pipe trench could lead to flotation of the pipe.i

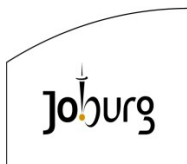
Prior to the commencement of pipe laying the Contractor shall be required to submit, to the Engineer, for his approval, his proposed methods of placing, and compacting methods which he proposes to implement in order to ensure compliance with the specification."

ADD NEW SUBCLAUSE:

"PSLB 5.1.5 Testing

All flexible and flanged joints shall be left exposed with a minimum of 300 mm clearance around the bottom of the pipe during hydraulic pressure testing of the pipe to facilitate inspection."

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Witness:		Witness:	



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PSLB 5.2 PLACING AND COMPACTING OF RIGID PIPES

AND NEW SUBCLAUSE:

“PSLB 5.2.5 Stone Bedding

In areas where waterlogged conditions exist or where ordered by the Engineer, special drains consisting of a 200 mm thickness (See PSDB 5.5) of single sized stone with a geofabric filter surround ('Bidim' Grade A4 or similar approved) extending the full width of the trench shall be provided below the bedding to the pipes. The excavation for these drains shall be measured in cubic metres at the contract rate applying to unsuitable excavation below the bottom of the trench. The stone filling shall be paid for per cubic metre and the geofabric filter shall be paid for per square metre. All measurements in this connection shall be to a width equal to the base widths and depths ordered.”f

PSLB 5.3 PLACING AND COMPACTING FLEXIBLE PIPES

(a) Bedding Cradle

DELETE THE CONTENTS OF THIS SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

“The pipes shall be bedded on a minimum 100 mm thick layer of compacted granular bedding material on which a 50 mm thick layer of uncompacted granular bedding material has been placed and spread. Loose granular bedding material lying next to the pipe shall be placed into the haunch area and compacted with suitable hand tools (covered with rubber to prevent damage to the pipe coating), and additional selected granular material shall be added and compacted in layers up to the mid point of the pipe diameter in the vertical plane. The remainder of the bedding i.e. the selected fill blanket, shall be placed in layers up the sides of the pipe, each layer being compacted until a level of 300 mm above the crown of the pipe is reached. All bell holes (fox holes) shall be filled with bedding material.”

(b) Selected Fill Blanket

DELETE "200 mm" FROM THE TITLE AS SHOWN ABOVE.

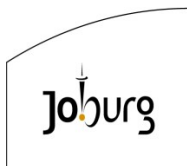
PSLB 6 TOLERANCES

PSLB 6.1 MOISTURE CONTENT AND DENSITY

ADD TO THE SUBCLAUSE:

“The permissible deviations applicable shall be those for Degree of Accuracy II class of work.”

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PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 PRINCIPLES

PSLB 8.1.3 Volume of Bedding Materials

ADD TO THE SUBCLAUSE:

"(c) The volume of bedding material shall be measured net i.e. the volume of the pipe is to be deducted.

(d) No additional payment shall be made for bedding material placed in bell (fox) holes."

PSLB 8.1.5 Disposal of Displaced Material

DELETE THE CONTENTS OF THIS SUBCLAUSE AND REPLACE WITH:

"Material displaced by the pipeline and by imported material from sources other than trench excavation, shall be disposed of by the Contractor at an approved site(s). No haulage shall be paid."

PSLB 8.1.6 Freehaul

DELETE THE CONTENTS OF THIS SUBCLAUSE AND REPLACE WITH:

"All haul shall be regarded as free haul. No overhaul shall be paid for under this Contract."

PSLB 8.2 SCHEDULED ITEMS

PSLB 8.2.1 Provision of Bedding from Trench Excavation

DELETE THE SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

"PSLB 8.2.1 Provision of Bedding from Trench Excavation:

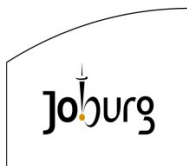
(a) Without the need for screening:

(i) Selected granular material..... Unit : m³

The rates shall cover the cost of acquiring, from any point along the trench excavation as may be selected by the Engineer, bedding that complies with the relevant requirements of the specification, of delivering it to points alongside the trench spaced to suit the Contractor's methods of working, of making good any backfill deficiency from points where backfill has been acquired, and of disposing of displaced material.

(b) Including for screening:

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- (i) Selected granular material..... Unit : m³
The rates shall cover the cost of screening or otherwise treating excavated material, at any point along the trench excavation as may be selected by the Engineer, in order to produce bedding that complies with the relevant specification, delivering it to points alongside the trench, spaced to suit the Contractor's methods of working, of making good any backfill deficiency there may be from points where screened backfill material has been acquired, and of disposing of displaced material."

PSLB 8.2.2 Supply Only of Bedding by Importation

DELETE THE SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

"PSLB 8.2.2 Provision of Bedding by Importation:

- (a) Including for screening and/or other treatment:

- (i) Selected granular material Unit : m³
(ii) Padding sand to specified bedding dimensions Unit : m³

The rates shall cover the cost of acquiring, loading, transporting, off-loading, screening or otherwise treating excavated material in order to produce bedding that complies with the relevant specification, delivering it to points alongside the trench spaced to suit the Contractor's methods of working and of disposing of displaced material.

NOTE: The rate for the supply and laying of pipelines covers the cost of handling the bedding material from alongside the trench, placing it under the pipeline, forming joint holes and completing the bedding around and over the pipeline."

PSLB 8.2.3 Concrete Bedding Cradle

ADD THE FOLLOWING PARAGRAPH TO THE SUBCLAUSE:

"All concrete bedding to pipes will require formwork. The rate for concrete bedding shall include for the supply, installation and stripping of all formwork."

PSLB 8.2.4 Encasing of Pipes in Concrete

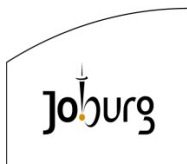
DELETE THE FIFTH AND SIXTH LINES AND REPLACE WITH THE FOLLOWING:

"encasing the pipe in concrete 150 mm thick each side of the pipe and to 150 mm above the crown of the pipe including the cost of formwork, (if any), etc. and the cost of formwork to form stop ends on either side of collars, couplings, joints, etc if instructed by the Engineer."

ADD TO THE SUBCLAUSE:

"The rate for concrete encasing shall include for the supply, installation and stripping of all formwork."

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PSLB 8.2.5 Overhaul of Material for Bedding Cradle and Selected Fill Blanket

DELETE THE SUBCLAUSE.

ADD NEW SUBITEM:

“PSLB 8.2.6 Drainage Layer:

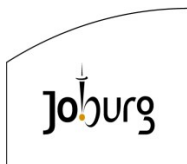
- (a) Stone filling Unit : m²
- (b) Geofabric filter material (Bidim Grade A4 or similar) Unit : m²

Supply and place beneath pipe, 150 mm crushed stone layer as ground water drainage layer. The excavation for these drains shall be measured in cubic metres at the tendered rate applying to unsuitable excavation below the bottom of the trench (SABS 1200 DB 8.3.2 c).

The rate for stone filling shall be per cubic metre of stone fill, measured according to a width equal to the base widths and depths ordered.

Supply and installation of geofabric filter material (BIDIM Grade A4 or similar) around stone. The rate shall be per square metre of geofabric to enclose the stone material, measured net according to a width equal to the base widths and depths ordered."

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PQA: BRICKWORK, BLOCKWORK AND PLASTERING
(Supplementary to SABS 1200 – 1986)

PQA 1 BRICKS AND BLOCKS

PQA 1.1 Burnt Clay Masonry Units

Solid clay masonry units (bricks) shall be of nominal dimensions 222 x 106 x 73 mm, shall comply with SANS 227 and conform to the types scheduled, as selected from the following:

	Nominal Compressive Strength	Max Water Absorption
FBX - face brick extra	17,0 Mpa	10%
FBS - face brick standard	17,0 MPa	12%
NFP - non facing to be plastered	10,5 MPa	15%
NFX - non facing extra for damp conditions	14,0 MPa	15%

Engineering bricks shall carry the suffix 'E' and the compressive strength in MPa and shall be of one or more of the following types as scheduled:

	Max Water Absorption
FBXE 45 the best engineering brick	7%
FBSE 30 a good engineering brick	8%
NFXE 14 the lowest acceptable category	10%

Sample bricks shall be taken at random by the Employer's Agent, should he consider tests to be necessary. These tests shall normally comprise an inspection for defects, a compressive strength test and a water absorption test. Should any deficiencies become apparent after testing in accordance with SANS 227, the Employer's Agent shall have the right to reject the complete consignment.

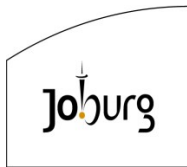
PQA 1.2 Concrete Masonry Units

Concrete masonry units (blocks) shall comply with SANS 1215 and shall be either solid or hollow as called for in the Bill of Quantities or shown on the drawings.

The preferred dimensions of units, where not otherwise called for, are as follows:

Solid Units	222 x 106 x 73 mm
or	190 x 90 x 90 mm
Hollow Units	390 x 90 x 190 mm
or	390 x 190 x 190 mm

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Preferred size when used in conjunction with clay bricks:

FU	- Face Units	the nearest matching size to the clay bricks
FUA	- Face units aesthetic	being used, especially in regard to height in order to suit brick courses

The nominal compressive strength of solid units or hollow blocks shall be at least 14 MPa except where shown otherwise on the drawings or the Bill of Quantities. The alternative strengths shall be either 7 or 21 MPa (3,5 MPa strength is not acceptable).

Masonry units manufactured with aggregates which contain slag, clinker or burnt clay brick shall not be used unless prior approval has been obtained from the Employer's Agent.

The average drying shrinkage of units shall not exceed 0,06% and the average expansion on rewetting shall not exceed 0,02% in excess of the actual drying shrinkage obtained from manufacturer's tests.

Sample units shall be taken at random by the Employer's Agent, should he consider that tests are necessary to satisfy himself that there are no deficiencies in any consignment. Should deficiencies occur when tested in accordance with SANS 1215, the complete consignment may be rejected.

PQA 2 BONDING OF BRICKWORK AND BLOCKWORK

PQA 2.1 Brickwork Bonds

Brickwork shall be laid in the following bonds, except where shown otherwise on the drawing or scheduled to the contrary:

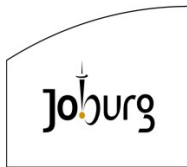
Brickwork	230 mm thick	English bond
Brickwork	280 mm thick to cavity walls	Stretcher bond
Brickwork	350 mm thick below damp proof course	English bond

Cavity brickwork shall include wall ties which connect the inner and outer skins of the wall. The ties shall be galvanised and of approved pattern, fixed along every fifth course at spacings not exceeding 600 mm, with alternate rows staggered.

PQA 2.2 Blockwork Bonds

Bonding of blockwork shall be carried out in full compliance with SANS 10145.

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PQA 3 BRICKLAYING AND BLOCKLAYING

PQA 3.1 Laying Clay Bricks

Brickwork shall be well and regularly bonded, with no false headers and none but whole bricks, except where legitimately required as closers. All bricks must be thoroughly wetted before laying and each brick is to be pressed into its bed so as to squeeze out superfluous mortar and give a finished joint generally 10 mm thick, but in no case shall it exceed 12 mm thickness. All joints, both horizontal and vertical, notwithstanding any trade custom to the contrary, are to be filled solid with mortar for their full width and depth, each course being flushed with mortar, worked well down into all vertical joints before the succeeding course is laid. All brickwork shall be built true and plumb with the perpend vertically in line.^h

Horizontal and vertical joints shall be rounded, square or flush pointed as required by the Employer's Agent. All joints of facework shall be pointed flush. Walls to be plastered shall have the joints raked out to a depth of 6 mm to form a key for the plaster.

Bricklaying is to be carried out uniformly so that no part of the work shall be in advance of any other part by more than six courses, unless otherwise authorised by the Employer's Agent. In the latter case, the work is to be stepped back as toothing will generally not be allowed.

The cavity in cavity walls shall be kept free from mortar droppings and movable boards of the appropriate widths shall be used for that purpose. Vertical joints in the outside leaf on the course immediately above the damp proof course shall be raked out every fifth brick to drain the cavity. Around the periphery of all built-in frames the cavities shall be closed with interior brickwork.

PQA 3.2 Laying Concrete Blocks

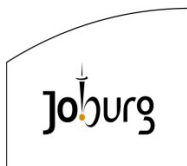
Concrete blocks shall be laid in compliance with Code of Practice SANS 10145.

Blocks shall not be wetted prior to laying in a wall and the moisture control at the time of laying shall comply with Table 2 of that Code of Practice. The drying shrinkage of the blocks to be laid shall be available to the Employer's Agent in the form of a directive from the manufacturer of each type of masonry unit. The average annual humidity shall likewise be made available to the Employer's Agent.

Blocks shall be laid on a full bedding of mortar. All joints are to be nominally 10 mm thick and both vertical and horizontal joints shall be completely filled. Blocks shall be laid with the thicker shell face outermost. They shall be laid in stretcher bond with the horizontal distance between vertical joints in adjacent course equal to at least one quarter of the length of the block. All blockwork shall be built true and plumb with the perpend vertically in line.

Control joints shall be formed at spacings indicated in Table 3, should joints not be detailed on the drawings. The spacing is a function of the vertical spacing of the horizontal reinforcement.

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Corners and other work where the blocks are necessarily laid to a higher level than the general progress of work, shall be stepped back and not raised above the level of the remaining blockwork by more than one metre.

Blocks below damp proof course level shall be concrete-filled using concrete having the same mix proportions as the concrete in the strip foundations. The concrete shall be struck off flush at damp proof course level.

Horizontal reinforcement shall be placed at 600 mm vertical spacings unless shown otherwise on the drawings and bond beams shall be incorporated in the structure as shown on the drawings.

Fire resistance ratings as shown in Table 4 of the Code of Practice shall be adhered to, if required by the drawings.

PQA 4 LOUVRE VENTS AND AIR FILTERS

Where indicated on the drawings or ordered by the Employer's Agent, openings for louvre vents shall be formed through walls, and approved vents shall be built in or installed in the opening and neatly finished off.

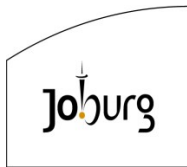
Where indicated on the drawings, openings shall be formed through walls for air filters and the filters, supplied by an approved manufacturer, shall be jointed together to form panels as shown on the drawings and fitted in accordance with the manufacturer's instructions.

PQA 5 BUILDING IN PIPES, FRAMES, STEELWORK ETC

All window and door frames and wall vents are to be set up and built-in as the brickwork proceeds. Window and door frames are to be set, bedded and pointed in 4:1 sand cement mortar and the tendered unit rates are to include for any cutting and fitting of brickwork and for making good thereafter. The unit rates are also to include for attending to windows, doors and vents etc, in order to leave them in perfect working order. The Contractor will be held liable for the repair of any damage done to such items during progress of the work.

Where pipes, frames, brackets or other such parts pass through or have to be set into brickwork, the bricks shall be carefully cut and fitted around the parts so as to maintain regularity of courses and uniformity of joints, the shaped bricks being bedded and pointed to conform to the surrounding brickwork. Where such parts have to be set into position after brickwork is built, holes shall be left wherever possible, in preference to cutting out bricks, and the work shall be subsequently made good in the manner described.

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PQA 6 DAMP PROOFING

PQA 6.1 Damp Proof Course

Where indicated on the drawings, and at window sills, a damp proof course is to be embedded into the work, consisting of a SABS approved bituminous sheeting of mass not less than 1,3 kg/m² or PVC sheeting of 0,375 mm thickness laid over the full width of the wall, lapped and sealed at all joints. Where shown on the drawings, the damp proof course is to be stepped up one course of brickwork in the inner skin. Proper returns are to be made at all door frames.

Damp proof courses in blockwork shall be laid strictly in accordance with Subclause 5.3.6 of SANS 10145 at all places indicated in that Code of Practice.

PQA 6.2 Underfloor Waterproofing

Underfloor waterproofing membranes, where called for, shall be of approved 250 micron thick PVC sheeting lapped to a minimum of 200 mm at all joints.

PQA 6.3 Waterproofing Blockwork Faces

Where the external faces of blockwork are not to be plastered, they shall be treated with an approved waterproof coating applied in accordance with the manufacturer's instructions.

PQA 7 WINDOW SILLS

Window sills shall be constructed as shown on the drawings or specified in the Bill of quantities, including items such as damp proof course and expanded metal reinforcement, where called for.

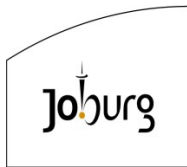
PQA 8 PRECAST CONCRETE LINTELS

Precast concrete lintels over doors and windows shall be E-type, supplied by an approved manufacturer and suitable for the thickness of the walls being constructed. Shoring of soffits of lintels shall be fixed on spans exceeding 2,5 m and left in place for as long as the Employer's Agent considers necessary. The length of lintels shall be such as to give at least 200 mm of bearing at each end.

PQA 9 EXTRACTION FANS

Where indicated on the drawings, openings shall be formed through walls for extraction fans. The required fans, complete with bird proof weather cowls, shall be supplied and fitted therein by an approved specialist firm. Making good around the fan unit shall be carried out by the Contractor.

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PQA 10 WALL CHASING

Where directed by the Employer's Agent, the Contractor shall chase brickwork to accommodate electrical conduits. Such chasing shall precede plastering or rendering and on no account shall the plastering or rendering be commenced until the conduits have been installed. The rates for chasing shall include for making good the brickwork after the conduit has been fixed.

In the case of unplastered concrete walls, electrical conduits shall either be cast into the concrete during pouring or shall be surface mounted as indicated on the drawings or in the Bill of Quantities.

Chasing in masonry units shall be carried out in compliance with SANS 10145 and, where possible, as directed by the Employer's Agent, shall be cut prior to laying the blocks.

PQA 11 CEMENT MORTAR

PQA 11.1 Mortar for Brickwork

Sand for mortar shall comply with SANS 1090 and be well graded from 5 mm down in accordance with Table 1. Sand shall not contain an excess of dust or fine material. Cement shall be Portland cement Type CEM.I 42,5 to SABS ENV 197-1.

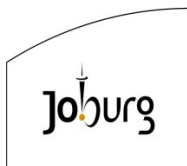
Cement mortar shall be in the proportion 1 part Portland cement to 4 parts sieved sand in the case of face brickwork, and 1 part cement to 5 parts sand for all other brickwork.

PQA 11.2 Mortar for Blockwork

Mortars to be used for blocklaying are to be in accordance with either Classes I, II or III as specified in SANS 0145, Subclause 3.2.3 as called for in the Bill of Quantities or on the drawings. Should no specific strength be specified then Class II, mortar having a compressive strength of 5 MPa at 28 days shall be used. The mortar mix shall be 170 ℓ of sand to 50 kg of Portland cement 42,5 and shall be used in conjunction with an approved mortar plasticiser conforming to BS EN 934-3: 2009+A1: 2012.

Alternatively, 50 kg of an approved masonry cement (supplied by a reputable manufacturer) may be used in lieu of 50 kg of Portland cement in the mix to give the same 28 day strength as required under the previous paragraph, but in that case no mortar plasticiser is to be used.

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PQA 12 REINFORCEMENT

PQA 12.1 Reinforcement to Brickwork

Brickforce mesh or similar approved welded mesh supplied in rolls shall be built into brickwork where specified or shown on the drawings.

Reinforcement to brickwork shall comprise galvanised welded mesh as called for on the drawings supplied in rolls. The mesh shall be of suitable width to suit the brickwork thickness and the minimum cover from any external face shall be at least 10 mm. Reinforcement is to be built in every third course except where shown otherwise on the drawings. Except where shown to the contrary on the drawings, galvanised steel strips of dimensions 1 360 mm long x 40 mm wide x 1,6 mm thick shall be used to tie brickwork into concrete columns at every fourth course.w

PQA 12.2 Reinforcement to Blockwork

Reinforcement to blockwork shall comprise galvanised welded mesh supplied in rolls. The mesh shall be of suitable width to suit the blockwork thickness and the minimum cover from any external face shall be at least 20 mm. The number of courses where reinforcement is to be built in shall be at 600 mm (maximum) vertical spaces, except where shown otherwise on the drawings.

PQA 13 HOOP IRON TIES AND ANCHORS

Galvanised hoop iron ties shall be provided for securing roof timbers to brick walls and shall be built-in to a vertical depth of not less than six courses of brickwork with bottom ends bent square to form an anchor. The upper ends shall project at least 450 mm above the brickwork for attachment to roof timberwork.

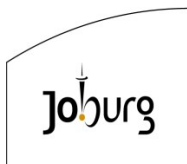
Anchoring of roofs and floors in blockwork shall be carried out in accordance with SANS 10145 except where shown otherwise on the drawings.

PQA 14 PLASTERING

Plastering shall be composed of one part Portland cement 42,5 plus one tenth part lime to four parts fine plaster sand from an approved source. An equivalent mortar comprising other cementitious materials may be approved by the Employer's Agent, after testing. Plaster shall be applied to walls in one coat 12 mm thick and well worked into brickwork or blockwork joints, which shall have been previously raked out to form a key. The surface of the work shall be finally smoothed with a wooden float or steel trowel, as may be called for, depending upon the nature of the surface required. Angles and edges are to be carefully plumbed or levelled, as the case may be, and corners shall be arris rounded.

In the case of plastering to concrete work, the surface of the concrete shall first be hacked sufficiently to afford proper bond and the plaster applied as a thin skimming coat, or coats. V-joints shall be formed at the junction of concrete and brickwork. Plaster adhesive supplied by a reputable manufacturer may be used on the concrete faces in lieu of hacking, subject to prior approval by the Employer's Agent.

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Where scheduled or shown on the drawings, the external faces of brickwork, blockwork and/or concrete shall be cement mortar plastered.

Should any plaster show signs of cracking, blowing or other defects at any time before or during the Defects Liability Period, the defective work shall either be stripped and re-plastered or locally repaired by the Contractor, all at his own expense, as directed by the Employer's Agent. The defective areas shall be cut out to a rectangular shape unless otherwise permitted, with edges undercut to form a key and the joint carefully smoothed off flush with the surrounding plaster. Plasterwork should in all cases be commenced at the top and proceed downwards and every care must be taken to prevent staining of face brickwork and other finished parts with plaster droppings. Such droppings shall not be allowed to harden, but shall be cleaned off continuously as plastering proceeds. Plaster droppings in sumps must be removed to the satisfaction of the Employer's Agent. Plastering must be carried out from ceiling to floor and from wall to wall without any breaks in the plastered surface.

PQA 15 PAYMENT FOR BRICKWORK

PQA 15.1 Brickwork Unit: m²

Payment for brickwork will be made by area of finished brickwork of the various wall thicknesses and types as scheduled, measured in elevation.

Prices shall be inclusive of the supply of all materials, plant and labour necessary for completing the work, including the supply and building in of wire ties, all plumbing of corners and faces, lining, levelling, forming reveals and openings, cutting where necessary but not specially scheduled. The measurement of the work will be taken net with window and door openings deducted, but no deductions from the measurements will be made for lintels, air bricks, pipes up to and including 150 mm diameter or fittings up to 150 mm square built into the work. Small openings of area up to 0,05 m² will not be deducted.

