



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT



TENDER COVER PAGE

MBD 1

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF JOHANNESBURG WATER

BID NUMBER: JW14227D

CLOSING DATE: 10 AUGUST 2026

CLOSING TIME: 10:30 AM

DESCRIPTION: GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT

CIDB REQUIREMENTS: TENDERERS SHOULD HAVE A CONTRACTOR CIDB GRADING OF 8CE OR HIGHER

BRIEFING SESSION	COMPULSORY
BRIEFING DETAILS	DATE AND TIME: 14 JULY 2026 13:00 PM ADDRESS: 2 James street Ennerdale, Johannesburg Water Ennerdale Depot VENUE: AUDITORIUM TENDERS RECEIVED FROM NON-ATTENDED BIDDERS OF A COMPULSORY BRIEFING SESSION WILL NOT BE ACCEPTED
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				
POSTAL ADDRESS				
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 No	

EMPLOYER INFORMATION

DEPARTMENT	CAPEX	DEPARTMENT	SCM
CONTACT PERSON	Jonathan Kekana	CONTACT PERSON	Nthabiseng Matabane
TELEPHONE NUMBER	011 688 1588	TELEPHONE NUMBER	011 688 1512
E-MAIL ADDRESS	jonathan.kekana@jwater.co.za	E-MAIL ADDRESS	nthabiseng.matabane@jwater.co.za



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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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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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TENDER NOTICE AND INVITATION TO TENDER



1. TENDER NOTICE AND INVITATION TO TENDER

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

CONTRACT NO. JW14427D: - GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT

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 29 June 2026

The Employer is Johannesburg Water.

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 August 2026.

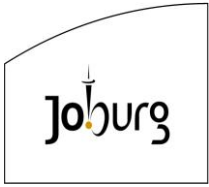
Address is as follows:

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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VOLUME 1 TENDER PART 1: TENDERING PROCEDURES
SECTION T1.1 TENDER DATA



Johannesburg Water SOC Ltd

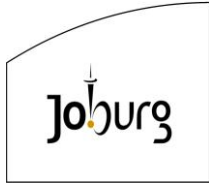


CONTRACT NO: JW14427D

**GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL
PROJECT**

VOLUME 1

TENDER PART 1: TENDERING PROCEDURES



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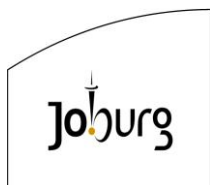
The Tenderer is to indicate in the “Submitted (Yes/No)” column in the below table that they have completed the required section of the tender document. Completion of this checklist will assist the Tenderer in ensuring that they have attended to all the required items for submission with this tender. 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	Mandatory Documents at Particular Stage:				
	CIDB grading of 8CE 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	•			
T2.3.3	Financial Capacity: Submit not older than 30 days Bank-stamped bank statements (only the page that shows the balance), and/or bank-stamped overdraft facilities, bank-stamped bank confirmation letter. For this requirement, contractors are required to demonstrate to have a minimum of 10% of the amount indicated in the form of offer excluding VAT and contingencies. Failure to comply with this	•			

Employer:		Contractor:	
Witness:		Witness:	

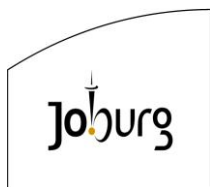


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	requirement will be deemed non-compliance by the contractor and will be disqualified immediately. *JW reserves the right of confirming authenticity of submissions with the financial institution and any misrepresentation will lead to immediate disqualification.				
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 5 - Declaration for procurement above R10 Million (all applicable taxes included) - 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	.	.		

Employer:		Contractor:	
Witness:		Witness:	

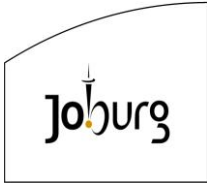


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	of Good Standing with Regards to Municipal Accounts document in the Tender.				
	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 (Contactable Reference Letters, Appointment Letters and Completion / Final Approval Certificates)	•			
5.	Specific Goals:				
	Documentary Evidence Required for Criteria 1 – (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)	•			

Employer:		Contractor:	
Witness:		Witness:	

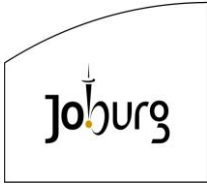


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Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	of ownership and share certificate where applicable)				
	Documentary Evidence Required for Criteria 2 – (Proof of municipal account / valid lease agreement, letter from the Ward Council confirming the business address. Businesses that operate from personal properties are required to submit an affidavit)	•			
	Documentary Evidence Required for Criteria 3 – (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)	•			
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			•	