Items for brickwork are scheduled separately for reinforced and unreinforced brickwork, except for small areas of reinforced brickwork over openings, windows and doors etc, which are deemed to be included in the rate for unreinforced brickwork.

PQA 15.2 Louvre vents.....Unit: No

Payment for louvre vents and air filters will be made by number supplied and installed.

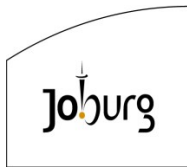
PQA 15.3 Building in window frames, door frames, pipes, Steelwork, etc.....Unit: No

Payment for building in window frames, door frames, pipes, steelwork etc shall be paid separately for each type and size as scheduled.

PQA 15.4 Damp proof course Unit: m²

Payment for damp proof course will be made by the net area of each size supplied and

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installed. No payment will be made for overlaps, etc.

PQA 15.5 Lintels Unit: m

Payment for lintels will be made by length installed.

PQA 15.6 Extraction fansUnit: No

Payment for extraction fans will be made by number supplied and installed. The tendered rate shall include for forming the necessary openings through the walls.

PQA 15.7 Chases in brickwork Unit: m

Payment for chases in brickwork for electric conduits will be made per linear metre of chase cut.

PQA 15.8 Hoop iron tiesUnit: No

Payment for hoop iron ties will be made by number supplied and installed.

PQA 15.9 Brickforce brick reinforcement Unit: m

Payment for Brickforce brick reinforcement will be made for each different wall thickness.

PQA 16 PAYMENT FOR BLOCKWORK

PQA 16.1 Blockwork Unit: m²

Payment for blockwork will be made by area of finished blockwork of various thicknesses and types, measured in elevation.

Prices shall be inclusive of the provision of all materials, plant and labour necessary for completing the work, including the building in of wire ties, all plumbing of corners and faces, lining, levelling, forming reveals and openings, cutting where necessary and plastering where specified. The measurement of the work will be taken nett with window and door openings deducted, but no deductions from the measurements will be made for lintels, air bricks, pipes up to and including 150 mm diameter or fittings up to 150 mm square built into the work. Small openings of areas up to 0,05 m² will not be deducted.

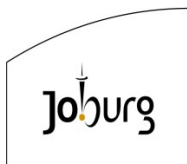
PQA 16.2 Infilling of blockwork with concrete Unit: m²

Payment for infilling of blockwork with concrete shall be extra over the payment item PQA 16.1 above, for various thickness and types, measured in elevation. The rate shall include the provision of expanded metal mesh where indicated.

PQA 16.3 Brickforce brick reinforcement Unit: m

Payment for Brickforce brick reinforcement will be made for each different wall thickness.

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PQA 16.4 Waterproof coating of external faces Unit: m²

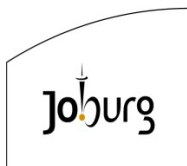
Payment for waterproof coating of external faces shall be by the surface area actually treated.

PQA 17 PAYMENT FOR PLASTERING

PQA 17.1 Plastered finish to walls..... Unit: m²

Payment for plastered finish to walls will be made by area of finished plaster, measured in elevation, for each surface finish specified. Prices shall be inclusive of the provision of all materials, plant and labour necessary for carrying out the plastering work, including the plumbing of corners and faces and forming reveals and openings. The measurement of the work will be taken net with window and door openings deducted. Small openings of areas up to 0,05 m² will not be deducted.

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PQB: FLOOR FINISHES AND WALL TILING
(Supplementary to SABS 1200 – 1986)

PQB 1 GRANOLITHIC FLOOR SCREEDS

PQB 1.1 Materials

Granolithic screed shall consist of one part Portland cement Type CEM.I 42,5 to SABS.ENV 197-142,5, one part sand and two parts 5 mm stone chippings, thoroughly mixed as for concrete and applied to the surface of the underlying concrete in a layer not less than 20 mm thick, levelled or graded and trowelled to a smooth uniform surface. Granolithic shall be either untinted or tinted, as called for in the Bill of Quantities.

PQB 1.2 Laying

The laying of the granolithic finish shall be in full compliance with the relevant clauses of SANS 10109 Part 2. To ensure thorough bond, the granolithic should, where possible, be applied before the concrete below has become properly set and preferably while it is still green, and every precaution must be taken to keep the concrete damp and clean until the granolithic is placed. If this is not possible, then the underlying concrete must be chipped or otherwise roughened to the satisfaction of the Employer's Agent, flushed with clean water and then coated with cement grout before the granolithic is laid. Granolithic paving is to be V-jointed in squares of approximately 1,25 metres side length, the V-joint being formed while the surface is still soft.

Where floor cables are not covered by chequered plate or other steel flooring, cable ducts in the floor shall be filled with clean river sand to a depth of 70 mm from the finished granolithic level after all cables are in position and have been tested and approved. A 50 mm thick layer of Grade 20 concrete shall be placed on top of the sand, which in turn shall be covered with granolithic screed. V-joints shall be formed at both sides of all cable ducts, the joints being accurately positioned.

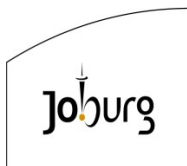
V-joints are to be formed in straight lines and extend to 75% of the full depth of the granolithic layer.

The screed shall be finished with its upper surface perfectly smooth and continuous without voids or float marks.

Where shown or directed by the Employer's Agent, 100 mm high granolithic skirtings are to be formed. They shall include rounded top edges, and radiused corners and a 38 mm radius coving at junctions with the floor. The tendered rates shall include for forming all internal and external mitres, returns, stopped ends, etc, all finished smooth with a steel trowel. At steps a sloping skirting shall be formed, 100 mm high above the noses of the steps. Where ordered, the tread risers and sides of steps, shall also receive a granolithic finish and at the edge of steps and slabs rounded nosing and reeded treads shall be provided. A sunk and weathered threshold shall be provided in the granolithic at all doors.

The risers and treads of stairs shall also receive a granolithic finish and the treads shall be

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reeded and the front edges are to have a rounded nosing.

PQB 2 FLOOR SCREEDS

Floor screeds shall comply with all of the requirements set out above for "Granolithic Floor Screeds" save that the mix shall not contain any stone chippings and shall comprise four parts sand to one part Portland cement Type CEM.I 42,5 to SABS ENV 197-142,5 and be of 25 mm average thickness and minimum of 20 mm thick, except where otherwise scheduled or shown on the drawings.

PQB 3 VINYL (PVC) FLOOR TILING

PQB 3.1 General

Where indicated on the drawings or scheduled in the Bill of Quantities, vinyl (PVC) semi-flexible floor tiles or sheeting shall be supplied and installed.

PQB 3.2 Materials

The tiles/sheeting shall comply with SANS 581: 2007 and shall receive the prior approval of the Employer's Agent. Unless otherwise indicated, the tiles shall be 300 x 300 mm and the tiles/sheeting shall be 2,5 mm thick. The vinyl flooring shall be of an approved colour chosen from the manufacturer's standard range. Vinyl cove skirtings shall be of similar quality and colour to the floor tiles and 70 mm in height unless otherwise stated. Where sheeting is called for, it shall be welded at all joints and to the skirting.

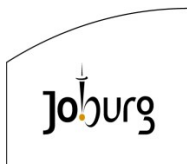
PQB 3.3 Laying and Fixing

Floors to receive vinyl tiles/sheeting shall be covered with a mortar screed comprising four parts sand to one part Portland cement 42,5 and of 25 mm average thickness and minimum of 20 mm thick, except where laid on an unbonded damp-proof membrane, in which case the screed shall be 50 mm thick. The screed shall be finished with its upper surface perfectly level and continuous without voids or float marks. The screed materials and methods of laying shall be in full compliance with SANS 10109 Part 2. The screed shall be at least 7 days old and perfectly dry, to the satisfaction of the Employer's Agent, prior to laying the vinyl tiles. The underlaying concrete shall be thoroughly cleaned to the Employer's Agent's satisfaction prior to laying the screed.

The tiles shall be laid strictly in accordance with the manufacturer's instructions onto the screed using the recommended adhesive. This adhesive shall be spread with a Vee notched trowel 1,5 x 1,5 x 1,5 mm triangular notches at 4 mm centres. The coverage of adhesive shall be between 5,0 and 5,5 m² per litre. After laying, the tiles are to be rolled with a suitable roller to ensure complete adhesion. The floor tiles shall be cut where required and neatly fitted against adjoining walls, floors, thresholds, etc. Vinyl skirtings shall be close fitted to floors and walls, butted and end jointed, neatly mitred at internal angles and dressed around external angles, and fixed with adhesive as for the flooring.

Finished floors and skirtings shall be protected from damage during the progress of the remaining work, and at completion shall be cleaned and handed over in a perfect

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condition. The work shall be carried out by skilled workmen experienced in laying this type of floor finish.

PQB 4 TEXTILE FLOOR COVERING

PQB 4.1 Materials

Textile floor coverings shall be of the type shown on the drawings or scheduled in the Bill of Quantities, and shall include an underlay where called for, and laid in full compliance with SANS 10186.

Skirtings shall comprise standard meranti hardwood skirting mitred at all corners and joints and fixed with steel nails.

PQB 4.2 Substrate

The substrate on which textile floor coverings are to be laid shall be as shown on the drawings, and where textile floor coverings are laid on a concrete screed, the screed shall comply with Clause PQB 3.3 above.

PQB 5 INTERFACE BETWEEN DIFFERENT FLOOR FINISHES

At junctions of differing floor finishings, a 25 x 3 mm brass strip with a 3 mm wide top edge flush with the adjoining finishings shall be supplied and installed.

At each external door, a 25 x 3 mm brass strip with a 3 mm wide top edge flush with the internal surface shall be supplied and installed so as to create a vertical step 6 mm high in line with the inner face of the opening outwards door(s).

PQB 6 WALL TILING

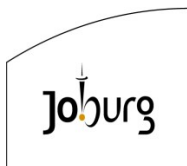
PQB 6.1 Tiles for Interior Work

Glazed ceramic tiles and fittings shall comply with the requirements of SANS 22 and, unless otherwise called for on the drawings or Bill of Quantities, shall be white, size 150 x 150 mm and 6,5 mm thick.

PQB 6.2 Fixing of Tiles

The tiles shall be fixed to previously sand/cement rendered walls with an approved cementitious tile adhesive. Horizontal and vertical joints in the tiling shall be continuous and be at least 2 mm wide. After fixing and setting for at least 12 hours, the joints shall be filled in completely with an approved white cement grout. Tiles shall not be soaked in water before fixing except where recommended by the tile manufacturer. The finished work shall be thoroughly cleaned off after grouting is completed...Unless otherwise specified, the wall tiling shall project approximately 4 mm beyond the face of adjoining plaster with all exposed edges finished with glazed edge tiles.

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Tiling shall be returned into reveals of openings and onto window sills, and shall be butted at internal angles and provided with glazed edged tiles to external angles, unless otherwise specified. All necessary cutting of tiles shall be properly performed. Unless otherwise specified on drawings, tiles are to be fixed outwards from the centre of the walls and upwards from approx 140 mm above the floor, with cut tiles at the extremities of the wall face and floor areas. Exposed external edges must be finished with a full glazed edge tile. The 140 mm of height below the bottom tiles shall be filled in with the same type of tile cut to fit where no special skirting tile is scheduled or shown on the drawings.

Provision must be made for any pipework or protrusions through the walls. Tiles must be finished off around the protrusion and take the necessary shape to accommodate any pipework, etc.

Joints around such protrusions are to be similar in width to joints in the rest of the tiling, unless the Employer's Agent instructs otherwise.

Expansion joints for wall tiles, unless otherwise specified by the manufacturers, are to be provided in areas that are in excess of 6,0 metres, measured horizontally along the floor and 3,0 metres, measured vertically along the wall, or as indicated on drawings. These joints are to have a maximum width of 4 mm and be filled with white silicone.

PQB 7 MEASUREMENT AND PAYMENT

PQB 7.1 Payment for Granolithic finish

PQB 7.1.1 Granolithic finish Unit: m²

Payment for granolithic finish shall be by area of finished surface irrespective of whether it is horizontal, vertical (except for skirting) or on the slope. The price shall include for all the work specified, including treating the underlying concrete surface.

PQB 7.1.2 Granolithic skirting Unit: m

Payment for granolithic skirting shall be per linear metre of completed skirting, for each height scheduled. Price shall be inclusive of the provision of all materials, plant and labour necessary to complete the granolithic work and for any material which is wasted.

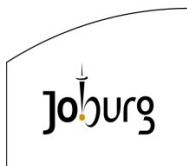
PQB 7.2 Payment for Vinyl Floor Tiling/Sheeting

PQB 7.2.1 Vinyl flooring Unit: m²

Payment for vinyl flooring shall be per net area of completed floor surface. The rate shall include for all the work specified above including the cement mortar screed and the preparation of the surface of the concrete structural floor.

PQB 7.2.2 Skirting..... Unit : m²

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Payment for skirting shall be by length of the completed skirting of each height scheduled.

Prices shall be inclusive of the provision of all materials, plant and labour necessary to complete the required work and for all cutting and waste.

PQB 7.3 Payment for Textile Floor Coverings

PQB 7.3.1 Textile floor coverings..... Unit : m²

Payment for textile floor coverings shall be per net area of completed floor surface. The rate shall include for all work specified, including the preparation of the structural surface, the cement mortar screed, the underlay where called for and the laying of the textile floor covering.

PQB 7.3.2 Skirting..... Unit : m

Payment for skirting shall be by length of completed skirting for each height scheduled.

Prices shall be inclusive of the provision of all materials, plant and labour necessary to complete the required work and for all cutting and waste.

PQB 7.4 Payment for interface between different floor finishes

PQB 7.4.1 Brass strips Unit : m

Payment for the brass strips shall be by length and shall be inclusive of the provision of all materials, plant and labour necessary to complete the required work and for all cutting and waste.

PQB 7.5 Payment for Wall Tiling

PQB 7.5.1 Tiling..... Unit : m²

Payment for tiling will be by area of completed tiling including exposed tiled ledges, window and door returns, etc but the area of window and door openings will be excluded.

PQB 7.5.2 Expansion joints Unit : m

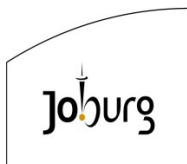
Expansion joints will be paid for separately per linear metre.

PQB 7.5.3 Supply and installation of toilet roll holders and soap dishes. Unit: No

PQB 7.5.4 Skirting Unit: m

Payment for skirting will be measured separately by length only if and where a special skirting tile is called for.

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PQF: PLUMBING
(Supplementary to SABS 1200 – 1986)

PQF 1 SCOPE

PQF 1.1 Pressure Piping

Pressure piping for water supply and distribution shall comprise galvanised steel, polypropylene and/or copper piping together with the associated fittings, for medium pressure duty and suitable for installation within buildings.

PQF 1.2 Drainage Piping

Drainage piping for domestic wastewater shall comprise galvanised steel, cast iron, black polyethylene and uPVC piping with the associated fittings, for installation within buildings.

PQF 1.3 Applicable Specifications

PQF 1.3.1 Pressure Piping Specifications

SANS 62	Steel Pipes and Fittings
SANS 460	Copper Tubes for Domestic Plumbing
SANS 14	Malleable Cast Iron Pipe Fittings
SANS 1067	Copper-Based Fittings for Copper Tubes
SANS 15874-1, 2, 3, & 5	Plastic Piping Systems for Hot and Cold Water Installations - Polypropylene (PP)

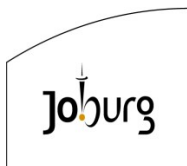
PQF 1.3.2 Drainage Pipe Specifications

SANS 746	Cast Iron Pipes and Fittings for use above Ground
SANS 791	uPVC Sewer and drain Pipes and Fittings
SANS 967	uPVC Soil, Waste and Vent Pipes and Fittings
SANS 1321-1	Non-Metallic Waste Traps

PQF 13.3 Installation Specifications

SANS 791	Appendix C : Notes and Uses of uPVC Pipes
SANS 1011	The Installation of Polyethylene and uPVC Pipes
SANS 10252-1:	Part 1 - Water supply installations for buildings

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PQF 2 MATERIALS

PQF 2.1 Pressure Pipework

PQF 2.1.1 Steel Pipes and Fittings

Steel pipes shall comply with SANS 62 Part 1 and shall be of the nominal bore stated in the Bill of Quantities or shown on the drawings and be of medium class, except where scheduled to the contrary. Exact length pipes are not required. The pipe ends shall be screwed (or plain-ended if scheduled) and all piping, irrespective of the class scheduled, shall be galvanised inside and outside in accordance with SANS 32 for general applications. The screw threads shall not be coated. Each pipe shall be supplied, complete with a screw-on socket at one end. A certificate of workmanship as specified under Subclause 4.13 of SANS 62 Part I shall be provided if requested by the Employer's Agent.

Pieces and pipe fittings made from steel pipe shall comply with SANS 62 Part II and shall be of the nominal bore stated in the Bill of Quantities. The class and surface treatment shall correspond to those for the pipes with which they are to be used. Ninety degree bends shall be Type 1 bends, except where Type 2 are specifically called for in the schedule.

Malleable cast iron fittings shall comply with SANS 14, which are suitable for working pressures up to 1 400 kPa in the case of water. The types and sizes of fittings to be provided are as scheduled and all fittings shall be galvanised.

The piping layout shall be as shown on the drawings.

PQF 2.1.2 Polypropylene Pipes and Fittings

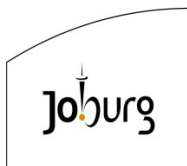
Polypropylene pipes shall comply with SANS 15874-1, 2, 3, & 5 and shall be of the classes and nominal sizes stated in the Bill of Quantities or shown on the drawings. The extrusion polymer (either homo-polymer Type PP or co-polymer Type PPC) shall be the most suitable for pipe runs to be installed within buildings.

Pipes may be provided in manufacturer's standard coils, subject to them not being kinked or deformed whilst being coiled.

Fittings shall be manufacturer's standard fittings to suit the size and classes of pipe with which they are to be used, all as detailed in the Bill of Quantities or shown on the drawings. Special fittings shall be scheduled or detailed on the drawings.

The piping layout(s) shall be such as to supply water to all of the outlets shown on the drawings and/or scheduled in the Bill of Quantities.

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PQF 2.1.3 Copper Tubes and Fittings

Copper tubes shall comply with SABS 460 and shall be of the nominal outside diameter and of Classes 2 or 3 (as detailed hereunder) or as scheduled or shown on the drawings.

Class 2 (Medium) - for pipework having a maximum working pressure of 2 000 kPa chased into walls and floors.

Class 3 (Heavy) - for pipework having a working pressure over 2 000 kPa up to a maximum of 3 250 kPa, surface mounted internally or externally to buildings.

Tubes shall be supplied in standard lengths of 5,5 m, except that Class 2 tubes of 15 mm diameter may be provided in standard annealed copper coils, subject to them not being kinked or deformed in the coils.

Fittings shall comply with SANS 1067 and be the manufacturer's standard fittings to suit the sizes and classes of pipes with which they are to be used. Fittings shall be of the capillary type where a permanent joint is required and the compression type where it may be necessary to occasionally disconnect the joint.

The piping layout(s) shall be such as to supply water to all of the outlets shown on the drawings and/or scheduled in the Bill of Quantities.

PQF 2.1.4 Steel Pipes and Fittings

Steel piping shall comply with SANS 62 Part 1 and shall be of the nominal bore stated in the schedules or shown on the drawings and be of light class, except where indicated to the contrary. Exact length pipes are not required. The pipe ends shall be screwed and all piping shall be galvanised inside and outside in accordance with SANS 32 for general applications. The screw threads shall not be coated. A screw-on socket shall be provided at one end of each pipe.

The piping layout(s) shall be such as to supply water to all of the outlets shown on the drawings and/or scheduled in the Bill of Quantities.

PQF 2.1.5 Cast Iron Pipes and Fittings

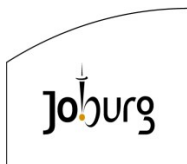
Cast iron pipes and fittings for use above ground shall comply with SANS 746 and shall be supplied without a socket anti-siphon vent and without ears, except where called for to the contrary on the drawings or in the schedule.

Pipes and fittings shall be printed with a bituminous coating and lining.

Alternative primers and/or uncoated and lined pipes shall be provided where specifically called for.

The piping layout(s) shall be such as to supply water to all of the outlets shown on the

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PQF 2.1.6 drawings and/or scheduled in the Bill of Quantities.
uPVC Soil Waste and Vent Pipes and Fittings

uPVC pipes and fittings shall comply with SANS 967 and shall be of the nominal sizes and effective lengths scheduled or shown on the drawings. Plain ends shall not be chamfered and sockets shall be suitable for use with rubber ring seals.

Standard fittings shall be provided as shown on the drawings and shall be of a size to suit the pipes with which they are to be used. Inspection openings and covers shall be provided on all bends 45° and over. Vent horns are not required except where specifically called for.

PQF 2.1.7 Sanitary Ware, etc

Sanitary ware, etc shall be of the types indicated on the drawings or scheduled. The quality of items such as washbasins, baths, shower fittings, lavatory cisterns, water closets, hot water geysers, etc shall be consistent with the prime cost price allowed for in the documents or indicated on the drawings.

All stopcocks and valves to be used shall bear the SABS mark and shall be of brass or gunmetal and be suitable for the application in all respects. All other fitments, which are the subject to a SANS specification, shall comply with such specification and bear the appropriate mark.

PQF 2.1.8 Rainwater Goods

Rainwater gutters and downpipes shall be of the seamless type without joints, as supplied and installed by an approved roof gutter specialist.

PQF 3 INSTALLATION

PQF 3.1 General

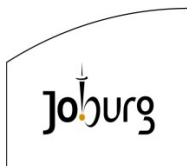
Installation of plumbing pipework, both pressure and drainage pipes, shall generally be chased into the walls and/or floors of the building and only where specifically called for on the drawings, or elsewhere, shall it be surface mounted. All plumbing work shall be carried out by suitably registered firms and by suitably qualified plumbers.

PQF 3.2 Installation Work

PQF 3.2.1 General

The method of carrying out the installation shall be in accordance with the best practice and in the case of water piping in accordance with the relevant sections of SANS 0252.

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PQF 3.2.2 Pipework in Chases

Chases in walls and floors shall be wide enough and deep enough to contain the full diameter of the pipework and jointing sockets, etc. No part of any pipe run shall extend into the finishing plaster work. Fastenings shall be adequate to hold pipes firmly in position and all pipework shall be tested for possible leakage prior to being grouted in.

PQF 3.2.3 Surface Mounted Pipework

Surface mounted pipework shall be adequately and suitably fixed in position in accordance with the best practice and in accordance with the applicable SABS specifications. The pipework shall be able to withstand, without movement or damage, the normal wear and tear to be expected within the building.

PQF 3.2.4 Sanitary Ware, etc

All items of sanitary ware shall be firmly fixed to withstand expected normal usage without movement. The items shall be fixed truly plumb and/or horizontal as the case may be. Any article damaged after acceptance from the supplier up to the time of completion of the work shall be replaced by the Contractor at his own expense.

No electrical connections to hot water geysers and the like may be made by the plumber but shall be carried out by a suitably qualified electrician.

PQF 4 TESTING

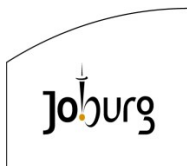
All pipework and fittings including stopcocks, valves, taps, etc shall be tested for operation and for watertightness. Any malfunction or leak shall be rectified by the Contractor at his own expense.

PQF 5 MEASUREMENT AND PAYMENT

PQF 5.1 Provision of all material, plant and labour necessary to complete the required installation and testingUnit: Sum

Measurement and payment for the provision of all materials, plant and labour necessary to complete the required installation and testing shall be in accordance with the method of scheduling in the Bill of Quantities.

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PQH: PAINTING

(Supplementary to SABS 1200 – 1986)

PQH 1 SCOPE

This specification covers the normal work required for small to medium size buildings. It does not cover the painting of steelwork (which is covered by SANS 1200 HC as amended by PSHC), but does include painting of galvanised iron for roof sheeting, gutters, downpipes, etc.

This specification should be adhered to, but as the formulation of paints is subject to continual modification, the specification for a particular material may be amended, should the paint manufacturer recommend an improvement thereto and provided such amendment receives the prior approval of the Employer's Agent.

A change of specification purely to reduce costs by using less suitable materials will not be acceptable.

PQH 2 MATERIALS

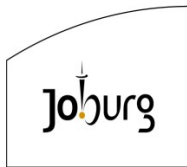
PQH 2.1 General

All materials which are to be used for painting under this Contract shall be from the same approved manufacturer (except in special cases which have had prior approval from the Employer's Agent) and shall be supplied in unopened containers. Thinning will be permitted only in conformity with the applicable manufacturer's recommendations.

The approved manufacturer of the paints shall be either Plascon or Dulux or as selected by the Contractor. Other manufacturer's products may be used, subject to them being approved by the Employer's Agent prior to any orders being placed.

The paint systems to be applied shall be the applicable of the systems itemised in PQH 3.2 to 3.5 hereunder.

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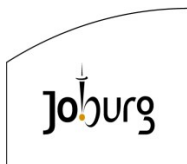
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PQH 2.2 Approved Materials

The following materials, as supplied by the selected paint manufacturer, are approved for use under this Contract.

	Applicable Clauses	Kansai Plascon References	Dulux References
Pre-paint treatment:			
Bonding liquid	3.4.1	CVI.14	5147198
Knotting for timber	3.1	PK.2	-
Wood stopping	3.1	BS	-
Porous surface sealer	3.1	CVI 14	-
Primers for:			
Acrylic coat filler	3.2.1	PP 500	5147618
Plaster (alkali resistant)	3.2.1	UC.56	5147200
Hardboard	3.2.2	UC 56	-
Softwood timber	3.2.2	UC.2	5147196
Galvanised iron	3.5.1	G.I.P.	5147204
	3.5.2		
Aluminium	3.5.3	SNS 1	-
Water-Based Paint Systems:			
PVA emulsion	3.2.1	EPL	5147037
Acrylic PVA	3.3.1	PEM 600	5147037
Texture coating	3.3.2	FLX	5147080
Acrylic roof paint	3.4.1	TRP	5147005
Oil-Based Paint Systems:			
Universal undercoat	3.2.2, 3.3.3, 3.5.2	UC.1	5147206
Stain for wood	3.2.3	W 1	5147400
Alloyed roof paint	3.5.1	AW 255	-
Gloss enamel	3.2.2, 3.3.3, 3.5.2	G - Range	5147208
Interior varnishes:			
wood-gloss	3.2.3	X.33	5147426
matt	3.2.3	X.44	5147430
Exterior varnishes:			
wood-gloss	3.3.4	-PNW - Gloss	5147422
matts	3.3.4	-PNW - Suede	-

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PQH 3 APPLICATION

PQH 3.1 Surface Preparation

All surfaces to be painted must be thoroughly degreased, clean and dry prior to commencement of painting. The local environs are to be free from dust whilst painting is in progress.

Ironmongery and fittings not to be painted shall either be removed and subsequently replaced, or be suitably masked to prevent paint spots or streaks adhering to the surfaces.

All cracks are to be filled with the paint manufacturer's recommended filler suitable for the purpose and for the location (ie interior or exterior work). After drying, the filler is to be rubbed down to a smooth surface, flush with the adjacent surfaces.

Porous surfaces must be sealed in accordance with the paint manufacturer's recommendations. Timber work shall be knotted and stopped as necessary prior to commencing painting. All surface preparation shall be in accordance with the paint manufacturer's specifications.

PQH 3.2 Painting Interior Surfaces

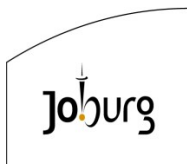
PQH 3.2.1 PVA Emulsion System

3.2.1.1	Cement plaster, & concrete	Apply one coat of acrylic filler coat followed by two coats of PVA emulsion paint
3.2.1.2	Gypsum plaster, hardwall plaster & gypsum board	Apply one coat of alkali resistant primer followed by two coats of PVA emulsion paint
3.2.1.3	Hardboard	Apply one coat hardboard primer followed by two coats of PVA emulsion paint

PQH 3.2.2 Gloss Enamel System

3.2.2.1	Cement plaster, gypsum plaster hardwall plaster & gypsum board	Apply one coat of alkali resistant primer followed by one coat universal undercoat and one coat of gloss enamel
3.2.2.2	Hardboard	Apply one coat hardboard primer followed by one coat of universal undercoat and one coat of gloss enamel
3.2.2.3	Softwood timber	Apply one coat of oil based wood primer followed by one coat of universal undercoat and one coat of gloss enamel

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PQH 3.2.3 Stain and Varnish System

3.2.3.1	Softwood timber	Apply one coat of stain followed by two coats of varnish (matt or gloss as ordered)
3.2.3.2	Hardwood timber	Apply two coats of varnish (matt or gloss as ordered)

PQH 3.3 Painting Exterior Surfaces

PQH 3.3.1 Acrylic PVA System

3.3.1.1	Cement plaster, & concrete	Apply one coat of acrylic filler coat followed by two coats of acrylic PVA paint
3.3.1.2	Asbestos board	Apply one coat of undercoat followed by two coats of acrylic PVA paint

PQH 3.3.2 Texture Coating System

Cement plaster & concrete: Apply two coats of texture coating paint

PQH 3.3.3 Gloss Enamel System

Cement plaster: As per 3.2.2.1 for interior surfaces

Softwood timber: As per 3.2.2.3 for interior surfaces

PQH 3.3.4 Varnish System

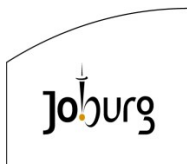
Hardwood: Apply two coats of ultra violet resistant varnish (matt or gloss as ordered)

PQH 3.4 To Roof Areas (Other than Galvanised Iron)

PQH 3.4.1 Acrylic PVA System

Cement and clay tiles: Apply one coat of bonding liquid followed by two coats of acrylic emulsion roof paint

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PQH 3.5 To Non Ferrous Metal Surfaces

PQH 3.5.1 Galvanised Iron Roofs

Apply one coat G.I metal primer followed by one coat micaceous iron ore roof paint

PQH 3.5.2 Galvanised Iron Tubes etc

Apply one coat G.I metal primer followed by one coat universal undercoat and one coat gloss enamel

PQH 3.5.3 Aluminium Surfaces

Apply one coat of aluminium primer followed by one coat of universal undercoat and one coat of gloss enamel.

PQH 4 MEASUREMENT AND PAYMENT

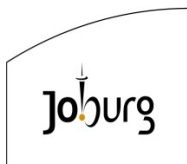
PQH 4.1 Provision of all materials, plant and labour necessary to prepare surfaces and complete painting work as specified: Unit: m²

Measurement and payment for paintwork will not be made separately, except where so scheduled in the Bill of Quantities. In the latter case, the prices tendered are to cover for the provision of all materials, plant and labour necessary to prepare the surfaces and complete the work as specified. Payment will be made by lump sum for the entire painting work, or by individual sum for each unit scheduled, or by area.

PQH 4.2 Painting of windows Unit: m²

Painting of windows will be measured as the overall size of the window frame with both sides being measured and with no deductions made for glazed areas.

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PZA: CLEANING OF SEWERS
(Supplementary to SABS 1200 – 1986)

PZA 1 SCOPE

This specification covers the clearing and cleaning of blocked or partially blocked sewer pipes and manholes.

PZA 2 DEFINITIONS

“**Sewer**” or “**sewer pipe**” is a gravity pipeline between two manholes or a pumping pipeline with no manholes.

“**Route**” or “**sewer route**” is a series of consecutive sewers/sewer pipes.

PZA 3 PLANT

For the duration of the Contract, the Contractor shall have on site:

- Sufficient plant and equipment and personnel, plant and equipment to carry out mechanical rodding and cleaning of sewer pipes.
- At least one high pressure jetting machine with all associated support personnel, plant and equipment.

PZA 4 CLEANING USING HIGH PRESSURE JETTING EQUIPMENT

The Employer’s Agent’s Representative will inspect all manholes and or pipelines and decide which sewer pipes require cleaning.

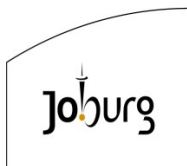
Before using a high-pressure jetting machine, the Contractor must confirm that the sewer pipes that are to be jetted are not clay pipes. Clay sewers are to be cleaned using mechanical methods.

The cleaning of the sewers is to be carried out in a systematic manner with cleaning of a pipe only commencing once all lines feeding into that pipe have been passed as cleaned.

Sewer pipes and manholes shall be cleared of blockages and other debris/detritus by high pressure water jetting methods using potable water. In the case of clearing pumping pipelines, provisions must be made for temporary access for removal of debris/detritus materials at intervals not exceeding 500 m, where necessary.

The jetting equipment to be utilised must be suitable for cleaning sewers and shall be provided with appropriate delivery hoses and cleaning nozzles and operated by experienced personnel. The working pressure for sewer pipes up to 300 mm diameter shall be between 80 and 100 bar and for larger diameter sewer pipes between 200 and 250 bar.

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The minimum water delivery rate shall be 160 litres per minute for the 200 to 250 bar machine and 100 litres per minute for the 80 to 100 bar machine. The equipment must be mobile and compact to facilitate access to all of the site of works. The Employer's Agent's Representative shall have the right to require the Contractor to regularly test the effectiveness of jetting equipment at no additional cost to the Employer.

Before commencing with water jetting and cleaning of sewers, it may be necessary to clear blockages first to induce liquid flow. For this purpose rodding and mechanical cleaning equipment will be required.

High pressure water jetting of pipes shall be undertaken in the following manner. The route to be cleared is to be agreed with the Employer's Agent's Representative. All routes upstream of the route to be cleared must have been passed as cleared by the Employer's Agent's Representative. Jetting shall start at the downstream end of the route for gravity pipelines and upstream end for pumping pipelines. The first (lower) sewer pipe between manholes must be jetted until the bulk of the silt has been removed. The jetting shall then be carried out of the next (second lowest) length of sewer between manholes from the downstream end of the route. This process shall be continued until the top (highest) end of the route is reached. In this way the bulk of the silt will be cleared moving from the downstream (lower) end of the route up to the upstream (upper) of the route. The jetting process for pumping pipelines may require temporary access for removal of debris/detritus materials at intervals not exceeding 500 m.

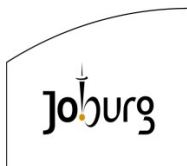
While progressing upstream, most of the silt moved from one sewer pipe will be trapped at the downstream manhole of that sewer pipe. However, a certain amount will be carried past the trap and deposited in the downstream sewer pipe. For this reason, the final cleaning and pulling of the "pig" to confirm that the pipes are clean, shall be undertaken starting at the upstream end of the sewer route and progressing in a downstream direction to the lowest end of the route.

A sewer pipe will only be considered cleared and cleaned once it has been inspected and passed by the Employer's Agent or his/her Representative.

Debris and foreign material dislodged from sewer pipes during the cleaning process must be trapped at the downstream manhole of the section of sewer pipe being cleaned and shall be removed and disposed of to an approved spoil site. Whilst jetting, the Contractor shall have a silt trap in place at all times in the manhole at the downstream end of the section of sewer being cleaned. The silt trap shall be of a circular shape and the same diameter as the pipe being cleaned. The bottom half of the circle shall be solid plate and the top half open. Attached to the bottom half shall be a 300 mm long half cylinder that is to lie in and match the invert of the channel in the manhole. The silt trap shall be fitted with a handle for easy removal.

Silt and other debris caught against the trap must be removed from time to time as it builds up.

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At the upstream manhole of the sewer pipe being jetted, the entrance to the pipe must, at all times, be equipped with a screen with 25 mm openings. This is to prevent material and other large foreign objects entering the pipe and becoming tangled with the jetting hose and nozzle. This screen must be cleared as often as required to prevent blockages.

Pipes and manholes will be deemed adequately cleaned only after all silt build-up, obstructions, and all foreign materials have been removed and the Contractor has proven to the satisfaction of the Employer's Agent by means of a clear pass of the jetting equipment and by a clear pass of a suitably sized "pig" through the length of sewer being checked, that no further silt or debris can be removed by further jetting or clearing operations. The "pig" is to have a solid rim the external diameter of which is 80 mm less than the internal diameter of the pipe to be cleaned. A suitable rubber wiper/ squeegee that protrudes a further 25 mm all the way around the solid rim must be fixed to the rim. The length of the solid rim is to be at least 1,2 times the pipe diameter so as to prevent the rim rotating. On larger diameter pipes, a space frame to support two narrow solid rims at a spacing of 1,2 times the pipe diameter should be used. Inside the rim there must be sufficient opening to permit sewage to flow through it while it is being pulled through the pipe. A rope must be attached to both ends of the "pig" to permit extraction in either direction.

As an alternative to pulling a "pig" where flow is low enough to permit blocking the line for a short period, the line may be inspected using mirrors to confirm that it is clear. The Contractor may submit any alternative form of "pig" or method of proving the pipe is clean to the Employer's Agent for approval.

The Contractor must take care not to damage the sewerage system during the clearing and cleaning process. If any damage in the opinion of the Employer's Agent is caused to the existing sewerage system as a result of the Contractor's negligence, this damage shall be repaired by the Contractor at his own expense.

PZA 5 MEASUREMENT AND PAYMENT

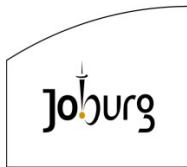
PZA 5.1 Cleaning Sewer Pipes and Manholes:

- (a) Cleaning of sewer using mechanical means. Unit: m
- (b) Extra over for levels of silting greater than 20% of the pipe diameter. Unit: m
- (c) Cleaning of sewer using high pressure jet cleaning. Unit: m
- (d) Extra over for levels of silting greater than 20% of the pipe diameter. Unit: m
- (e) Cleaning of manholes, irrespective of internal dimensions using high pressure jet cleaning.Unit: No
- (f) Extra over for temporary access manholes for removal of debris/detritus materials.....Unit: No

Separate items will be scheduled for cleaning sewers using high pressure jetting and mechanical methods.

The rate shall cover all costs of the provision of labour and equipment, access to the

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site, providing water and water storage facilities, cleaning pipes, the trapping and removal of silt, dislodged debris and foreign objects and disposal thereof to the approved disposal site. The rate shall also cover measures required to accommodate normal sewer flows.

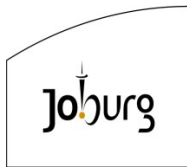
No distinction shall be made between the number of blockages in a particular sewer pipe.

An extra over rate shall apply for levels of silting greater than 20% of the pipe diameter. The level of silting shall be determined by calculation from the volume of silt removed at the downstream manhole during the desilting operation.

The rate tendered shall be per metre length of pipe including manholes. Separate items shall be scheduled for different pipe diameters.

One third of the tendered rate will be certified for payment when the Contractor has completed the initial cleaning of the pipe starting at the downstream end of the route and finishing at the upstream end of the route. The remaining two thirds of the tendered rate will be paid after the "pig" has been pulled through on the final cleaning run and the route has been inspected and approved as having been satisfactorily cleaned by the Employer's Agent's Representative.

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PZC: CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION OF SEWERS
(Supplementary to SABS 1200 – 1986)

PZC 1 SCOPE

This specification covers the Closed-Circuit Television (CCTV) camera inspection of existing and new sewer pipelines.

PZC 2 CLOSED CIRCUIT CAMERA INSPECTIONS

PZC 2.1 Inspection Equipment for Mainline Sewers

The CCTV camera inspections shall be undertaken using a tractorised CCTV pipe inspection camera system.

The camera system shall be capable of overlaying text onto the recorded video image of the pipe in such a way as to identify the pipe. Overlay must include the time, date, suburb, street, pipe number and continuously updated meterage and GPS coordinates of vehicle position at start of inspection. The overlay must also be capable of being removed from the screen.

The camera system must be capable of measuring the slope of the pipe being inspected. The instantaneous angle must be filtered and is to be displayed on the screen and recorded on the video. Raw inclinometer data is also to be stored for downloading to the database for the purpose of pipe profiling. The camera system must be capable of down-loading to a database, no less than three readings per metre of pipe inspected.

The camera shall be transported through the pipe on a tractor system to allow for smooth transportation of the camera through the pipe. The tractor shall be controllable at various speeds in forward and reverse and must be able to operate in pipes from 100 mm and greater. The tractor speed shall, however, not exceed 0,5 metres per second.

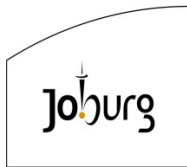
No “push-pull” camera system will be deemed acceptable, as the recorded image is “jerky” and difficult to interpret and no inclinometer data can be collected.

The camera mounted on the tractor shall be mounted in such a manner as to transport the camera within 10% of the centre of the pipe.

The camera system shall provide for complete condition assessment and lighting to illuminate the pipe sufficiently to allow for the detection of cracks and other structural defects in the pipe. The lighting shall be of such a nature that the natural colour of the pipe is recorded (black & white will not be acceptable).

The camera system’s linear meterage system shall be capable of being reset to zero at the start inspection manhole.

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The camera system distance measurement shall be better than 1% accuracy and all measurements shall be made from manhole centre to manhole centre.

The camera systems used by the Contractor shall be pan and rotatable and shall include radiosonde tracking on the surface if requested by the Employer's Agent to determine lateral positions.

The equipment shall be capable of "Task handling" in order to control and log, in the correct order, the defect as found in the pipe and recorded. All defects are to be reported at the distance that they occur, but defects are to be graded only after the camera has passed the defect in question.

PZC 2.2 Lateral Inspections

The camera system shall be capable not only of locating lateral consumer connections on the main sewer pipeline, but also be capable of inspecting these connections to the same standard and specification as for the main sewer pipeline.

The camera system shall be capable of inspecting the connections from the cleaning eye down toward the main sewer pipeline and shall be able to inspect the lateral from the main sewer pipeline up towards the erf boundary and extending into the erf by at least 25 metres without any open excavation being made.

The camera equipment shall be able to negotiate typical multiple bend radii in Clay or PVC piping of diameters of 100 mm and larger.

The Contractor's camera equipment shall have the ability of tracking the camera's progress.

The Contractor's camera equipment must be capable of being tracked in X, Y and Z on the surface by means of radiosonde or similar technology.

Cameras used for lateral inspections must be fully pan and rotate-able, incorporating "right side up" technology.

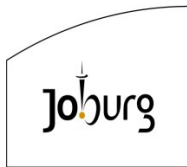
PZC 2.3 Road Safety

The inspection unit shall be provided with one amber-flashing beacon, which shall comply with and be operated in accordance with the Road Vehicle Lighting Regulations.

Road signs and cones shall be carried at all time and displayed in accordance with Safety Regulations.

The Contractor is to ensure that his staff has bright coloured overalls with the Company name and fluorescent over jackets. These shall be worn at all times to provide safe working conditions in road reserves.

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PZC 2.4 Sewer Health and Safety Equipment

At the time of tender, the Contractor shall provide proof of trained and certified staff who can use the health and safety equipment.

The Contractor shall have the following health and safety equipment in his possession while carrying out CCTV camera inspections:

Oxygen deficiency and gas detector apparatus per unit, regularly serviced and operable.

Fresh air breathing apparatus – face mask and demand valve, 10-minute compressed air supply.

Approved vertical lift full safety harness.

Personal equipment per operative:

- Safety helmet
- Safety boots
- Sewer wading boots
- Disposal protective gloves

Adequately sized First Aid Kit suitable for the number of operatives per unit.

Facilities for washing to include:

- Soft soap
- Disinfectant
- Potable water

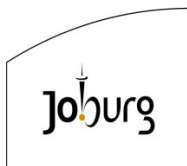
Radio equipment and cellular phone for on site communication.

Fire extinguisher.

PZC 3 Video Recordings

- (a) All video material shall be recorded on digital mediums and shall be of a DVD format compatible with Power DVD 4. All recordings shall for 5 seconds at the start of the inspection, have superimposed the video recording, the GPS coordinates of the vehicle's position at the start of the inspection.
- (b) The DVD's shall contain the video material, daily diaries as generated on site, and other relevant data pertaining to the inspection of the sewers.
- (c) DVD's are to be labelled with the following information:
 - Local Authority name
 - Contact number

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- DVD number
 - Suburb
 - Contractors' name
 - Sub-catchment
 - Streets inspected
 - Date and time
- (d) At the time of tender, the Contractor shall provide a recording of at least 50 m of sewer filmed with the equipment intended for use on this Contract for approval by the Employer's Agent.
- (e) The above-mentioned DVD shall include pdb files and thematic maps as proof of the Contractor's ability to comply with the tender requirements.

PZC 4

Reports

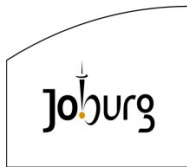
- (a) No reports will be manually generated by the Contractor. All reporting will take place in an automated electronic format from the inspection database.
- (b) The minimum requirement for submission of inspection reports for each payment section of the works shall include:
- (i) The ability to provide colour copies of the printed inspection report on request.
 - (ii) DVD or CD recording of the complete CCTV inspection.
 - (iii) 1 CD, including electronic media comprising of an electronic copy of the inspection report and a PIC database ("pdb") file of all inspection information for electronic importing of the CCTV data to PICdata and the resultant representation of the CCTV data on GIS.
 - (iv) Status quo report detailing all rehabilitation requirements and statistical data relevant to the project area.
 - (v) Thematic Maps.
- (c) The condition assessment and CCTV camera inspection of the sewer system will include reporting on both the sewer pipeline and manholes within the sections inspected, with the following minimum data being required:

PZC 4.1

Manhole Inspection Report:

- (a) Manhole number (to correspond with numbering manhole numbering indicated on the GIS as provided by the Employer's Agent:
- (b) Suburb
- (c) Street Name
- (d) Stand Number
- (e) Manhole type

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- (f) Manhole cover type
- (g) Manhole depth from the rim to the base of the pipe
- (h) Manhole benching condition
- (i) Shaft condition
- (j) Number and type of steps
- (k) General manhole condition assessment
- (l) GPS co-ordinates of vehicle position at start inspection

PZC 4.2 Sewer Pipeline Inspection Report:

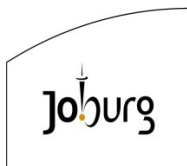
- (a) Pipe number
- (b) Operator name
- (c) Time and date
- (d) Start and end manhole numbers
- (e) Pipe material and type
- (f) Pipe position
- (g) Pipe diameter
- (h) Inclinator data
- (i) Defects reported and graded to a standard acceptable to the client
- (j) Lateral identification including stand numbers
- (k) Digital images of all lateral connection points to the main sewer pipeline, taken with a tilted camera looking into the connection from within the main sewer pipeline where ever possible
- (l) Digital images of severe and critical defects
- (m) GIS representation of CCTV inspections and data
- (n) End inspection data

The report must be structured in such a manner so that inspection data is grouped and presented sequentially with all information relating to a specific sewer section being grouped together for ease of reference and interpretation.

Lateral consumer connections are to be dealt with as individual pipes and will assume a unique ID. The Contractor will be responsible for the identification and numbering of these pipes. The inspection of lateral connections from the connection point on the main sewer pipeline towards the erf boundary and beyond will only be done on instruction of the Employer's Agent.

The complete sewer inspection, including the lateral consumer connection inspections must result in a "pdb" file format, being created for electronic importing of the CCTV data to PIC data and the resultant representation of the CCTV data on GIS.

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Electronic media must be in the form of a CD / DVD and must include not only the pipe data, but the digital images, as well as a thematic map indicating the pipes completed in that payment period, as well as complete copies of all reports generated.

All meterage measured by the camera must be from manhole centre to manhole centre starting at zero from the centre of the start manhole. Each inspection must be registered from a manhole, ie the Contractor may not inspect from one manhole through an intermediate manhole to another manhole without entering the intermediate manhole's data.

PZC 5 CLEANING

- (a) If the Contractor's camera is able to pass through a sewer line from manhole to manhole, the sewer shall be considered to be clean and it would not require cleaning.
- (b) Only if the Contractor's camera is not able to pass through a specific manhole or section of sewer, and only if instructed to do so by the Employer's Agent, shall the Contractor proceed with cleaning operations of the specific manhole or sewer section in accordance with particular specification PB.

PZC 6 MEASUREMENT AND PAYMENT

PZC 6.1 Site Establishment.....Unit: Sum

The unit of measurement for establishing site for the CCTV camera inspection crews shall be Sum.

The rate is to include for all costs involved in establishing crews to carry out the CCTV survey for the duration of the contract and shall be paid pro rata to progress.

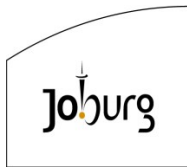
PZC 6.2 CCTV Camera Inspections.....Unit: m

The unit of measurement for CCTV inspection work shall be linear metre (m).

The rate is to include for all costs involved in condition assessment of the sewer pipeline, transport, equipment, labour, accommodation of personnel, logging and mapping defects and lateral consumer connections as well as condition assessment of manholes encountered along the way, all to the set standards and criteria of the specification.

Payment for camera work will be subject to the success of the camera negotiating the sewer pipeline from manhole centre to manhole centre and subject to the submitted CCTV data meeting the criteria as set out in this specification. If the Contractor's camera is not able to pass through a sewer pipeline section, payment for the CCTV inspection will be made only for the portion of sewer pipe inspected.

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PZC 6.3 Lateral Connections Unit: No

The unit of measurement for inspections of lateral connections shall be Number (No.) and an extra over per linear metre of the consumer connections inspected.

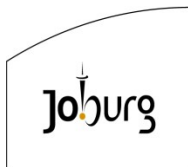
PZC 6.4 Plugging of Sewers Unit: No

The unit of measurement for plugging of sewers during CCTV camera inspections shall be Number (No.) and be an extra over per linear metre of sewer pipes inspected. The rate is to include for all plant, labour and equipment associated with plugging of the sewer pipes.

PZC 6.5 Over-Pumping of Sewer Flows..... Unit: h

The unit of measurement for over-pumping of sewer flows during CCTV camera inspections shall be Hours (h) and be an extra over per linear metre of sewer pipes inspected. The rate is to include for all plant, labour and equipment.

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PZE: TRENCHLESS REPLACEMENT OF EXISTING PIPES
(Supplementary to SABS 1200 – 1986)

PZE 1 SCOPE

This specification covers the replacement of existing pipelines using trenchless technologies.

The Contractor will be responsible for the complete installation which shall include taking all necessary precautions to avoid damaging any existing underground and/or above ground services.

The trenchless installation of the new pipelines can be made using any of the following methods, and the Contractor is to make use of the method most suitable / applicable to the prevailing site conditions and constraints:

- Pipe bursting / cracking
- Pipe splitting
- Pipe eating**
- Pipe reaming
- Pipe ejection / extraction
- Slip-lining

** Pipe eating is a process whereby a defective pipeline is destroyed and removed by means of a mechanical device whilst, at the same time, installing a new pipe with the same or larger outside diameter in the void.

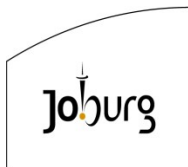
PZE 2 PROVING OF EXISTING PIPES

On receipt of instructions from the Employer's Agent's Representative, the Contractor shall prove the position, diameter, pipe material, depth, coupling/jointing type, and connections to the existing pipe(s) and provide a schedule showing all relevant details to the Employer's Agent's Representative.

The material of the existing pipe and / or the type of coupling/joints may influence the Contractor's method of pipe replacement and the Contractor is to submit a method statement for approval by the Employer's Agent.

Where the depth of an existing pipe is such that trenchless replacement or upsizing without damage to existing services or upheaval of the surface above the pipe, is deemed to be impractical, the Employer's Agent may permit the Contractor to replace the pipe using open trench methods. However, this approval will be conditional upon there being no additional time or cost implications.

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PZE 3 MATERIALS

The replacement pipe to be used on this Contract will be Class 16 High Density Polyethylene Pipe (HDPE) manufactured from PE 100-RC (resistant to crack) material, complying with DIN PAS 1075 and SANS/ ISO 4427.

The handling of the piping shall be in accordance with the manufacturer's recommendations and to the approval of the Employer's Agent.

PZE 4 PLANT

The Contractor shall ensure that adequate and suitable equipment is available for the trenchless installation of the new pipes. This shall include equipment and fittings for a rider pipe to maintain supply, the trenchless installation, the jointing of the new pipe and testing of the completed new pipeline.

The fusion equipment to be used must comply with SANS 12176-1 & 2, and the Contractor is to produce a calibration certificate, from a reputable testing facility, prior to its use on site.

The Contractor will be required to undertake the following steps prior to the commencement of welding on site:

- (a) Provide welding tables applicable to HDPE PN16 pipe and the welding plant to be used.
- (b) Provide a certificate of calibration for the welding plant (butt and / or fusion) to be used. The certificate shall bear the model number of the welding machine to be used on site, the name and address of the certifying agent, the date of the test and a statement as to the accuracy of the temperature and pressure gauges on the machine in question.
- (c) Provide certification that the welder/operator has successfully completed an approved training course and is qualified to weld the size and class of HDPE pipe to be used on this Contract.
- (d) A test weld is to be undertaken on site in the presence of the Employer's Agent's Representative for approval prior to the commencement of welding proper.

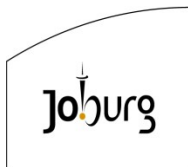
A certificate of calibration dated prior to the date on the letter from the Employer, instructing the Contractor to commence work, is not acceptable.

No separate payment shall be made for the calibration of the welding plant as required in this Contract.

The cost of the calibration of the welding plant is to be included in the Contractor's rates.

Under no circumstances will welding be permitted to commence prior to the provision of the above certificates and the test weld, and any delays resulting from failure to timeously undertake the above-mentioned steps shall be borne by the Contractor.

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PZE 5 CONSTRUCTION

PZE 5.1 Trenchless Operation

The HDPE pipe, made up of a series of shorter lengths of pipe welded together on site, shall be pulled into place by using a static and hydraulically operated tool inserted into the existing pipe from the launching trench. The slip lining mechanism together with the attached HDPE pipe shall then be drawn through the existing pipe, from the launching trench to the receiving trench.

The Contractor will be required to ensure a uniform pulling force to the liner wall. The forces on the new pipe shall be limited to respect the maximum pulling forces prescribed by the pipe manufacturer and shall be recorded. Should the pulling head get lodged within the existing pipe, the Contractor shall be responsible for all costs associated with its retrieval.

All plant, labour and associated ancillary equipment necessary to carry out the trenchless operation shall be provided by the Contractor.

The liner shall also be continuous through the sections where portions of the existing pipe have been removed, such as at launching or receiving trenches, to facilitate the lining operation.

Connection to the existing pipes shall only take place once the stresses due to the installation operation have dissipated and the liner has assumed its final position. A 24-hour relaxation period shall be allowed before any attachments or finishings to the liner is allowed. The liner shall be pulled past the termination point by at least 3% of the liner length to allow for shrinkage during the relaxation period.

The finished lining shall be free as commercially practicable from visual defects such as foreign inclusions or pinholes. The lining shall be totally watertight and free of any leakage into or from the pipe to the surrounding ground.

Any defects which will affect, in the foreseeable future, the integrity or strength of the linings, shall be repaired at the Contractor's expense, in a manner mutually agreed to by the Employer's Agent and the Contractor.

PZE 5.2 Jointing of the HDPE Pipes

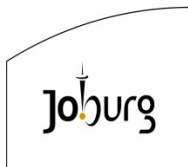
Jointing of the HDPE pipes shall be by means of either:

- (a) Butt welding
- (b) Electro-fusion couplings
- (c) Mechanical couplings (where approved by the Employer's Agent)
- (d) Flanged fittings (where specified)

PZE 5.2.1 Butt Welding of the HDPE Pipe

The HDPE pipe shall be joined by means of heat fusion using fully trained operators in accordance with the pipe manufacturer's Code of Practice and SANS 10268-1 and

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SANS 21307.

The Contractor is to pay particular attention to the following:

- (a) Cleaning the pipe or fitting ends, planing unit and heater surfaces
- (b) Clamping the components to be joined; pipe support may be needed to ensure proper alignment
- (c) Planing the pipe or fitting ends. Note: Faces of pipe ends must not be touched after planing
- (d) Aligning the pipes or fittings
- (e) Melting and jointing the pipe or fitting ends
- (f) Holding the pipe or fitting ends under pressure for the cooling time in the machine
- (g) Completing the cooling time out of the machine.

The Contractor shall ensure that the required gap spacing is constant over the total weld length and that the weld temperatures specified by the manufacturer are attained throughout the weld length.

Each joint shall be carefully examined to ensure that the welded joint is capable of withstanding the tensile force to which it will be subjected during pipe cracking/pipe reaming operation. In addition, all joints shall be watertight.

No separate payments shall be made for butt welding of the HDPE pipe as required in this Contract.

PZE 5.2.2 Electrofusion Welding of the HDPE Pipe

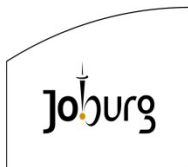
The HDPE pipe shall be joined by means of fusion couplings using fully trained operators in accordance with the pipe manufacturer's Code of Practice, WIS 4-32-08 (UK Water Industry), SANS 4427-3 and SANS 10268-2.

The couplings are to comply with SANS 4427 and no metallic parts of the heating element may be exposed at any place in the coupling and all coils are to be fully imbedded into the body of the fitting for protection purposes.

The Contractor is to pay particular attention to the following:

- (a) The dimensional tolerances for the pipe and coupling (in accordance with SANS 4427-3).
- (b) Scraping of the outer surface of the pipe in the welding area by means of a scraper tool to ensure the removal of the oxide layer. The use of hand scrapers is not allowed. Note – the pipe surface should be prepared immediately before jointing. It is bad practice to prepare ends well in advance of jointing.
- (c) Cleaning the pipe and coupling ends. Note that the coupling is only to be removed from its protective packaging immediately before welding. Any contaminated surface or coupling shall be cleaned with a suitable lint free cloth which has been soaked in a 90% isopropanol : 10% water mixture. No attempt shall be made to clean fittings of prepared pipe surfaces that have become heavily contaminated

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with mud or water. When contamination cannot be removed the fitting or prepared pipe surface shall be discarded. The faces of pipe ends must not be touched after planning.

- (d) Clamps shall always be used to secure the pipe ends during the fusion cycle.
- (e) Melt indicators on the coupling.
- (f) Melt movement outside the confines of the coupling – if melt has exited beyond the ends of the fitting, the joint shall be cut out and a new joint made.
- (g) Completing the cooling time out of the machine.

Where pipes have been installed and the ends cannot be prepared adequately (due to deep gouges, extreme contamination) for a fusion coupling, the end shall be cut off and a short 1m spool piece shall be butt welded onto the existing. Where it is not practical or feasible to butt weld a spool piece, the Contractor may request the Employer's Agent's approval to install a mechanical coupling.

Where it is not practical or feasible to butt weld due to unavoidable water leaking into the new pipe and hindering the welding process, the Contractor may request the Employer's Agent's approval to install a mechanical coupling.

PZE 5.2.3 Mechanical Couplings

Mechanical couplings shall comply with SANS 14236 for polyethylene pipes of nominal outside diameters not greater than 160 mm.

Where mechanical couplings are required on diameters greater than 160 mm, the couplings shall be subject to the Employer's Agent's approval and shall comply as a minimum with the following:

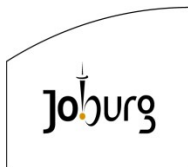
- (a) Must resist tensile forces.
- (b) Must accommodate gaps of up to 20 mm.
- (c) Be manufactured in cast steel or ductile iron, with a minimum 300-micron fusion bonded epoxy coating.
- (d) The rubber gasket shall be manufactured from high grade EPDM rubber to EN681-1 and be designed to accommodate any scratches or gouges in the outside wall of the pipe or slight variances in the pipe diameter.
- (e) The grip ring shall be manufactured from dezincified bronze, aluminium bronze or gun metal.

All mechanical joints and fittings shall be of approved types designed specifically for polyethylene pipe systems.

PZE 5.2.4 Flanged Fittings

Loose backing flanges for use with HDPE stub flanges shall comply with ISO 9624 and SANS 1123.

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PZE 5.3 Launching And Receiving Trenches

The number of launching and receiving trenches required shall be left to the discretion of the Contractor but the details thereof are to be submitted to the Employer's Agent for approval. The length of a launching or receiving trench shall be such that the radius of curvature of the HDPE pipe liner as measured to the liner centreline is greater than or equal to 100 times the diameter of the pipe and the size of the launching and receiving pits shall be of suitable and minimal size to accommodate the necessary operations.

Due allowance shall be made when shoring the trench sides for any welding/jointing of the HDPE liner that may be required to be undertaken within the launching or receiving trench. Allowance shall also be made for proving of services, during excavation of the launching trench and subsequent slip-lining operation.

The position of each pit shall be sited so as not to interfere with vehicular and pedestrian access either in a roadway or to properties. Disruption to the normal activities which occur in the area surrounding the works shall be kept to a minimum. The excavated launching and receiving trench shall be adequately fenced off with appropriate barriers to prevent pedestrians from falling into the excavation.

All excavations, backfilling and reinstatement of the launching trenches shall comply with Standard Specifications SABS 1200 Part DB: Earthworks for pipe trenches and the project specifications.

PZE 5.5 Hydrants

All hydrants are to be replaced with new hydrant assemblies conforming to the specifications for hydrants. The construction of the hydrant tee is to be the same as the existing hydrants.

Hydrant tees must be fusion welded to the new HDPE pipe. The hydrant chamber shall be reused and rebuilt.

PZE 5.6 Road Reinstatement

SABS 1200 DB Clause 5.9 and PSDB 3.6 shall prevail.

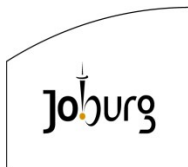
PZE 5.7 Cement Stabilisation

All trenches across road surfaces are to be cement stabilised as per PSDB 3.5(c) for a depth of 1 m below formation level. An item had been allowed for in the Bills of Quantities. The cement stabilisation is to be carried out in accordance with the project specifications.

PZE 6 TOLERANCES

The tolerances of the relevant specifications shall apply.

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PZE 7 TESTING

The new pipeline is to be pressure tested in accordance with SABS 1200L.

After the successful pressure test, the new pipeline is to be connected to the existing pipeline and the joints shall be left open for a minimum of 8 hours for visual inspection of the watertightness of the connections. Furthermore, all bolted connections are to be re-torqued a minimum of 8 hours after the test or before backfilling.

The Contractor shall allow in his rates for all inspections and tests and for the supply of all necessary equipment that may be required for these tests and/or inspection by the Employer's Agent.

PZE 8 MEASUREMENT AND PAYMENT

PZE 8.1 Trenchless Replacement of Existing PipesUnit: m

The unit of measurement for the trenchless replacement of pipelines shall be the linear metre (m) of pipe lined along the length of the pipeline.

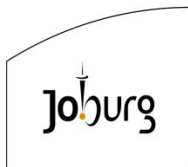
The rate shall include for the supply of all plant, labour, equipment, setting up of equipment, materials required for lining, all fittings (including any coupling used within the launching or receiving trench), liner insertion, welding of the liner and all cutting and wastage of materials. The rate shall also cover measures required for testing.

PZE 8.3 Launching and Receiving Trenches Unit: Sum

Items have been provided in the Bill of Quantities for all launching and receiving trenches.

The rates shall include for the supply of all materials, plant, labour and equipment, for the removal of roadway material, excavation, cement stabilised backfill, compaction of the backfill, permanent road reinstatement, repair and reinstatement of pipes damaged due to the existence of the launching/receiving pits, complete reinstatement of property to its original condition and the disposal of spoil and surplus material.

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PZE 8.4 Road Reinstatement Unit: m²

The Contractor shall be responsible for any temporary road reinstatement prior to final surfacing, and any claims for damages due to inferior temporary reinstatement shall be for the Contractors account.

Measurement shall be in square metres and must include for the supply of all labour and materials for:

- (a) Trimming the edge of existing roadways
- (b) Application of primer
- (c) Application of tack coats
- (d) Dealing with traffic where necessary
- (e) The area shall be computed using the lineal length and the trench pay width

PZE 8.5 Site Establishment..... Unit: Sum

The rate shall include for all costs involved in moving the Contractors equipment onto site and the removal thereof on completion of the works. The rate does not include for moving the equipment from one area to another on site (this cost shall be included in the rates for pipe replacement).

PZE 8.6 Method Statement..... Unit: Sum

The Contactor shall submit to the Employer's Agent, prior to the commencement of work on any section, a detailed method statement on the pipe replacement procedure. The method statement shall include inter alia the following:

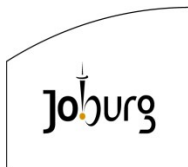
- Existing pipe diameter, material, depth and joint type
- pipe replacement procedure including the sequence of construction
- procedure for the installation and bedding of pipe in launching and receiving pits
- method for other connections
- rider pipe plans including methods and a list of equipment
- traffic accommodation plan.

An item has been provided in the Bill of Quantities for the provision of a detailed method statement.

PZE 8.7 CCTV Inspections Unit: m
(refer PZC where necessary)

The rate for site establishment shall include for all costs involved in moving the CCTV equipment onto site and the removal thereof on completion of the works. The rate shall also include for moving the equipment from one area to another. The rate for inspections shall include for all plant, labour and materials required for the CCTV inspections of each pipe (measured per metre length inspected).

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PSSC: SUB-CONTRACTORS

PSSC 1 VALUE OF SUB-CONTRACTED WORKS

The Main Contractor shall retain liability and responsibility for the management, scheduling, and quality control of all works performed by the sub-contractors. After appointment of the Main Contractor, the Main Contractor can approach potential sub-contractors to provide rates for the items proposed for subcontracting. The Main Contractor will be expected to conduct a competitive process to recommend a Sub-Contractor or Sub-Contractors to Johannesburg Water. Johannesburg Water will then evaluate all rates provided by the Sub-Contractor for fairness. Johannesburg Water will then either a) approve the appointment of the Sub-Contractor or Sub-Contractors or b) enter into negotiations with the Main Contractor and sub-contractor / s or c) request that the Contractor recommend a different sub-contractor.

PSSC 2 OVERHEAD, CHARGES AND PROFIT FEE FOR THE MAIN CONTRACTOR TO OVERSEE SUB-CONTRACTED WORKS

The Main Contractor shall retain liability and responsibility for the management, scheduling, and quality control of all works performed by the sub-contractors. This item will be calculated as a percentage of the sum of works allocated to the sub-contractors and shall include the process to appoint a sub-contractor as described in PSSC 1, as well as all costs and charges to manage all sub-contracted works. Unit: %

PSSC 3 FIXED-CHARGE ITEMS FOR THE SUB-CONTRACTORS CONTRACTUAL REQUIREMENTS

The final amount will be determined by the process described under PSSC 1 Unit: Prov Sum

PSSC 4 OVERHEAD, CHARGES AND PROFIT FOR THE MAIN CONTRACTOR TO PROVIDE FOR FIXED-CHARGE ITEMS FOR THE SUB-CONTRACTORS CONTRACTUAL REQUIREMENTS

This item will be calculated as a percentage of PSSC 3. Unit: %

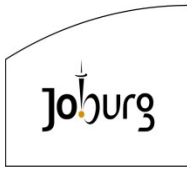
PSSC 5 TIME RELATED ITEMS FOR THE SUB-CONTRACTORS CONTRACTUAL REQUIREMENTS

The final amount will be determined by the process described under PSSC 1 Unit: Prov Sum

PSSC 6 OVERHEAD, CHARGES AND PROFIT FOR THE MAIN CONTRACTOR TO PROVIDE FOR TIME RELATED ITEMS FOR THE SUB-CONTRACTORS CONTRACTUAL REQUIREMENTS

This item will be calculated as a percentage of PSSC 5. Unit: %

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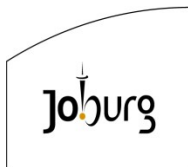
PSSC 7 TRAINING FOR SMMEs

This item will include for accredited and certified on-the-job training for SMMEs Unit: Prov. Sum

PSSC 8 OVERHEAD, CHARGES AND PROFIT FOR THE MAIN CONTRACTOR TO PROVIDE FOR TRAINING FOR SMMEs

This item will be calculated as a percentage of PSSC 7. Unit: %

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PSCP: CATHODIC PROTECTION AND PIPE CONDITION ASSESSMENT

PSCP 1 PIPELINE CONDITION ASSESSMENT AND CATHODIC PROTECTION (CP) INVESTIGATION

There are 3 rising mains related to this scope with the following characteristics:

- 1x DN1400 pipe, approximately 2 km long (for future Contract 2)
- 2x DN700 pipes, approximately 1.7 km long each (1x current Contract 1 and 1x future Contract 2)

In order to identify the nature of the cathodic protection system(s) and/or components that still exists, and the type of system required to protect the proposed pipelines from electrolytic corrosion, it is necessary for a certain amount of field work to be undertaken along the routes of these pipelines.

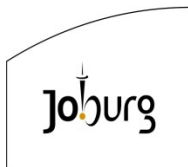
Gathered information should be used to carry out an integrated design and then to prepare an estimate of the cost of the temporary and final CP system(s) and AC mitigation measures that may be required. The current extent and degree of deterioration of the existing pipelines (including its' existing lining and coating) must be ascertained in order to provide for suitable repair/replacement options based on the current integrity of the pipe.

Experienced, specialised CP consultants are required for the provision of professional services as outlined below.

Specific risks pertaining to site work:

- The bidder is expected to identify any potential risks during the site visit and provide for such in their pricing.
- The normal site operations should not be adversely affected in any way during the investigation activities.
- Access points (chambers, manholes, etc.) along the length of the pipe have not been identified or located by the works personnel.
- Uncertainty regarding the state of the currently, not in use pipes.
- Previously installed CP straps for continuity over pipe joints are no longer in place, rendering the pipeline non-continuous i.t.o conductivity.
- Other parallel pipelines may be found in the vicinity of the pipes being investigated and while the focus must not change, recommendations should be given by the successful bidder as to what should be done about the other pipes, also highlighting the risks if nothing is done.
- Some existing overhead powerlines in the immediate vicinity appear to not be in use as the pylons do not have any cables running between them.
- Locations (intervals) of existing pipe access points such as manholes/chambers are not clear but do exist.
- The pipes traverse a wetland as may be seen on the layouts provided.

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The main objectives of the investigation stage are:

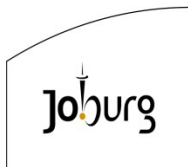
- To verify the current location and conduct a condition assessment of the 3 existing pipelines and ancillaries. This assessment is to include the extent and severity of any deterioration that has occurred on the coating, lining and pipe itself, to determine the current integrity of these existing pipes.
- To determine and assess the resistivity of the soils along the entire length of the existing pipelines.
- To ascertain the nature and magnitude of any stray currents that may prevail in the area traversed by the pipelines.
- To determine what existing Cathodic protection exists on the site, related to these pipelines and its current condition.

The main objectives of the design stage are:

- To document the information collected on site and package such as readable deliverables (referenced drawings/sketches, report/s, results and/data sheets.
- To use that information to determine:
 - whether or not a cathodic protection system(s) is required
 - whether the existing system is adequate and in working condition.
 - necessary AC mitigation measures.
 - to carry out the design of the required CP system and or recommended repair methodology of the existing system, in accordance with Johannesburg Water specifications and guidelines.
 - the current integrity of the existing pipe throughout its length.
- To provide sufficient information which shall include detailed specifications, diagrams, drawings, and Bills of Quantities, to enable the detailed design and drawings of the existing pipeline CP system and AC mitigation, to be carried out and for tender documents to be prepared by the Employer's Agent.
- To estimate the cost of implementing, operating and maintaining the cathodic protection system and AC mitigation measures.
- Options analysis of applicable repairs and/or replacement of the existing pipelines where defects have been identified, including firm recommendations, in order to render the pipelines operational with an increased lifespan.
- To document all the above in a formal report, with relevant supporting deliverables.

NOTE: The scope of work could be curtailed if the results of the field investigations indicate that no CP system(s) or AC mitigation will be required. In such event, there will be no need to carry out any designs, nor to prepare specifications, diagrams, sketches and the like, nor will there be a need for the CP consultant to participate in the tender evaluation process for construction stage of the pipeline.

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PSCP 2 DETERMINATION AND CLASSIFICATION OF THE CORROSIVITY OF THE SOILS

- Soil Resistivity measurements are to be carried out at approximately 50 m intervals along the routes of the existing pipelines, or other interval that the consultant deems necessary.
- GPS coordinates, to an accuracy of < 1 m, shall be recorded at each location. These coordinates are to be tabulated as X and Y coordinates based on map datum WGS 084.
- An appropriate method (such as the Wenner-four-electrode method) is to be used to determine the soil resistivity at the average depth of the existing buried pipelines (approximately 3 m below ground level).
- The data shall be plotted to present a graphical representation with the X (horizontal) axis being the pipeline chainage/length and the Y (vertical) axis being the measured resistivity in Ohm m.
- The following classification can be used (as a guide), it being noted that stray currents can cause corrosion in soils of any resistivity.

Resistivity (Ω m)	Corrosivity
0 to 5	Very Corrosive - Cathodic Protection Required
5 to 10	Corrosive - Cathodic Protection Recommended
10 to 20	Moderately Corrosive – Cathodic Protection Recommended
20 to 100	Mildly Corrosive - Cathodic Protection Optional
More than 100	Negligible - Cathodic Protection not Required

PSCP 3 DETERMINATION OF THE MAGNITUDE OF STRAY CURRENTS (IF ANY)

Recordings shall be taken to ascertain whether stray currents are present. In the event that stray currents are present, a stray current survey shall be carried out using digital data recorders that shall be set up so that the data can be logged over a 48 hour period at each location and to be synchronized (loggers readings time-stamped) along the pipeline. The number of positions at which readings are to be taken will be at the discretion of the CP consultant but shall be conducted at no more than 1 000 m intervals along the pipelines routes.

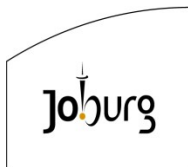
The variation in any major voltage surges that are observed/measured shall be recorded.

In the case of the existing steel pipelines, a current drainage survey shall be carried out and the data recorded. The locations at which the surveys are to be undertaken will be at the discretion of the CP consultant.

PSCP 4 CONSIDERATION OF THE NEED OR OTHERWISE FOR AC MITIGATION MEASURES

The existing pipelines are in close proximity to power lines at certain points along its length. The investigation, design, specification and cost estimates are to make provision for any AC mitigation measures that may be required.

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PSCP 5 PIPELINE CONDITION ASSESSMENT

In order to determine the extent and degree of deterioration as well as any current defects that may render the pipe unusable/problematic, a thorough inspection of such is required. There was report of an existing leak, in the DN1400 pipe, close to the existing Van Wyksrust pump station but the whole length of this pipeline and the DN700 pipes must be assessed to finalise what repair and/or replacement options are to be accommodated, by others during construction.

Leak detection survey to be conducted to determine internal pipe defects and inspection to be performed to ascertain external pipeline coating defects. Leak detection/internal pipe assessment may be carried out by physical inspections with photographic record, other appropriate methods or a combination of such for the full length of the pipes and not at limited or "hot spot" locations.

Selected inspection methods must provide the following outcomes as a minimum:

- The remaining protective coating and lining condition
- Areas of pitting / metal loss / holes
- Condition of all the field joints
- Steel wall thickness readings at key positions along the internal of the pipeline to determine integrity of the remaining steel
- Other tests to determine the remaining integrity of the pipeline

External pipe coating inspection may include AC attenuation, DCVG and CIPPS or similar, or a combination of such.

It will be necessary to conduct ground penetrating radar (GPR) survey to identify the location of the existing pipes including all existing buried services in close proximity to such.

This will ensure that no existing services are damaged and that no one is injured due to a service being damaged as a result of his work on site including future work.

A clearly defined sketch and/or drawing indicating the location of the pipe and services shall also be provided as a deliverable.

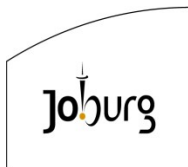
PSCP 6 DELIVERABLES FOR THE INVESTIGATION / DESIGN / REPORT STAGE

The deliverables to be provided on completion of the work on site shall be a comprehensive report covering all aspects of the investigation, the existing pipes condition assessment, the CP system(s) and AC mitigation measures design and cost estimates.

The report shall include:

- Details pertaining to the design of the CP system(s) and AC mitigation measures that will be required to protect the existing pipeline during and on completion of repairs/replacement of such systems and the pipe itself.
- Firm recommendations on the steps to be taken to repair the existing and/or implement new CP system(s) and AC mitigation measures.
- Monitoring and maintenance recommendations for the works personnel to ensure

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that the system and pipelines reach their expected lifespans.

- Detailed drawings, specifications and Bills of Quantities covering all of the requisite CP and ACM components in sufficient detail to enable tenderers for the construction stage to obtain firm prices from specialist CP sub-contractors to supply, repair and/or install the complete CP system(s) and AC mitigation measures. In the event of it being necessary to make provision for certain items that cannot be determined until construction work is under way, a Provisional Sum(s) may be provided but this must be the exception and can only be done if approved by the Employer's Agent.
- Details pertaining to the repair and/or replacement of the pipes itself. These details are to include locations of the pipes, type and description of repairs and/or replacement, costing and firm recommendations of the most feasible option/s. Where ancillaries are also required to be repaired and/or replaced, the same details apply.

PSCP 7 OWNERSHIP OF DOCUMENTS AND COPYRIGHT

All documents and data produced as a result of work performed on the project shall remain the property of the Employer and shall not be traded or made available to any third party without prior written consent of the Employer.

PSCP 8 HEALTH AND SAFETY

Any person/s entering the property will be required to comply with the necessary Health and Safety specifications of the site, as defined by the Employer. Inductions, medical examinations and/or training of staff where needed, shall be deemed to be included in the quoted amounts.

PSCP 9 TERMS AND CONDITIONS

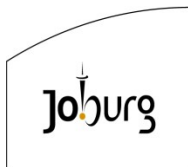
The CP consultant:

- Will be deemed to have visited the site and assessed and made due and adequate arrangements with respect to access to the site and for carrying out all of the specified work.
- Will be held responsible for the accuracy and completeness of all the work carried out, and for compliance with acceptable standards and professional practice. In this regard, an experienced Professional person will be required to take responsibility for all work carried out and all documents submitted are to be signed accordingly by that person.
- Shall remain independent and shall not be commercially or contractually involved with the supplier and/or installer of any component(s) of the CP system(s) during any construction phase of such.

PSCP 10 PAYMENT

Interim payments for work done will not be made for the investigation / design / report stage. An invoice for payment covering all work carried out shall be submitted after all work on site has been completed and the signed report has been submitted.

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Approval of the invoice is subject to verification, by the Employers agent, that all deliverables have been accounted for

PREPARATION

A clearly defined methodology of all steps involved in the preparation and investigation is to be provided as part of the submission. The methodology must also highlight the key areas of professional services (milestones) and the personnel conducting the tasks. The BoQ items are to be further described/detailed in this methodology for clarity in cost comparisons.

The Bills of Quantities that are included below are to be priced and signed by a person duly authorised by the Bidder to sign the document.

Final compensation for complying with all conditions, obligations and liabilities described in this document shall be deemed to be included in the prices and sums stated in the Bills of Quantities.

PSCP 12

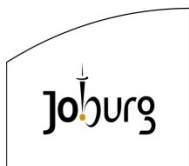
INFORMATION REQUIRED

Specialists must submit the following information:

- Covering Letter.
- Details of similar projects which the Bidder has carried out during the previous five years (description included as indicated below).
- The CVs of the personnel that will be involved on the project and an organogram.
- Brief description of the proposed methodology and programme of work.
- Proof of SANAS Accreditation or similar as relevant to the sampling and testing required.
- Letter of Good Standing from the Compensation Commissioner.
- SARS Tax Clearance Certificate.
- SARS Tax Compliance Certificate.
- VAT Registration Certificate
- Company Profile.
- BBBEE Certificate or Exemption in terms of the Act.
- Central Supplier Database (CSD) Form/ Report.

The specialist is required to meet the minimum requirements for project experience and key personnel in order to be considered for appointment.

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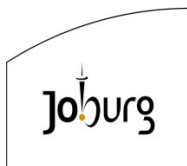


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No.	Criteria	Description	Documentary Evidence	Submission Compliant (Yes/ No)
1	Project Experience	The company must have successfully completed a minimum of two (2) design projects with a minimum value of R 1 million per project for pipe condition assessment, corrosion and AC mitigation professional fees in the discipline of large bore pipelines.	The specialist must provide confirmation (i.e. contactable reference letters) in writing from their clients'. The reference letters must clearly detail the following: (1) Nature (Scope) of work on the project that was carried out successfully. (2) The estimated Value of corrosion management aspect.	Submission compliant: (Yes / No)
2	Experience of Key Personnel	The specialist must submit Curriculum Vitae (CVs) of key staff outlining their work experience in relation to the scope of work – refer to the Corrosion staff experience description below.	Corrosion Specialist: minimum of 8 years Cathodic Protection (CP) field experience of which: 3 years must be in general corrosion prevention and 3-4 years must be in CP and AC Mitigation design for large bore buried steel pipelines >350mm.	Submission compliant: (Yes / No)
			Cathodic Protection (CP) Technician: minimum of 5 years Cathodic Protection (CP) field experience of which: 2-3 years must include AC Mitigation (ACM) field experience and 2 years must be in general corrosion prevention	Submission compliant: (Yes / No)
			Cathodic Protection (CP) Tester: minimum of 3 years in Cathodic Protection (CP) and general corrosion prevention field experience.	Submission compliant: (Yes / No)
			CP Technical Assistants: minimum of 18-months Cathodic Protection field experience.	Submission compliant: (Yes / No)

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The Key Persons are to be Principles or permanent employees of the firm, namely:

- Corrosion Specialist
- Cathodic Protection: Technician
- Cathodic Protection: Tester
- Cathodic Protection: Technical Assistant

The following persons may be part-time employees or sub-contractors for the duration of the contract provided the relevant experience requirements are met.

- Coating Inspectors
 Highly skilled and experienced in corrosion, surface preparation, cleanliness, environmental conditions, test instruments, coating mixtures, and safety aspects of corrosion inspection of large bore steel pipes. The Coating Inspector(s) must be able to undertake unsupervised non-destructive and destructive inspections of liquid and non-liquid coatings applied to any substrate. They must have a minimum of three (3) years coating inspection experience relevant to this scope of work.

PSCP 13 CORROSION STAFF EXPERIENCE **PSCP 13.1 Key Persons**

The Corrosion Consultant (Service Provider) shall ensure that there are always sufficient resources that are suitably qualified, experienced, and skilled to carry out and supervise all activities.

The Curriculum Vitae (CV) of the resources to be used on the project must be provided with the tender submission and these documents must clearly indicate the work experience and knowledge of these persons are suitable to carry the functions required in the tender.

Should a need arise during the contract for individuals to be replaced or added to the corrosion team, then the curriculum vitae of these individuals need to be submitted to the JW Corrosion Engineer for review and approval. Failure to meet this requirement will cause the work carried out by these non-vetted individuals to be rejected and fees or claims refuted by JW.

Corrosion Specialist

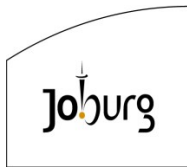
The project tactician who will lead the project management, consulting, design, engineering processes and third-party consulting teams.

Must have the following years' experience:

a **minimum** of 8 years Cathodic Protection (CP) field experience of which:

- 3-4 years must include CP and AC Mitigation (ACM) design for large bore buried steel pipelines (>350mm)
- A training / course certificate or letter is to be presented that demonstrates the CP Specialist has been trained in using the ACM modelling software (as per Eskom requirements) to achieve the nature (scope) of work under this tender.
- 3 years must be in general corrosion prevention

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Relevant Experience in the discipline of Cathodic Protection and AC Mitigation on large pipeline networks

The Corrosion Specialist's experience relevant to this tender will be assessed in terms of the number of years spent productively in the relevant discipline and specifically in the designing of CP and AC mitigating systems. The Corrosion Specialist's CV is to contain the necessary details to permit this assessment to be made.

Relevant Experience in the discipline of General Corrosion Prevention

The Corrosion Specialist's general corrosion prevention involves work experience and knowledge regarding selecting protective coatings and linings, material selection or modifying the environment and will be assessed in terms of the number of years spent in the corrosion field. The CV is to contain the necessary details to permit this assessment to be made.

General

The Corrosion Specialist's CV is to reflect any projects undertaken for local government; state owned entities and or Department of Water Affairs regarding large bore buried pipelines.

Ambiguous, over generalized, outdated, or non-specific CV submissions must be omitted. The CV must clearly show the years relevant experience in all areas of pipeline condition assessment, cathodic protection, ac mitigation, general corrosion, and working on large, buried pipeline networks.

PSCP 14 FAILURE TO MEET THE MINIMUM WILL LEAD TO REFUSAL OF THE SPECIALIST.

Cathodic Protection (CP) Technician

The Cathodic Protection (CP) Technician will monitor and evaluate the design implementation, carry out the field engineering processes and relevant corrosion and ac mitigation investigations.

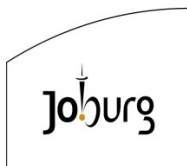
Must have the following years' experience:
a **minimum** of 5 years Cathodic Protection (CP) field experience of which:

- 2-3 years must include AC Mitigation (ACM) field experience.
- 2 years must be in general corrosion prevention

Relevant Experience in the discipline of Cathodic Protection on large pipeline networks

The Cathodic Protection Technician's experience relevant to this tender must be assessed in terms of the number of years spent productively in the relevant discipline of CP systems. The CP Technician's CV is to contain the necessary details to permit

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this assessment to be made.

Relevant Experience in the discipline of General Corrosion Prevention

The Corrosion Technician's general corrosion prevention engineering involves work experience and knowledge regarding selecting corrosion protective coatings and linings, material selection or modifying the environment will be assessed in terms of the number of years spent in the corrosion field. The CV is to contain the necessary details to permit this assessment to be made.

General

The CP Technician CV is to reflect any projects undertaken for local government, state owned entities and or Department of Water Affairs regarding large bore pipelines.

Ambiguous, over generalized, outdated, or non-specific CV submissions will be omitted during the evaluation process. The CV must clearly show the years relevant experience in all areas of cathodic protection, general corrosion prevention and working on large, buried pipeline networks.

**PSCP 15 FAILURE TO MEET THE MINIMUM REQUIREMENTS WILL LEAD TO REFUSAL
OF THE SPECIALIST.**

Cathodic Protection (CP) Tester

The CP Tester must have a minimum 3 years Cathodic Protection and General Corrosion Prevention experience and will be responsible for observing, recording, or measuring the effectiveness of galvanic and or impressed current CP systems.

Relevant Experience in the discipline of Cathodic Protection on large pipeline networks

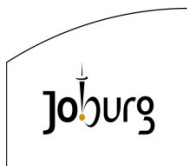
The Cathodic Protection Tester experience relevant to this tender must be assessed in terms of the number of years spent productively in the relevant discipline of CP systems. The CP Tester's CV is to contain the necessary details to permit this assessment to be made.

Relevant Experience in the discipline of General Corrosion Prevention

The Corrosion Tester's general corrosion prevention engineering involves work experience and knowledge regarding basic material selection and or modifying the environment and must be assessed in terms of the number of years spent in the corrosion field. The CV is to contain the necessary details to permit this assessment to be made.

General

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The CP Tester CV is to reflect any projects undertaken for local government, state owned entities and or Department of Water Affairs regarding large bore pipelines.

Ambiguous, over generalized, outdated, or non-specific CV submissions must be omitted in the evaluation process.

**PSCP 16 FAILURE TO MEET THE MINIMUM REQUIREMENTS WILL LEAD TO REFUSAL
OF THE SPECIALIST.**

Cathodic Protection (CP) Technical Assistants

The Cathodic Protection Technical Assistants are to have a minimum of 18-months field experience, in the discipline relevant to this tender.

Ambiguous, over generalized on non-specific CV submissions must be omitted from the evaluation process.

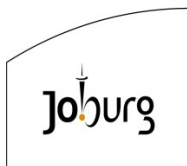
**PSCP 17 FAILURE TO MEET THE MINIMUM REQUIREMENTS WILL LEAD TO REFUSAL
OF THE SPECIALIST.**

Duties

The employer reserves the right to suspend the work on this project at the completion of any of the stages. In this event the work will be deemed to be concluded and no additional fees will be payable. The duties to be performed by the Key Persons are of a resident nature (within 100 km radius from JW Headquarters in Newtown, Johannesburg) as daily input may be required from the Service Provider's local office during the project.

Failure to meet the minimum requirements, as set out above, may lead to rejection of the service provider by the Employer and the Contractor would be required to source a compliant service provider at the tendered rates.

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PORTION 4: ELECTRICAL SPECIFICATIONS

NOTICE TO TENDERERS

1. The tenderer for the principal contract shall submit additional information regarding the installer of the Electrical Installation together with the returnables enclosed with the tender enquiry documents

PART 1 - GENERAL

1 TESTS

After completion of the works and before first delivery is taken, a full test will be carried out on the installation for a period of sufficient duration to determine the satisfactory working thereof. During this period the installations will be inspected, and the Contractor shall make good, to the satisfaction of the Representative/Agent, any defects which may arise.

The Contractor shall provide all instruments and equipment required for testing and any water, power and fuel required for the commissioning and testing of the installations at completion.

2 MAINTENANCES OF INSTALLATIONS

With effect from the date of the First Delivery Certificate the Contractor shall at his own expense undertake the regular servicing of the installation during the maintenance period and shall make all adjustments necessary for the correct operation thereof.

If during the said period the installations is not in working order for any reason for which the Contractor is responsible, or if the installations develops defects, he shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however be so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory during the said period the Contractor shall, if called upon by the Representative/Agent or the Director-General, at his own expense replace the whole of the installations or such parts thereof as the Representative/Agent or the Director-General may deem necessary with apparatus specified by the Representative/Agent or the Director-General.

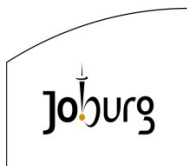
3 REGULATIONS

The installation shall be erected and tested in accordance with the SANS Regulations.

4 NOTICES AND FEES

The Contractor shall give all notices required by and pay all necessary fees, including any inspection fees, which may be due to the local Supply Authority.

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On production of the official account, only the net amount of the fee charged by the Supply Authority for connection of the installation to the supply mains will be refunded to the Contractor by the Client.

5 SCHEDULE OF FITTINGS

In all instances where schedule of light, socket outlet and power points are attached to or included on the drawings, these schedules are to be regarded as forming part of the specification.

6 QUALITY OF MATERIALS

Only materials of first-class quality shall be used, and all materials shall be subject to the approval of the Principal Agent/Client.

Wherever applicable the material is to comply with the relevant SANS standards, specifications, or to British Standard Specifications, where no SABS Specifications exist.

Materials wherever possible, must be of South African manufacture.

7 CONDUIT AND ACCESSORIES

The type of conduit and accessories required for the service, i.e., whether the conduit and accessories shall be of the screwed type, plain-end type or of the non-metallic type and whether metallic conduit shall be galvanised, is specified in Part 2 of this specification.

Unless other methods of installation are specified for certain circuits, the installation shall be in conduit throughout. No open wiring in roof spaces or elsewhere will be permitted.

The conduit and conduit accessories shall comply fully with the applicable SABS specifications as set out below and the conduit shall bear the mark of approval of the South African Bureau of Standards.

- a) Screwed metallic conduit and accessories: SANS 1065, parts 1 and 2.
- b) Plain-end metallic conduit and accessories: SANS 1065, parts 1 and 2.
- c) Non-metallic conduit and accessories: SANS 950

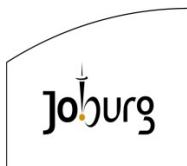
All conduit fittings except couplings, shall be of the inspection type. Where cast metal conduit accessories are used, these shall be of malleable iron. Zinc base fittings will not be allowed.

Bushes used for metallic conduit shall be brass and shall be provided in addition to locknuts at all points where the conduit terminates at switchboards, switchboxes, draw-boxes, etc.

Draw-boxes are to be provided in accordance with the "Wiring Code" and wherever necessary to facilitate easy wiring.

For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm. In all other instances the sizes of conduit shall be in accordance with the "Wiring Code" for the specified number and size of conductors, unless otherwise directed in part 2 of this specification or indicated on the drawings.

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Only one manufactured type of conduit and conduit accessories will be permitted throughout the installation.

Running joints in screwed conduit are to be avoided as far as possible and all conduit systems shall be set or bent to the required angles. The use of normal bends must be kept to a minimum with exception of larger diameter conduits where the use of such bends is essential.

All metallic conduits shall be manufactured of mild steel with a minimum thickness of 1,2mm for plain-end conduit and 1,6mm in respect of screwed conduit.

Under no circumstances will conduit having a wall thickness of less than 1,6mm be allowed in screeding laid on top of concrete slabs.

Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems. Damage to conduit resulting from the use of incorrect bending apparatus or methods applied must on indication by the Client's inspectorate staff, be completely removed and rectified and any wiring already drawn into such damaged conduits must be completely renewed at the Contractor's expense.

Conduit and conduit accessories used for flame-proof or explosion proof installations and for the suspension of luminaires as well as all load bearing conduit shall in all instances be of the metallic screwed type.

Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the local electricity supply authority prior to the submission of their tender. Under no circumstances will consideration be given by the Client to any claim submitted by the Contractor, which may result from a lack of knowledge in regard to the supply authority's requirements.

8 CONDUIT IN ROOF SPACES

Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5m by means of saddles screwed to the roof timbers.

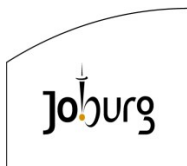
Nail or crampets will not be allowed.

Where non-metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450 mm. The Contractor shall supply and install all additional supporting timbers in the roof space as required.

Under flat roofs, in false ceilings or where there is less than 0,9m of clearance, or should the ceilings be insulated with glass wool or other insulating material, the conduit shall be installed in such a manner as to allow for all wiring to be executed from below the ceilings.

Conduit runs from distribution boards shall, where possible terminate in fabricated sheet steel draw-boxes installed directly above or in close proximity to the boards.

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9 SURFACE MOUNTED CONDUIT

Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified under Part 2 of the specification, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

The use of inspection bends is to be avoided and instead the conduit shall be set uniformly, and inspection coupling used where necessary.

No threads will be permitted to show when the conduit installation is complete, except where running couplings have been employed.

Running couplings are only to be used where unavoidable and shall be fitted with a sliced couplings as a lock nut.

Conduit is to be run on approved spaced saddles rigidly secured to the walls.

Alternatively, fittings, tees, boxes, couplings etc., are to be cut into the surface to allow the conduit to fit flush against the surface. Conduit is to be bedded into any wall irregularities to avoid gaps between the surface and the conduit.

Crossing of conduits is to be avoided, however, should it be necessary purpose-made metal boxes are to be provided at the junction. The finish of the boxes and positioning shall be in keeping with the general layout.

Where several conduits are installed side by side, they shall be evenly spaced and grouped under one purpose-made saddle.

Distribution boards, draw-boxes, industrial switches, and socket outlets etc., shall be neatly recessed into the surface to avoid double sets.

In situations where there are no ceilings the conduits are to be run along the wall plates and the beams. Painting of surface conduit shall match the colour of the adjacent wall finishes.

Only approved plugging materials such as aluminium inserts, fibre plugs, plastic plugs, etc., and round-head screws shall be used for fixing saddles, switches, socket outlets, etc., to walls, wood plugs and the plugging in joints in brick walls are not acceptable.

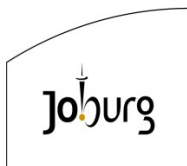
10 CONDUIT IN CONCRETE SLABS

In order not to delay building operations the Contractor must ensure that all conduits and other electrical equipment which are to be cast in the concrete columns and slabs are installed in good time.

The Contractor shall have a representative in attendance at all times when the casting of concrete takes place.

Draw-boxes, expansion joint boxes and round conduit boxes are to be provided where necessary. Sharp bends of any nature will not be allowed in concrete slabs.

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Draw and/or inspection boxes shall be grouped under one common cover plate and must preferably be installed in passages or male toilets.

All boxes, etc., are to be securely fixed to the shuttering to prevent displacement when concrete is cast. The conduit shall be supported and secured at regular intervals and installed as close as possible to the neutral axis of concrete slabs and/or beams.

Before any concrete slabs are cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

11 FLEXIBLE CONNECTIONS FOR CONNECTING UP OF STOVES, MACHINES, ETC.

Flexible tubing connections shall be of galvanised steel construction, and in damp situations of the plastic sheathed galvanised steel type. Other types may only be used subject to the prior approval of the Client's site electrical representative.

Connectors for coupling onto the flexible tubing shall be of the gland or screw-in types, manufactured of either brass or cadmium or zinc plated mild steel, and the connectors after having been fixed onto the tubing, shall be durable and mechanically sound.

Aluminium and zinc alloy connectors will not be acceptable.

12 WIRING:

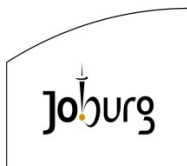
Except where otherwise specified in Part 2 of this specification, wiring shall be carried out in conduit throughout. Only one circuit per conduit will be permitted.

No wiring shall be drawn into conduit until the conduit installation has been completed and all conduit ends provided with bushes. All conduits to be clear of moisture and debris before wiring is commenced.

Unless otherwise specified in Part 2 of this specification or indicated on the service drawings, the wiring of the installation shall be carried out in accordance with the "Wiring Code". Further to the requirements concerning the installation of earth conductors to certain light points as set out in the "Wiring Code", it is a specific requirement of this document that where plain-end metallic conduit or non-metallic conduit has been used, earth conductors must be provided and drawn into the conduit with the main conductors to all points, including all luminaires and switches throughout the installation.

Wiring for lighting circuits is to be carried out with 2,5mm² conductors and a 2,5mm²-earth conductor. For socket outlet circuits the wiring shall comprise 4mm² conductors and a 2,5mm²-earth conductor. In certain instances, as will be directed in Part 2 of this specification, the sizes of the aforementioned conductors may be increased for specified circuits. Sizes of conductors to be drawn into conduit in all other instances, such as feeders to distribution boards, power points etc., shall be as specified elsewhere in this specification or indicated on the drawings. Sizes of conductors not specified must be determined in accordance with the "Wiring Code".

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The loop-in system shall be followed throughout, and no joints of any description will be permitted.

The wiring shall be done in PVC insulated 600/1000 V grade cable to SANS 1507.

Where cable ends connect onto switches, luminaires etc., the end strands must be neatly and tightly twisted together and firmly secured. Cutting away of wire strands of any cable will not be allowed.

13 SWITCHES AND SOCKET OUTLETS

All light switches shall be installed at 1,2m above finished floor level and all socket outlets as directed in the Schedule of Fittings which forms part of this specification or alternatively the height of socket outlets may be indicated on the drawings.

14 SWITCHGEAR

Switchgear, which includes circuit breakers, iron-clad switches, interlocked switch-socket outlet units, contactors, time switches, etc., shall be equal and similar in quality to such brands as may be specified.

For uniform appearance of switchboards, only one approved make of each of the different classes of switchgear mentioned in the Quality Specifications shall be used throughout the installations.

15 SWITCHBOARDS/DISTRIBUTION BOARDS

All boards shall be in accordance with the types as specified, be constructed according to the detail or type drawings and must be approved by the Engineer/Client before installation.

In all instances where provision is to be made on boards for the supply authority's main switch and/or metering equipment the contractor must ensure that all requirements of the authorities concerned in this respect are met.

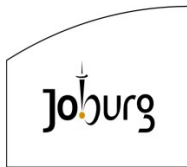
All outdoor distribution boards shall be weather and vermin proof and shall be mounted on a plinth and have brick work around it except in front of the doors. All outdoor distribution boards shall be made from CR12 metal.

Any construction or standard type aboard proposed, as an alternative to that specified must have the prior approval of the Client.

All busbars, wiring, terminals, etc., are to be adequately insulated and all wiring is to enter the switchgear from the back of the board. The switchgear shall be mounted within the boards to give a flush front panel. Cable and boxes and other ancillary equipment must be provided where required.

Clearly engraved labels are to be mounted on or below every switch. The working of the labels in English and Afrikaans, is to be according to the lay-out drawings or as directed by the Client's representative and must be confirmed on site. Flush mounted boards to be installed with the top of the board not more than 2,0m above the finished floor level.

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16 WORKMANSHIP AND STAFF

Except in the case of electrical installations supplied by a single-phase or three-phase electricity supply at the point of supply, an accredited person shall exercise general control over all electrical installation work being carried out.

The workmanship shall be of the highest grade and to the satisfaction of the Client.

All inferior work shall, on indication by the Client's inspecting officers, immediately be removed and rectified by and at the expense of the Contractor.

17 CERTIFICATE OF COMPLIANCE

On completion of the service, a certificate of compliance must be issued to the Client's Representative/Agent in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

18 EARTHING OF INSTALLATION

Main earthing

The type of main earthing must be as required by the supply authority if other than the Clients, and in any event as directed by the Client's representative, who may require additional earthing to meet test standards.

Where required an earth mat shall be provided, the minimum size, unless otherwise specified, being 1,0m x 1,0m and consisting of 4mm diameter hard-drawn bare copper wires at 250mm centres, brazed at all intersections.

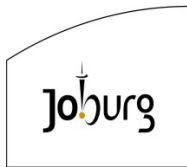
Alternatively, or additionally earth rods or trench earths may be required as specified or directed by the Client's authorised representative.

Installations shall be effectively earthed in accordance with the "Wiring Code" and to the requirements of the supply authority. All earth conductors shall be stranded copper with or without green PVC installation.

Connection from the main earth bar on the main board must be made to the cold water main, the incoming service earth conductor, if any and the earth mat or other local electrode by means of 12mm x 1,60 mm solid copper strapping or 16 mm² stranded (not solid) bare copper wire or such conductor as the Client's representative may direct. Main earth copper strapping, where installed below 3m from ground level, must be run in 20 mm diameter conduit securely fixed to the walls.

All other hot and cold-water pipes shall be connected with 12mm x 0,8mm perforated for solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipework with brass nuts and bolts and against walls with brass screws at 150-mm centres. In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6m of switchboards an earth connection consisting of copper strapping shall be installed between the pipework and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each distribution board.

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Witness:		Witness:	



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Roofs, gutters and down pipes

Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes shall be earthed. One bare 10mm² copper conductor shall be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor and each switchboard. The roof and gutters shall be connected at 15m intervals to this conductor by means of 12mm X 0,8mm copper strapping (not conductors) and galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

Sub-distribution boards

A separate earth connection shall be supplied between the earth busbar in each sub-distribution board and the earth busbar in the Main Switchboard. These connections shall consist of bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors. Alternatively, armoured cables with earth continuity conductors included in the armouring may be utilised where specified or approved.

Sub-circuits

The earth conductors of fall sub-circuits shall be connected to the earth busbar in the supply board in accordance with SANS 10142.

Ring Mains

Common earth conductors may be used where various circuits are installed in the same wire way in accordance with SANS 10142. In such instances the sizes of earth conductors shall be equivalent to that of the largest current carrying conductor installed in the wire way, alternatively the size of the conductor shall be as directed by the Engineer. Earth conductors for individual circuits branching from the ring main shall be connected to the common earth conductor with T-ferrules or soldered. The common earth shall not be broken.

Non-metallic Conduit

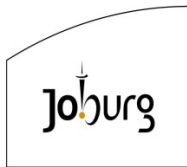
Where non-metallic conduit is specified or allowed, the installation shall comply with the Client's standard quality specification for "conduit and conduit accessories".

Standard copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including metal switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

Flexible Conduit

An earth conductor shall be installed in all non-metallic flexible conduits. This earth conductor shall not be installed externally to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

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Connection

Under no circumstances shall any connection points, bolts, screws, etc., used for earthing be utilised for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided.

Unless earth conductors are connected to proper terminals, the end shall be tinned and lugged.

19 MOUNTING AND POSITIONING OF LUMINAIRES

The Contractor is to note that in the case of board and acoustic tile ceilings, i.e., as opposed to concrete slabs, close co-operation with the building contractor is necessary to ensure that as far as possible the luminaires are symmetrically positioned with regard to the ceiling pattern.

The layout of the luminaires as indicated on the drawings must be adhered to as far as possible and must be confirmed with the Client's representative.

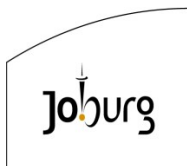
Fluorescent luminaires installed against concrete ceilings shall be screwed to the outlet boxes and in addition 2 x 6mm expansion or other approved type fixing bolts are to be provided. The bolts are to be $\frac{3}{4}$ of the length of the luminaires apart.

Fluorescent luminaires to be mounted on board ceilings shall be secured by means of two 40mm x No. 10 round head screws and washers. The luminaires shall also be bonded to the circuit conduit by means of locknuts and brass bushes. The fixing screws are to be placed $\frac{3}{4}$ of the length of the fitting apart.

Earth conductors must be drawn in with the circuit wiring and connected to the earthing terminal of all fluorescent luminaires as well as other luminaires exposed to the weather in accordance with the "Wiring Code".

Incandescent luminaires are to be screwed directly to outlet boxes in concrete slabs. Against board ceilings the luminaires shall be secured to the bracing or joists by means of two 40mm x No. 8 round head screws.

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PART 2: INSTALLATION DETAILS

1 CABLE SLEEVE PIPES

Where cables cross under roadways, other services and where cables enter buildings, the cables shall be installed in high-density polyethylene (HDPE) sleeves.

The ends of all sleeves shall be sealed with a non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed.

2 NOTICES

The Contractor shall issue all notices and make the necessary arrangements with Supply Authorities, the Postmaster-General, and S.A. Transport Services, Provincial or National Road Authorities and other authorities as may be required with respect to the installation.

3 ELECTRICAL EQUIPMENT

All equipment and fittings supplied must be suitable for the relevant supply voltage and frequency and must be approved by the Client's representative.

4 DRAWINGS

The drawings generally show the scope and extent of the proposed work and shall not be held as showing every minute detail of the work to be executed.

The position of power points, switches and light points that may be influenced by built-in furniture must be established on site, prior to these items being built in.

5 BALANCING OF LOAD

The Contractor is required to balance the load as equally as possible over the multiphase supply.

6 SERVICE CONDITIONS

All plant shall be designed for the climatic conditions appertaining to the service.

7 SWITCHES AND SOCKET OUTLETS

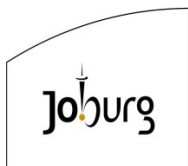
The installation of switches and socket outlets must conform to clause 13 of Part 1 of this specification.

8 LIGHT FITTINGS AND LAMPS

The installation and mounting of luminaires must conform with clause 19 of Part 1 of this specification.

All fittings to be supplied by the Contractor shall have the approval of the Client. All light fittings shall bear the approved mark of the S.A.B.S.

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The light fittings must be of the type specified in the Schedule of Light Fittings.

9 EARTHING AND BONDING

The Contractor will be responsible for all earthing and bonding of the building and installation. The earthing and bonding is to be carried out strictly as described in clause 18 of Part 1 of this specification and to the satisfaction of the Client's representative.

10 MAINTENANCE OF ELECTRICAL SUPPLY

All interruptions of the electrical supply, that may be necessary for the execution of the work, will be subject to prior arrangement between the Contractor and the user Client and the Client's representative.

11 EXTENT OF WORK

The work covered by this contract comprises the complete electrical installation, in working order, as shown on the drawings and as per this specification, including the supply and installation of all fittings and also the installation of such equipment supplied by the Client.

12 SUPPLY AND CONNECTION

The supply will be at 400/230 Volt 50Hz.

The Contractor will be responsible for the supply and installation of the supply cable from the meter box to the main low-tension distribution board (MDB). The size and length of the cable is listed and measured in the Bills of Quantities.

13 CONDUIT AND WIRING

Conduit and conduit accessories shall be galvanised screwed conduit or galvanised plain end conduit.

All conduits, regardless of the system employed, shall be installed strictly as described in the applicable paragraphs of clauses 4 to 8 of Part 1 of the specification. Wiring of the installation shall be carried out as directed in clause 9 part 1 of this specification.

Where plain end conduit is offered all switches and light fittings must be supplied with a permanent earth terminal for the connection of the earth wire.

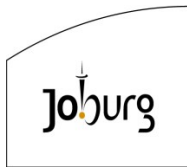
Lugs held by switch fixing screws or self tapping screws will not be acceptable.

14 CABLES

The Contractor shall supply and completely install all distribution cables as indicated on the drawings and listed in the Schedule of Cables.

The storage, transportation, handling and laying of the cables shall be according to first class practice,

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and the contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operations.

The cable-trenches shall be excavated to a depth of 0,9m deep below ground level and shall be 450mm wide for one to three cables, and the width shall be increased where more than three cables are laid together so that the cables may be placed at least two cable diameters apart throughout the run. The bottom of the trench shall be level and clean and the bottom and sides free from rocks or stones liable to cause damage to the cable.

The Contractor must take all necessary precautions to prevent the trenching work being in any way a hazard to the personnel and public and to safeguard all structures, roads, sewage works or other property on the site from any risk of subsidence and damage.

In the trenches the cables shall be laid on a 75mm thick bed of earth and be covered with a 150mm layer of earth before the trench is filled in.

All joints in underground cables and terminations shall be made either by means of compound filled boxes according to the best established practice by competent cable jointers using first class materials or by means of approved epoxy-resin pressure type jointing kits such as "Scotchcast". Epoxy-resin joints must be made entirely in accordance with the manufacturer's instructions and with materials stipulated in such instructions. Low tension PVCA cables are to be made off with sealing glands and materials designed for this purpose which must be of an approved make. Where cables are cut and not immediately made off,

the ends are to be sealed without delay.

The laying of cables shall not be commenced until the trenches have been inspected and approved. The cable shall be removed from the drum in such a way that no twisting, tension, or mechanical damage is caused and must be adequately supported at intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after drawing in of the cables.

Backfilling (after bedding) of the trenches is to be carried out with a proper grading of the material to ensure settling without voids, and the material is to be tamped down after the addition of every 150mm. The surface is to be made good as required.

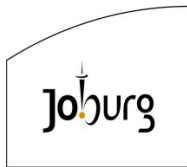
On each completed section of the laid and jointed cable, the insulation resistance shall be tested to approval with an approved "Megger" type instrument of not less than 500V for low tension cables.

Earth continuity conductors are to be run with all underground cables constituting part of a low-tension distribution system. Such continuity conductors are to be stranded bare copper of a cross-sectional area equal to at least half that of one of the live conductors of the cable but shall not be less than 2.5mm². A single earth wire may be used as earth continuity conductor for two or more cables run together, branch earth wires being brazed on where required.

14.1 LAYING, JOINTING AND MAKING OFF OF ELECTRICAL CABLES

[The requirements specified hereafter, are aimed essentially at high tension cable but are also

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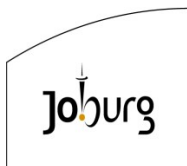


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valid for low tension cable, where applicable.]

1. The use of the term "Inspector" includes the engineer or inspector of the Client or an empowered person of the concerned supervising consulting engineer's firm.
2. No cable is to be laid before the cable trench is approved and the soil qualification of the excavation is agreed upon by the Contractor and inspector.
3. After the cable has been laid and before the cable trench is back-filled the inspector must ensure that the cable is properly bedded and that there is no undesirable material included in the bedding layer.
4. All cable jointing and the making-off of the cables must only be carried out by qualified experienced cable jointers. Helpers of the jointers may not saw, strip, cut, solder, etc. The cable and other work undertaken by them must be carried out under the strict and constant supervision of the jointer.
5. Before the Contractor allows the jointer to commence with the jointing work or making off of the cable (making off is recognized as half a joint) he must take care and ensure:
 - 5.1 that he has adequate and suitable material available to complete the joint properly and efficiently. Special attention must be given to ensure the cable ferrules and cable lugs are of tinned copper and of sufficient size. The length of the jointing lugs must be at least six times the diameter of the conductor,
 - 5.2 that the joint pit is dry and that all loose stones and material are removed,
 - 5.3 that the walls and banks of the joint pit are reasonable firm and free from loose material which can fall into the pit,
 - 5.4 that the necessary cofferdams or retaining walls are made to stop the flow of water into the joint pit,
 - 5.5 that the joint pit is provided with suitable groundsheets so that the jointing work is carried out in clean conditions,
 - 5.6 that the necessary tents or sails are installed over the joint pit to effectively avert unexpected rainfall and that sufficient light or lighting is provided,
 - 5.7 that the necessary means are available to efficiently seal the jointing or cable end when an unexpected storm or cloudburst occurs, regardless of how far the work has progressed,
 - 5.8 that the cables and other materials are dry, undamaged and in all respects are suitable for the joint work or making off,
 - 5.9 that the heating of cable oil, cable compound, plumbers' metal and solder is arranged that they are at the correct temperature when required so that the cable is not unnecessarily exposed to the atmosphere and consequently the ingress of moisture (care must be taken of overheating)

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Flow temperatures of cable oil and compound must be determined with suitable thermometers. Cable oil and compound must not be heated to exceed the temperatures given on the containers and precaution must be taken to ensure that the tin is not overheated in one position. The whole mass must be evenly and proportionally heated.

(Temperatures of solder and plumbers' metal may be tested with brown paper (testing time: 3 seconds). The paper must colour slightly - not black or burnt.

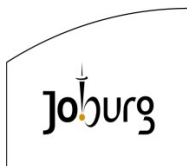
6. Before the paper-insulated cables are joined, they must be tested for the presence of moisture by the cable jointers test. This consists of the insertion of a piece of unhandled insulated impregnated paper tape in warm cable oil heated to a temperature of $130 \pm 5^{\circ}\text{C}$.

Froth on the surface of the oil is an indication that moisture is present in the impregnated insulation and the amount of the froth gives an indication of the moisture present.

7. If the cable contains moisture or is found to be otherwise unsuitable for jointing or making of the inspector is to be notified immediately and he will issue the necessary instruction to cope with the situation.
8. The joint or making off of paper insulated cables must not be commenced during rainy weather.
9. Once a joint is in progress the jointer must proceed with the joint until it is complete and before he leaves the site.
10. The jointer must ensure that the material and his tools are dry at all times, reasonably clean and absolutely free from soil.
11. Relating to the jointing of the cable the following requirements apply:
 - 11.1 All jointing must be carried out in accordance with recognized and tried techniques and comply strictly with the instructions given by the supplier of the jointing kit.
 - 11.2 The cables must be twisted by hand so that the cores can be joined according to the core numbers. If necessary, the cable is to be exposed for a short distance to accomplish this. Under no circumstances may the cores in a joint be crossed so as to enable cores to be joined according to the core numbers. If it is not possible to twist the cables so that the preceding requirements can be met, then cores are to be joined in the normal way without any consideration of the core numbers.
 - 11.3 Normally the cables will have profile conductors. The conductors shall be pinched with gas pliers to form a circular section, bound with binding wire so that they do not spread, and then tinned before jointing.
 - 11.4 Jointing ferrules, the length of which are at least 6 times the diameter of the conductors, must be slid over the conductor ends to be joined and pinched tightly. Then they are soldered by means of the ladle process whilst being pinched further closed.

Use resin only as a flux. The slot opening in the ferrule must be filled, including all depressions.

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Remove all superfluous metal with a cloth dipped in tallow. Work during the soldering process must be from top to bottom. Rub the ferrule smooth and clean with aluminium oxide tape after it has cooled down to ensure that there are not any sharp points or edges.

NB: The spaces between the conductor strands must be completely filled by soldering process and must be carried out quick enough to prevent the paper insulation from burning or drying out unnecessarily.

11.5 After the ferrules have been rubbed smooth and clean, they and the exposed cores must be treated with hot cable oil (110°C) to remove all dust and moisture. These parts are to be thoroughly basted with the oil.

11.6 The joiner must take care that his hands are dry and clean before the joint is insulated. Also the insulating tape which is to be used must first be immersed in warm cable oil (110°C) for a sufficient period to ensure that no moisture is present.

11.7 After the individual cores have been installed, they must be well basted with hot cable oil and again after the applicable separator and/or belt insulation tape is applied before the lead joint sleeve is placed in position.

11.8 The lead joint sleeve must be thoroughly cleaned and prepared before it is placed on the cable and must be kept clean during the whole jointing process. Seal the filling apertures of the sleeve with tape until the sleeve is ready for compound filling.

11.9 The plumbing joints employed to solder the joint sleeve to the cable sheath, must be cooled off with tallow and the joint sleeve is to be filled with compound while it is still warm. Top up continuously until the joint is completely filled to compensate for the compound shrinkage.

11.10 The outer joint box must be clean and free from corrosion. After it has been placed in position it must be slightly heated before being filled with compound. Top up until completely full.

12. As far as cable end boxes are concerned the requirements as set out above are valid where applicable.

15. DISTRIBUTION BOARDS

In addition to clause 14 and clause 15 of Part 1 of this specification the following shall also be applicable to switchboards required for this service.

The Contractor shall supply and install the distribution boards as indicated on the drawings and listed in the distribution Board Schedule. All distribution be approved by the Client's representative.

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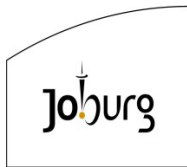
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16. SCHEDULE OF LIGHT FITINGS

The light fittings and accessories shall be approved by the Client/Clients representative.

TYPE	DESCRIPTION	PICTURE	LOCATION
TYPE A	48W LED Panel recessed light fitting (1200x600mm) Beka LED Panel – or similar approved		Offices, consulting rooms, waiting areas, etc
TYPE AS	48W LED Panel surface mounted light fitting (1200x600mm) Beka LED Panel – or similar approved		Offices, consulting rooms, waiting areas, etc
TYPE C	18W LED rectangular bulkhead, wall mounted		Outside walls
TYPE E	36W LED batten, ceiling mounted		Kitchen, Storerooms
TYPE F	1xE27 decorative bulkhead with 1x15W LED lamp		outdoor walls
TYPE G	2xE27 decorative ceiling light fitting with 2x15W LED lamps		Residence
Type H	1xE27 decorative bathroom ceiling light fitting with 1x15W LED lamps		Bathroom & Toilet

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Type HB	100W LED high bay light fitting suspended at 4000mm AFFL complete with suspending accessories		Above counter
Type R	9W LED wall light fitting with red diffuser		Above Strong Room Door
Type W	50W LED flood light fitting, IP65		Outside

17. SCHEDULE OF DISTRIBUTION BOARDS

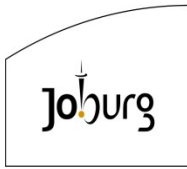
The front panels of normal supply sections shall be painted in distinctive colours as follows:

Normal supply : White

Generator supply : Red

Please see single line drawings attached to this tender.

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Part 4: Site Information

Johannesburg Water (SOC) Ltd



CONTRACT NO: JW14481

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PART 4: SITE INFORMATION

Employer:		Contractor	
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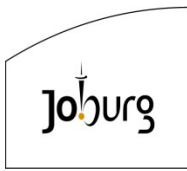


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Employer:		Contractor	
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C4 SITE INFORMATION

GENERAL

This section describes the site at the time of tender to enable the tenderer to price his tender and to decide upon his method of working and programming and risks.

Site Location

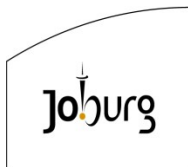
The Ennerdale Depot is located on an existing municipal stand within the Ennerdale Area, 2 James St, Mid-Ennerdale, Ennerdale, 1830, Erf 1701

Access to the site is from the N1 highway, off ramp to Grasmere North Offramp Plaza and turn left into R558 Road if coming from Free State direction however if coming from Johannesburg direction, off ramp left soon after the Grasmere Plaza (S) tollgate and turn right into R558 Road. Continue straight along R558/Ennerdale Road and turn right into James Street. The site is on your immediate right along James Street. At the first T-Junction on James Street turn right and travel for approximately 20m to the site. A security check point is available at the main entrance and entrance to and from the site and access to the site will be controlled via the security check point.

See a locality plan of the site below highlighted in yellow.



Employer:		Contractor	
Witness:		Witness:	



Access To Site And Restrictions

Access to the site is from the N1 highway, off ramp to Grasmere North Offramp Plaza and turn left into R558 Road if coming from Free State direction however if coming from Johannesburg direction, off ramp left soon after the Grasmere Plaza (S) tollgate and turn right into R558 Road. Continue straight along R558/Ennerdale Road and turn right into James Street. The site is on your immediate right along James Street. At the first T-Junction on James Street turn right and travel for approximately 20m to the site. A security check point is available at the main entrance and entrance to and from the site and access to the site will be controlled via the security check point.

Any permission as may become necessary shall be the responsibility of the Contractor to obtain.

Having been granted access to works areas by the Employer, and other service authorities, the Contractor shall adhere to any agreed conditions of access and ensure the works area is left in a condition similar to when it was first accessed.

The Contractor may not operate any valves, sluice gates or any other equipment currently in use on the works without written permission from the treatment works manager.

Existing Services, Servitudes And Wayleaves

The Contractor shall take due care to prevent damage of existing services.

The positions of known services cannot be guaranteed. On establishing on Site, the Contractor must determine the positions of all existing services in the various areas of work. The Contractor must take precautions to prevent any damage to existing services and infrastructure. Damages which might occur will be repaired at the cost of the Contractor.

Security

The Contractor shall be responsible for the security of his personnel, materials, equipment and construction plant on and around the site of the Works and for the security of his camp (if applicable). The Employer in this regard will consider no claims.

Refer to clause PS 6.1 (Security)

Nature Of Ground And Subsoil Conditions

It shall be the Contractor's responsibility to acquaint himself with the conditions of the site.

Employer:		Contractor	
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ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
	SANS 1200 A	SECTION 1 : GENERAL				
1.1	8.3	<u>Contractual Requirements</u>				
1.1.1	PSA 8.3.1	Contractual requirements	Sum	1		
1.1.2		Fixed preliminary and general charges	Sum	1		
	8.3.2	<u>Establishment of facilities on site:</u>				
	8.3.2.1	<u>Facilities for Employers Agent</u>				
1.1.3	8.3.2.1(a)	Provision of a furnished meeting room and office for the Employers Agent's Representative (including all furnishings, facilities and equipment including toilet facilities)	Sum	1		
1.1.4		Provision of survey equipment (PSAB 4.2)	Sum	1		
1.1.5	PSAB 8.1	Contract Nameboard (2 No.) and Identity Boards (2 No.) with supports erected & moved complete. (Refer to PSAB 3.1)	No.	2		
1.1.6		Provision of survey assistants (Refer PSAB 5.5)	Sum	1		
1.1.7		Covered Parking (2 bays) (Refer PSAB 3.3)	Sum	1		
1.1.8		PPE for Engineer, assistants and students	Sum	1		
1.1.9		Security of works	Sum	1		
1.1.10		All other specified facilities (incl wifi internet connection and printer)	Sum	1		
1.1.11	8.3.2.2, 8.3.2.3	<u>Facilities for Contractor</u>				
1.1.11.1		a) Offices and storage sheds	Sum	1		
1.1.11.2		b) Workshops	Sum	1		
1.1.11.3		c) Laboratories	Sum	1		
1.1.11.4		d) Living Accommodation	Sum	1		
1.1.11.5		e) Ablution and latrine facilities	Sum	1		
1.1.11.6		f) Tools and equipment	Sum	1		
1.1.11.7		g) Water supplies, electric power and communications	Sum	1		
1.1.11.8		h) Dealing with water	Sum	1		
1.1.11.9		i) Access	Sum	1		
1.1.11.10		j) Construction Plant and Transport	Sum	1		
1.1.11.11	8.3.4	Remove all site establishment on completion	Sum	1		
1.1.11.12	PSA8.17	Dealing with conditions or permits, Wayleave Agreements, EIA, RoD. (Refer to PSA 4.4.2)	Sum	1		
1.1.11.13		Notices and warnings to consumers	Sum	1		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
TOTAL BROUGHT FORWARD						
1.1.12	PSA 8.8 a	<u>OH&S Requirements (Fixed charges)</u> The sum shall cover all preparation of risk assessments (Annexure D), safe work procedures, the project H&S File, the H&S Plan, medicals for all workers, the provision of PPE and protective clothing, including hazards and potential hazard identification, Standard Working Procedures, and Method Statements and all other costs necessary in complying generally with the Occupational Health and Safety Act 85 of 1993, (as amended), the Construction Regulations 2014 and the Particular Safety Specification (Annexure C)	Sum	1		
1.1.13		Completing and checking the Project H&S File and handing over to Client on completion of the works and exit medicals for all workers.	Sum	1		
1.1.14		<u>HIV / AIDS Awareness</u> Refer to SANS 1921-6 and Annexure F				
		Conduct HIV/AIDS awareness programme workshops on site for not less than 90% of the workers inclusive of all direct and indirect costs (at least once every 4 months)	No.	2		
1.1.15		Provide and maintain condom dispenser	No.	1		
1.1.15		Provide and maintain HIV/AIDS awareness posters	No.	1		
1.1.16		Provide information regarding the voluntary testing of construction workers, counselling, support and care in a monthly report	Sum	1		
1.1.17	PSA 8.15	<u>Environmental Management and EMP</u> The sum shall cover the cost of all activities necessary to comply with section C3.5 and Annexure M of the Environmental Management Particular Specification, and Environmental Management Plan, which incorporates the ROD requirements for the Project, which have not been included in the tendered rates for the scheduled items allowed elsewhere in the bill of quantities	Sum	1		
		Appointment of Safety Officer	Sum	1		
		Appointment of Environmental Officer	Sum	1		
1.2	SANS 1200A	TIME RELATED ITEMS				
1.2.1	PSA 8.4.1	Contractual requirements (including, EPWP, QA and Project Reporting)	Months	6		
TOTAL CARRIED FORWARD						R

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
TOTAL BROUGHT FORWARD						R
	PSA 8.4.2	Operate and maintain facilities on Site				
	8.4.2.1	<u>Facilities for Engineer for duration of contract (SANS 1200AB)</u>				
1.2.2	8.4.2.1 (a)	Provision of meeting room and office for the Engineer's Representative including toilet facilities as per PSAB 5.2 & PSAB 3.2	Months	6		
1.2.3		Provision of survey equipment (Refer to PSAB 4.2)	Months	6		
1.2.4		Provision of 2 № survey assistants (Refer to PSAB 5.5)	Months	6		
1.2.5		Nameboards (2No.)	Months	6		
1.2.6		PPE for Engineer and assistants	Months	6		
1.2.7		Engineer's Office and parking facilities	Months	6		
1.2.7		Security of works	Months	6		
1.2.8	8.4.2.2 8.4.2.3	<u>Facilities for Contractor</u>				
1.2.8.1		a) Offices and storage sheds	Months	6		
1.2.8.2		b) Workshops	Months	6		
1.2.8.3		c) Laboratories	Months	6		
1.2.8.4		d) Living Accommodation	Months	6		
1.2.8.5		e) Ablution and latrine facilities	Months	6		
1.2.8.6		f) Tools and equipment	Months	6		
1.2.8.7		g) Water supplies, electric power and communications	Months	6		
1.2.8.8		h) Dealing with water	Months	6		
1.2.8.9		i) Access	Months	6		
1.2.8.10		j) Construction Plant and Transport	Months	6		
1.2.9	PSA 8.4.3	Supervision for duration of the contract (all supervisory staff not considered labour)	Months	6		
1.2.10	8.4.4	Company and Head Office overhead costs	Months	6		
1.2.11	PSAB 8.20	General responsibilities and other time related obligations	Months	6		
	PSA 8.17	<u>Permits and Wayleaves</u>				
1.2.12		Dealing with conditions of permits, Wayleave Agreements, EIA, RoD (Refer to C3.4.4.8)	Months	6		
TOTAL CARRIED FORWARD						R

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		TOTAL BROUGHT FORWARD				R
1.2.13	PSA 8.8 a	<u>OH&S Requirements (Time charges)</u> Updating and amending the risk assessments, safe work procedures, the project H&S File, the H&S Plan, medicals for all workers, the provision of PPE and protective clothing, including hazards and potential hazard identification, Standard Working Procedures, and Method Statements and all other costs necessary in complying generally with the Occupational Health and Safety Act 85 of 1993, (as amended), the Construction Regulations 2014 and the Particular Safety Specification (Annexure C)	Months	6		
1.2.14		Full compliance and checking the Project H&S File during construction of the works under the Contract.	Months	6		
1.2.15		The sum shall cover all activities necessary in complying with the requirements of the Health and Safety Specification in terms of Training as the Work proceeds	Months	6		
1.2.16		The sum shall cover all activities necessary in complying with the requirements of the Health and Safety Specification in terms of Monitoring and Review as the Work	Months	6		
1.2.17		The sum shall cover the cost of all activities necessary to comply with section C3.5 and Annexure M of the Environmental Management Particular Specification, and Environmental Management Plan, which incorporates the ROD requirements for the Project, which have not been included in the tendered rates for the scheduled items allowed elsewhere in the bill of quantities	Months	6		
1.2.18	PSA 8.4.5	Security in accordance with C3.4.4.6	Months	6		
1.2.19		Any other time related obligations <u>EME's or QSE's</u>	Months	6		
1.2.20	PSA 8.5.4	Contractor to provide manager for dealing with EME's or QSE's for duration of contract to meet local employment and local enterprise targets (Refer to C1.8, C1.9 and C3.4.10 & PSA 5.10)	Months	6		
1.2.21		Dealing with conditions of EME's or QSE's sub-contractors and local/target labour (Refer to C1.9, C3.4.10 & C3.3.2).The tendered rate shall cover all costs including but not limited to procurement, management, administration, overheads, finance costs, transportation, training, risk and profit and any other costs associated on work allocated to EME's or QSE's and targeted labour in order to achieve the required participation goals. (Contractor to allocate packages)	Months	6		
		TOTAL CARRIED FORWARD				R

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
	TOTAL BROUGHT FORWARD					R
1.3	8.5	<u>SUMS STATED PROVISIONALLY BY ENGINEER</u>				
1.3.1		Quality assurance and management plan	Sum	1.0		
1.3.2		Provisional sum for Independent OHS, EMP practitioners	Prov. Sum	1.0		
1.4	8.8 C3.1.5	TEMPORARY WORKS				
1.4.1	PSA 8.7.2	Dealing with traffic or accommodation of traffic and erecting signage (also refer to SANS 1921-2)	Sum	1		
1.4.2	8.8.1 PSA 5.8	Access to works including all temporary roads, excavations and ramps, etc.	Sum	1		
1.4.3	PSA 8.7.6	Dealing with water	Sum	1		
1.4.4	PSA 8.8.4	Dealing with existing infrastructure	Sum	1		
1.4.5	PSA 8.22	Dealing with Public	Sum	1		
1.4.6	PSA 8.18	Barricading of Trenches	Sum	1		
1.4.7	PSA 8.19	Fencing	Sum	1		
1.4.9	PSA 8.22	Allow for the attendance of other Contractors, JW staff and public within the parameters of the site.	Sum	1		
	TOTAL FOR SECTION 1 CARRIED FORWARD TO SUMMARY					R

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
2	SANS 1200A	SECTION 2: DAYWORKS, PROVISIONAL SUMS AND PRIME COST ITEMS				
2.1	8.7 PSA 8.6	DAYWORKS <u>Labour</u>				
2.1.1	8.5 (b.1)	Allow for total remuneration paid to workers	Prov Sum	1	30,000.00	30,000.00
2.1.2	PSA 8.5	Overheads, charges and profit on 2.1.1 above	%	30,000.00		
2.1.3		Team Leader / charge hand	hr	5		
2.1.4		Artisan	hr	10		
2.1.5		Skilled	hr	10		
2.1.6		Semi-skilled	hr	10		
2.1.7		Unskilled	hr	10		
2.1.10		Foreman	hr.	10.0		
2.1.11		Driver (LDV,machine, trucks, etc.)	hr.	10.0		
2.1.12		Certified Blaster	hr.	10.0		
2.1.13		Steel fixer	hr.	10.0		
2.1.14		Concretor	hr.	10.0		
2.1.15		Charge hand	hr.	10.0		
2.1.16		Security guard	hr.	10.0		
		<u>Plant and equipment</u>				
2.1.17		(a) Tractor loader backhoe (TLB) (i) Tractor Loader Backhoe (Bigger than 45kW but smaller than 70kW)	hr.	5.0		
2.1.18		(b) Crawler Excavators (i) Smaller than 93kW (small)	hr.	0.0		
2.1.19		(ii) Bigger than 93kW but smaller than 200kW (Medium)	hr.	0.0		
2.1.20		(c) Tipper Trucks (i) Tipper trucks (3m³) Small	hr.	5.0		
2.1.21		(ii) Tipper trucks (5m³) Medium	hr.	5.0		
2.1.22		(iii) Tipper trucks (10m³) Large	hr.	5.0		
2.1.23		(d) Flat Bed Trucks (i) Flat bed 5t capacity	hr.	8.0		
2.1.24		(ii) Flat bed 7t capacity	hr.	8.0		
2.1.25		(e) LDV (i) 1t Pick-up	hr.	5.0		
2.1.26		(f) Mobile Crane 5t at 3m radius	hr.	5.0		
2.1.27		(g) Walk behind vibrating rollers (i) Model - Bomag 60 or similar (small)	hr.	5.0		
2.1.28		(ii) Model - Bomag 76 or similar (medium)	hr.	0.0		
2.1.29		(iii) Model - Bomag 90 or similar	hr.	0.0		
		TOTAL CARRIED FORWARD			R	

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
TOTAL BROUGHT FORWARD						R
2.1.30		(h) Plate compactors	hr.	5.0		
		(i) Vipac or similar				
2.1.31		(i) Rammers	hr.	5.0		
2.1.32		(i) Model - Wacker or similar				
2.1.33		(j) Concrete mixers	hr.	8.0		
2.1.34		(i) Volume 100 litre wet (small, towable)	hr.	0.0		
2.1.35		(ii) Volume 175 litre wet (medium)	hr.	0.0		
		(iii) Volume 250 litre wet (large)				
		(k) Diesel compressors including hoses and tools	hr	8.0		
2.1.36		(i) Capacity smaller than 200 cfm (small)	hr.	0.0		
2.1.37		(ii) Capacity bigger than 200 cfm smaller than 400 cfm (medium)	hr.	0.0		
2.1.38		(iii) Capacity bigger than 400 cfm (large)	hr.	0.0		
2.1.39		(l) Waterpump				
2.1.40		(i) Capacity smaller than 400 litre/min	hr	4.0		
2.1.41		(ii) Capacity bigger than 400 but smaller than 600 litre/min (medium)	hr	0.0		
2.1.42		(iii) Capacity bigger than 600 but smaller than 1 100 litre/sec (large)	hr	0.0		
Materials						
2.1.43	8.5 (a, b1)	Net cost of goods or materials	Prov Sum	1	50,000.00	50,000.00
2.1.44	PSA 8.5	Overheads, charges and profit on 2.1.8 above	%	50,000.00		
Contractors own Plant						
2.1.45	8.5 (a)	Allow for all-inclusive cost of using Contractor's own plant on site.	Prov Sum	1		
Plant hired by the Contractor						
2.1.46	8.5 (b.1)	Net cost of hired plant	Prov Sum	1		
2.1.47	PSA 8.5	Overheads, charges and profit on 2.1.11 above	%	25,000.00		
Survey Beacons/Pegs						
2.1.48	8.5 (a)	Search for, record, reference and protect survey stations, bench marks, erf boundary pegs and other reference pegs and expose on completion of works	Sum	1		
2.2	8.5 PSA 8.5	SUMS STATED PROVISIONALLY BY THE ENGINEER				
2.2.1		Cellphone allowance for the Employers Agent Representative and their assistant for the duration of the contract (R1500 pm)	Prov Sum	1	9,000.00	9,000.00
2.2.2		Overheads, charges and profit on 2.2.1 above	%	9,000.00		
TOTAL CARRIED FORWARD						R

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
TOTAL BROUGHT FORWARD						R
2.2.7		Equipment for the Employers Agent Representative and their assistant for the duration of the contract	Prov Sum	1	10,000.00	10,000.00
2.2.8		Overheads, charges and profit on 2.2.7 above	%	10,000.00		
		<u>Survey</u>				
2.2.9		Ad-hoc topographical survey as requested by the Engineer during the contract	Prov Sum	1	12,000.00	12,000.00
2.2.10		Overheads, charges and profit on 2.2.9 above	%	12,000.00		
	PSA 8.5.3	<u>Community Liason Officer and Consultant</u>				
2.2.11	a)	Employment of the CLO for duration of contract who shall be appointed by the Contractor and shall report to the Engineer and the Client (R8500 pm plus R500 pm cellphone allowance) (refer C3.4.7)	Prov Sum	1	81,000.00	81,000.00
2.2.12	b)	Overheads, charges and profit on 2.2.11	%	81,000.00		
2.2.13		Employment of a social consultant for duration of contract	Prov Sum	1	81,000.00	81,000.00
2.2.14	PSA 8.5	Overheads, charges and profit on 2.2.13	%	81,000.00		
	PSA 8.12 PSA 8.13	<u>Training</u>				
2.2.15		Allowance for training of local unskilled labour	Prov Sum	1	150,000.00	150,000.00
2.2.16	PSA 8.5	Overheads, charges and profit on 2.2.15	%	150,000.00		-
2.2.17	PSA 8.14	Allowance for transport	Prov Sum	1	25,000.00	25,000.00
2.2.18		Overheads, charges and profit on 2.2.17	%	25,000.00		
	Spec PC	<u>Re-vegetation</u>				
2.2.19		Re-vegetation of the site	Prov Sum	1	15,000.00	15,000.00
2.2.20	PSA 8.5	Overheads, charges and profit on 2.2.19	%	15,000.00		-
		<u>Pipework</u>				
2.2.21		Connection to existing / proposed pipework	Prov Sum	1	15,000.00	15,000.00
2.2.22		Overheads, charges and profit on 2.2.21	%	15,000.00		
		<u>Control Testing</u>				
2.2.23	PSA 8.5.1	Acceptance Control Testing	Prov Sum	1	15,000.00	15,000.00
2.2.24	8.5 (b)	Overheads, charges and profit on 2.2.23	%	15,000.00		
TOTAL CARRIED FORWARD						R

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
TOTAL BROUGHT FORWARD						R
2.2.25	PSA 8.5	<u>Students</u> Provisional Sum for employing students on the Contract	Prov Sum	1	100,000.00	100,000.00
2.2.26		Overheads, charges and profit on 2.2.25 above	%	100,000.00		
2.3	PSA 8.4.7	MISCELLANEOUS				
2.3.1		General Signage, as per the Engineer's instructions (Prov)	Prov Sum	1	5,000.00	5,000.00
2.3.2		Overheads, charges and profit on 2.3.1	%	5,000.00		
2.3.3	PSA 8.22	Allow for the attendance of EME's or QSE's and other Contractors within the parameters of the site (refer C3.5.26)	Sum	1		
TOTAL FOR SECTION 2 CARRIED FORWARD TO SUMMARY						R

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		GUARD HOUSE NO. 1				
		BILL NO. 1				
		<u>EARTHWORKS</u>				
		<u>Site clearance</u>				
		Digging up and remoing rubbish, debris, vegetation, hedge, shrubs, bush etc and trees not exceeding 200mm girth	m ²	50.00		
		Remove top 150mm, around the building	m ²	30		
		EARTHFILLING				
		Backfill with G5 material to create level platform compacted to 95% AASHTO MOD.	m ³	4		
		Backfilling to trenches	m ³	3		
		EXCAVATIONS				
		Excavate in earth not exceeding 2m deep				
		Trenches	m ³	13		
		Extra over excavation in soft rock	m ³	1		
		Extra over excavation in hard rock	m ³	1		
		Extraover all excavations for carting away				
		Surplus material from excavations or stockpile on site to a dumping site	m ³	13		
		Keeping excavation free of water				
		Keeping excavations free of water other than subterranean water	item	1		
		Risk of collapse				
		SIDES OF EXCAVATIONS NOT EXCEEDING 1.5m deep	m ²	18		
		Filling etc				
		Earth filling obtained from excavations and/or prescibed stock piles on site, compacted to 95				
		Under floors	m ³	11		
		Backfilling to trenches, holes etc	m ³	3		
		Weed killers, insecticides, etc				
		Bottom and side of trenches	m ²	28		
		Bottom of surfacebed	m ²	11		
		CARRIED FORWARD				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 2				
		<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>				
		15MPa/19MM CONCRETE				
		Surface blinding under footings and bases	m³	0.5		
		CONCRETE FOUNDATION				
		25MPa/19mm concrete footing	m³	2		
		20MPa/19mm surfacebed	m³	11		
		20MPa/19mm Apron	m³	1		
		CONCRETE SLAB				
		25MPa/19mm slabs including beams and inverted beams	m³	2		
		HIGH STRENGTH STEEL				
		Y12 Bars	t	0.21		
		MILD STRENGTH STEEL				
		R8 bars	t	0.04		
		Fabric Reinforcement				
		Mesh ref 193	m²	11		
		Mesh ref 100	m²	16		
		CONCRETE FINISHES				
		Woodfloat finishing to surface bed	m²	11		
		Woodfloat finishing to apron	m²	16		
		Woodfloat finishing to roof slab	m²	13		
		50mm diameter sleeves	m	50		
		FORMWORK				
		Formwork to soffit of concrete slab	m²	13		
		Formwork to sides of concrete not exceeding 300mm	m	14		
		Prescribed density tests on filling				
		Modified AASHTO Density tests	No	2		
		Concrete Sundries				
		Making and testing 150x150x150mm concrete test cubes	Item	2		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 3				
		<u>MASONRY</u>				
		Brickwork of NFP bricks in class II mortar				
		One brick wall in foundation	m ²	7		
		Brickwork of FBX bricks in class II mortar				
		One brickwall in supperstructure	m ²	40		
		115mm common brick	m ²	9		
		Brickwork reinforcement				
		a) Brick reinforcement 75mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	24		
		b) Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	181		
		JOINTS IN WALLS, FLOORS AND ROOF				
		Maltoid on walls	m	16		
		Saw cut joints on floor and apron	m	12		
		Prestressed fabricated Lintels				
		110x170mm lintel in lengths not exceeding 3m	No.	12.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO.4				
		<u>WATERPROOFING</u>				
		DPC 250micron in solid walls	m	13.20		
		170micron dpm under surfacebed laid with 150mm overlaps	m ²	10.80		
		Bituminous aluminium paint finish to concrete roof	m ²	12.87		
		double malthoid between concrete and brick surfaces	m	16.20		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 5 <u>CARPENTRY AND JOINERY</u> Doors etc 44mm solid core masonite door with hardwood edge strips on both side 877x2100mm	no.	2.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 7				
		<u>IRONMONGERY</u>				
		Hinges, Bolts etc				
		Brass hinges with nylon washers	No	4.00		
		Locks				
		2 lever motice lockest and handles	No.	2.00		
		Bathroom fittings				
		Satin stainless steel paper towel dispenser	No.	1.00		
		Toilet roll holder	No.	1.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 8				
		<u>METALWORK</u>				
		Welded screens				
		Security mild steel gate	No.	1.00		
		Prestressed steel door frames				
		1.2mm double rebate frame suitable for one brick wall	No.	1.00		
		1.2mm rebate frame suitable for half brick wall	No.	1.00		
		Window frames				
		Type C1	No	1.00		
		Type C2	No	3.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 9				
		<u>PLASTERING</u>				
		SCREED				
		3:1 Cement plaster screed woodfloated on concrete				
		30mm thick screed on floors	m ²	8.96		
		50mm thick screed on roof	m ²	12.60		
		Internal Plaster				
		One coat cement plaster and one coat rhinolite plaster				
		On walls	m ²	36.90		
		on soffit of concrete slab	m ²	12.87		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 10				
		<u>PLUMBING AND DRAINAGE</u>				
		Sanitary fittings				
		Waste chamber	No.	1.00		
		Wash hand basin	No.	1.00		
		Basin waste union	No.	1.00		
		"P" trap	No.	1.00		
		Sanitary plumbing				
		uPVC, soil and vent pipes				
		50mm pipes	m	10.00		
		110mm pipes	m	100.00		
		Extra over uPVC, soil, vent pipes for fittings				
		110mm access bend with anti-siphon horn	No.	1.00		
		110mm Pan connector	No.	1.00		
		110mm x 50mm eccentric reducer	No.	1.00		
		110mm junction	No.	1.00		
		110mm air vent cowl	No.	1.00		
		110mm GI vent valve	No.	1.00		
		110mm coupling	No.	15.00		
		50mm 90 degree bends	No.	4.00		
		50mm to 110 90 degree connector	No.	1.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 11 <u>GLAZING</u> Windor glazing Type C1: 4mm obscured glazing Type C2:clear glazing Mirrors Stainless steel mirrors 500x600x13mm, concealed thief resistant fixings, plugged and screwed to the wall, stainless steel screws	 m ² m ² No.	 0.54 1.80 1.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		GUARD HOUSE NO. 2				
		BILL NO. 1				
		<u>EARTHWORKS</u>				
		<u>Site clearance</u>				
		Digging up and remoing rubbish, debris, vegetation, hedge, shrubs, bush etc and trees not exceeding 200mm girth	m ²	50.00		
		Remove top 150mm, around the building	m ²	30		
		EARTHFILLING				
		Backfill with G5 material to create level platform compacted to 95% AASHTO MOD.	m ³	4		
		Backfilling to trenches	m ³	3		
		EXCAVATIONS				
		Excavate in earth not exceeding 2m deep				
		Trenches	m ³	13		
		Extra over excavation in soft rock	m ³	1		
		Extra over excavation in hard rock	m ³	1		
		Extraover all excavations for carting away				
		Surplus material from excavations or stockpile on site to a dumping site	m ³	13		
		Keeping excavation free of water				
		Keeping excavations free of water other than subterranean water	item	1		
		Risk of collapse				
		SIDES OF EXCAVATIONS NOT EXCEEDING 1.5m deep	m ²	18		
		Filling etc				
		Earth filling obtained from excavations and/or prescibed stock piles on site, compacted to 95				
		Under floors	m ³	11		
		Backfilling to trenches, holes etc	m ³	3		
		Weed killers, insecticides, etc				
		Bottom and side of trenches	m ²	28		
		Bottom of surfacebed	m ²	11		
		CARRIED FORWARD				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 2				
		<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>				
		15MPa/19MM CONCRETE				
		Surface blinding under footings and bases	m³	0.5		
		CONCRETE FOUNDATION				
		25MPa/19mm concrete footing	m³	2		
		20MPa/19mm surfacebed	m³	11		
		20MPa/19mm Apron	m³	1		
		CONCRETE SLAB				
		25MPa/19mm slabs including beams and inverted beams	m³	2		
		HIGH STRENGTH STEEL				
		Y12 Bars	t	0.21		
		MILD STRENGTH STEEL				
		R8 bars	t	0.04		
		Fabric Reinforcement				
		Mesh ref 193	m²	11		
		Mesh ref 100	m²	16		
		CONCRETE FINISHES				
		Woodfloat finishing to surface bed	m²	11		
		Woodfloat finishing to apron	m²	16		
		Woodfloat finishing to roof slab	m²	13		
		50mm diameter sleeves	m	50		
		FORMWORK				
		Formwork to soffit of concrete slab	m²	13		
		Formwork to sides of concrete not exceeding 300mm	m	14		
		Prescribed density tests on filling				
		Modified AASHTO Density tests	No	2		
		Concrete Sundries				
		Making and testing 150x150x150mm concrete test cubes	Item	2		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 3				
		<u>MASONRY</u>				
		Brickwork of NFP bricks in class II mortar				
		One brick wall in foundation	m ²	7		
		Brickwork of FBX bricks in class II mortar				
		One brickwall in supperstructure	m ²	40		
		115mm common brick	m ²	9		
		Brickwork reinforcement				
		a) Brick reinforcement 75mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	24		
		b) Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	181		
		JOINTS IN WALLS, FLOORS AND ROOF				
		Maltoid on walls	m	16		
		Saw cut joints on floor and apron	m	12		
		Prestressed fabricated Lintels				
		110x170mm lintel in lengths not exceeding 3m	No.	12.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 5 <u>CARPENTRY AND JOINERY</u> Doors etc 44mm solid core masonite door with hardwood edge strips on both side 877x2100mm	no.	2.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 10				
		<u>PLUMBING AND DRAINAGE</u>				
		Sanitary fittings				
		Waste chamber	No.	1.00		
		Wash hand basin	No.	1.00		
		Basin waste union	No.	1.00		
		"P" trap	No.	1.00		
		Sanitary plumbing				
		uPVC, soil and vent pipes				
		50mm pipes	m	10.00		
		110mm pipes	m	100.00		
		Extra over uPVC, soil, vent pipes for fittings				
		110mm access bend with anti-siphon horn	No.	1.00		
		110mm Pan connector	No.	1.00		
		110mm x 50mm eccentric reducer	No.	1.00		
		110mm junction	No.	1.00		
		110mm air vent cowl	No.	1.00		
		110mm GI vent valve	No.	1.00		
		110mm coupling	No.	15.00		
		50mm 90 degree bends	No.	4.00		
		50mm to 110 90 degree connector	No.	1.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 12 <u>PAINTWORK</u> On floated plaster Apply one coat plascon merit plaster prime, two coats double velvet pure acrylic On internal walls	m ²	57.60		
		On smooth concrete Prepare areas with slash coat and apply one coat universal undercoat and two coats plascon acrylic white On soffits	m ²	12.87		
		On metals One coat universal undercoat and two coats plascon On door frames	m ²	3.00		
		On wood One coat undercoat and apply three coats clear matt varnish plascon polyurethane matt varnish On doors	m ²	3.57		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 2				
		<u>EARTHWORKS</u>				
		<u>Site clearance</u>				
		Digging up and remoing rubbish, debris, vegetation, hedge, shrubs, bush etc and trees not exceeding 200mm girth	m ²	100.00		
		Remove top 150mm, around the building	m ²	30		
		<u>EARTHFILLING</u>				
		Backfill with G5 material to create level platform compacted to 95% AASHTO MOD.	m ³	4		
		Backfilling to trenches	m ³	3		
		<u>EXCAVATIONS</u>				
		Excavate in earth not exceeding 2m deep				
		Trenches	m ³	5		
		Extra over excavation in soft rock	m ³	1		
		Extra over excavation in hard rock	m ³	1		
		Extraover all excavations for carting away				
		Surplus material from excavations or stockpile on site to a dumping site	m ³	5		
		Keeping excavation free of water				
		Keeping excavations free of water other than subterranean water	item	1		
		Risk of collapse				
		Sides of excavations not exceeding 1.5m deep	m ²	15		
		Filling etc				
		Earth fillifn obtained from excavations and/or prescibed stock piles on site, compacted to 95				
		Under floors	m ³	2		
		Backfilling to trenches, holes etc	m ³	3		
		Weed killers, insecticides, etc				
		Bottom and side of trenchs	m ²	90		
		Bottom of surfacebed	m ²	12		
		CARRIED FORWARD				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 3				
		<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>				
		15MPa/19MM CONCRETE				
		Surface blinding under footings and bases	m ³	0.4		
		CONCRETE FOUNDATION				
		25MPa/19mm concrete footing	m ³	2		
		20MPa/19mm surfacebed	m ³	2		
		20MPa/19mm Apron	m ³	1		
		CONCRETE SLAB				
		25MPa/19mm slabs including beams and inverted beams	m ³	3		
		HIGH STRENGTH STEEL				
		Y12 Bars	t	1		
		MILD STRENGTH STEEL				
		R8 bars	t	1		
		Fabric Reinforcement				
		Mesh ref 193	m ²	13		
		Mesh ref 100	m ²	13		
		CONCRETE FINISHES				
		Woodfloat finishing to surface bed	m ²	12		
		Woodfloat finishing to apron	m ²	26		
		Woodfloat finishing to roof slab	m ²	13		
		50mm diameter sleeves	m	50		
		FORMWORK				
		Formwork to soffit of concrete slab	m ²	13		
		Formwork to sides of concrete not exceeding 300mm	m	11		
		Prescribed density tests on filling				
		Modified AASHTO Density tests	No	2		
		Concrete Sundries				
		Making and testing 150x150x150mm concrete test cubes	Item	2		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BILL NO. 4				
		<u>MASONRY</u>				
		Brickwork of NFP bricks in class II mortar				
		One brick wall in foundation	m ²	5		
		Brickwork of FBX bricks in class II mortar				
		One brickwall in supperstructure	m ²	29		
		115mm common brick	m ²	16		
		Brickwork reinforcement				
		a) Brick reinforcement 75mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	48		
		b) Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	165		
		JOINTS IN WALLS, FLOORS AND ROOF				
		Isolating joints on floor and apron	m	30		
		Isolating joints on walls	m	44		
		Maltoid on walls	m	12		
		Saw cut joints on floor and apron	m	0		
		Prestressed fabricated Lintels				
		110x170mm lintel in lengths not exceeding 3m	No.	8.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 6 <u>CARPENTRY AND JOINERY</u> Doors etc 44mm solid core masonite door with hardwood edge strips on both side 877x2100mm Kitchen cupboards, including supply installations	no.	3.00		
			no.	1.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 8				
		<u>IRONMONGERY</u>				
		Hinges, Bolts etc				
		Brass hinges with nylon washers	No	6.00		
		Locks				
		2 lever mortice lockset and handles	No.	3.00		
		Bathroom fittings				
		Satin stainless steel paper towel dispenser	No.	1.00		
		Waste disposal bins	No.	1.00		
		Paper towel dispenser	No.	1.00		
		Soap dispenser	No.	1.00		
		Toilet roll holder	No.	1.00		
		Retractable wall mounted bench	No.	1.00		
		Pelmets and curtain tracts				
		Chromium plated shower curtain rail including end brackets	No.	1.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 9 <u>METALWORK</u> Welded screens Security mild steel gate No. 1.00 Prestressed steel door frames 1.2mm double rebate frame suitable for one brick wall No. 1.00 1.2mm rebate frame suitable for half brick wall No. 2.00 Window frames NE5F steel window frames to match the existing 600Wx900Hmm for bathroom and toilet No 2.00 NC2 steel window frames to match the existing 1500Wx900Hmm for kitchen No 1.00				
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 11				
		<u>PLUMBING AND DRAINAGE</u>				
		Sanitary fittings				
		Wash hand basin	No.	1.00		
		Basin waste union	No.	1.00		
		"P" trap	No.	2.00		
		Shower drain	No.	1.00		
		Sanitary plumbing				
		uPVC, soil and vent pipes				
		50mm pipes	m	10.00		
		110mm pipes	m	100.00		
		Extra over uPVC, soil, vent pipes for fittings				
		110mm access bend with anti-siphon horn	No.	1.00		
		110mm Pan connector	No.	1.00		
		110mm x 50mm eccentric reducer	No.	1.00		
		110mm junction	No.	1.00		
		110mm air vent cowl	No.	1.00		
		110mm GI vent valve	No.	1.00		
		110mm coupling	No.	15.00		
		110mm Gulley with standard concrete gulley surround	No.	1.00		
		50mm 90 degree bends	No.	4.00		
		50mm to 110 90 degree connector	No.	1.00		
		Taps, Valves etc				
		15mm undertile shower set consisting of undertile stoptaps, shower arm etc	No.	1.00		
		15mm Chrome plated basin mixer, with pop-up waste, mounting kit, and angle valve	No.	2.00		
		15mm wall mounted sink mixer with swivel outlet and wall flanges	No.	1.00		
		CARRIED FORWARD				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		AMOUNT BROUGHT FORWARD				
		Manhole				
		Concrete outlet structures, manholes and junction boxes and cleaning eyes for subsoil drainage systems				
		Manholes	No.	2.00		
		Junction boxes	No.	2.00		
		ELECTRIC WATER HEATERS				
		Kwikot 150L dual electric water heater with all accessories, including supply and installation	No.	1.00		
		Kitchen fittings				
		Single bowl kitchen sink with fittings including installation	No.	1.00		
		Class II copper pipe				
		Class II copper water piping in accordance with SANS 460 installed complete with short lengths, cutting, plain couplings, capillary solder and jointing strictly in accordance with the manufacturer's instructions, support brackets etc				
		Diameter 15	m	10.00		
		Extra over copper piping for capillary fittings in accordance to SANS 1067-2 complete with hangers, brackets, soldering etc				
		Diameter 15	no.	5.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO	PAYMENT REFERS	SHORT DESCRIPTION	UNIT	QUANTITY		
		BILL NO. 12 <u>GLAZING</u> Windor glazing NE5F: 4mm obscured glazing NC2: 4mm clear glazing Mirrors Stainless steel mirrors 500x600x13mm, concealed thief resistant fixings, plugged and screwed to the wall, stainless steel screws	 m ² m ² No.	 1.08 1.80 1.00		
		CARRIED FORWARD TO SUMMARY				

ITEM NO.	PAYMENT T REFERS	DESCRIPTION	UNIT	QNTY	RATE	AMOUNT
		<u>JOHANNESBURG WATER ENNERDALE DEPOT</u>				
		<u>Construction of a Boundary wall</u>				
		<u>Site clearance</u>				
1		Dig up and remove rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush etc.	m ²	600.00		
		<u>EXCAVATION, FILLING, ETC.</u>				
		<u>Excavation in earth not exceeding 2m. deep</u>				
2		Trenches.	m ³	139.13		
		<u>Extra over Blasting of trench and hole excavations in earth for excavation in</u>				
3		Soft rock.	m ³	13.91		
4		Hard rock.	m ³	6.96		
		<u>Extra over all excavations for carting away</u>				
5		Surplus material from excavations and /or stock pile on site to a dumping site to be located by the contractor (up to a radius of 5km - return distance not covered)	m ³	67.40		
		<u>Risk of collapse of excavations</u>				
6		Sides of trench and hole excavations not exceeding 1,5m deep including keeping excavations free from water	m ²	300.00		
		<u>Keeping excavations free of water</u>				
7		Keeping excavations free of water other than subterranean water	Item	1.00		
		<u>Earth filling obtained from excavations and/or prescribed stock piles on site compacted to 95% Mod AASHTO density</u>				
8		Backfill to trenches, holes, etc.	m ³	71.73		
		CARRIED FORWARD				

ITEM NO	PAYMEN T REFERS	SHORT DESCRIPTION	UNIT	QUANTITY	RATE (R)	AMOUNT (R)
		BROUGHT FORWARD				
9		<u>SOIL POISONING</u> <u>Weedkillers, Insecticides, etc. Environmental friendly and SABS approved.</u> Bottoms and sides of trenches etc.		440.00		
10		<u>25MPa/20mm. concrete</u> Strip footings and bases	m ³	63.63		
11		Column concrete in-fill	m ³	9.08		
12		<u>REINFORCEMENT</u> <u>Hight strength steel reinforcement to structural concrete work</u> 12mm. diameter bars	t	1.05		
13		<u>Mild strength steel reinforcement to structural concrete work</u> 8mm diameter bars	t	0.71		
14		<u>BRICKWORK</u> <u>FOUNDATIONS (PROVISIONAL)</u> <u>Brickwork of NFX bricks (14MPa nominal compressive strength) in class I mortar</u> One brick walls	m ²	100.00		
15		<u>SUPERSTRUCTURE</u> <u>Reinforcement to brickwork</u> 150mm wide brick force built in horizontally	m	4,072.00		
16		<u>FACE BRICKWORK</u> Face brick pointed with recessed horizontal and vertical joints. (Allow P.C. amount of R3,200.00 per 1000 for supply and delivery) One brick walls in English bond pointed both sides	m ²	1,018.00		
17		Extra over brickwork for brick-on-edge header course band	m	618.00		
18		Extra over brickwork for columns	m ²	1,873.95		
19		Extra over hoop irons at columns	m	955.43		
20		<u>Isolation joints in wall</u> 10mm isolation joints filled with bitumen impregnated soft board or equally approved	m	125.00		
21		<u>Razor wire</u> Supply and install 800mm diameter spiral razor wire including all accessories.	m	618.00		
22		Supply and install razor wire flat wrap including all accessories.	m	618.00		
23		<u>ELECTRIC GATE</u> Supply and install double sliding gate to match security fencing as per drawing	No	1		
		TOTAL CARRIED TO SUMMARY				

SUMMARY OF BILL OF QUANTITIES: ENNERDALE DEPOT		
BILL	DESCRIPTION	TOTAL
1	PRELIMINARY AND GENERAL	R
2	GUARD HOUSE NO. 1	R
3	GUARD HOUSE NO. 2	R
4	MAIN ENTRANCE GUANRD HOUSE NO. 3	R
5	BOUNDARY WALL	R
TOTAL FOR SCHEDULE OF QUANTITIES		R
ADD 10% CONTINGENCIES		R
SUB-TOTAL		R
ADD 15% VAT		
TOTAL FOR TENDER (FORWARD TO THE FORM OF TENDER)		R