Employer:		Contractor:	
Witness:		Witness:	



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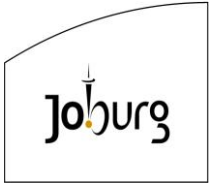


Ref	Description of Returnable/s or Documentation that will form Part of Contract and must therefore to be Completed and / or Submitted by the Tenderer	Required for Tender Evaluation	Required for Tender Award	Required After Tender Award	Submitted (Yes/No)
	Insurance of Works			•	
	Common Law Liability 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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JOHANNESBURG WATER POPIA PRIVACY STATEMENT

In terms of the Protection of Personal Information Act, 213 (Act 4 of 2013), also called the POPI Act or POPIA, Johannesburg Water SOC Limited, undertakes all reasonable measures to protect personal information and to keep it private and confidential.

1. Privacy Notice applies to:

Suppliers, vendors, contractors, service providers, etc whether appointed or prospective.

2. Definitions of personal information

According to the Act “personal information” means information relating to an identifiable living, natural person, and where it is applicable, an identifiable, existing juristic person. All addresses including residential, postal and email addresses.

3. About the Public Entity

Johannesburg Water (SOC) Limited, registration number 2000/029271/30

3.1 The information we collect

We collect information directly from you where you provide us with your personal details. Where possible, we will inform you what information you are required to provide to us and what information is optional.

3.2 How Johannesburg Water use your information

We will use your personal information only for the purposes for which it was collected and agreed with you. For example: to gather contact information, to confirm and verify your identity, for the evaluation and adjudication of bids and quotations for tenders, request for quotations, and other personal information for the procurement of goods and services by the Entity.

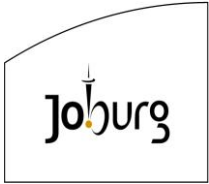
3.3 Disclosure of information

We may disclose your personal information to our Shareholder, the City of Johannesburg, and other Government agencies such as National Treasury, and the Auditor-General of South Africa. We have agreements in place to ensure that they comply with the privacy requirements as required by the Protection of Personal Information Act.

We may also disclose your information:

- Where we have a duty or a right to disclose in terms of law;
- Where we believe it is necessary to protect our rights.

Employer:		Contractor:	
Witness:		Witness:	



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3.4 Information Security

We are legally obliged to provide adequate protection for the personal information we hold and to stop unauthorised access and use of personal information. We will, on an ongoing basis, continue to review our security controls and related processes to ensure that your personal information remains secure.

When we contract with third parties, we impose appropriate security, privacy and confidentiality obligations on them to ensure that personal information that we remain responsible for, is kept secure. We will ensure that anyone whom we pass your personal information agrees to treat your information with the same level of protection as we are obliged to.

3.5 Your rights: Access to Information

You have the right to request a copy of the personal information we hold about you. To do this, simply contact us at informationofficer@jwater.co.za, and specify what information you require.

3.6 Correction of your personal information

You have the right to ask us to update, correct or delete your personal information. We will require a copy of your identification document to confirm your identity before making changes to personal information we may hold about you. We would appreciate it if you would keep your personal information accurate and up to date.

3.7 How to contact us

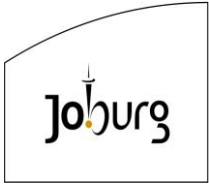
If you have any queries about this document; you need further information about our privacy practices; wish to withdraw consent; exercise preferences or access or correct your personal information, please contact us at the numbers listed on our website or send an email to informationofficer@jwater.co.za.

Name of authorised person:.....

Signature:

Date:.....

Employer:		Contractor:	
Witness:		Witness:	



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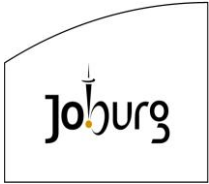


CONSENT TO PROCESS PERSONAL INFORMATION IN TERMS OF THE PROTECTION OF PERSONAL INFORMATION ACT, NO. 4 OF 2013 (POPIA)

The purpose of the Protection of Personal Information Act, no. 4 of 2013 (POPIA), is to protect personal information of individuals and businesses and to give effect to their right of privacy as provided for in the Constitution. By signing this form, you consent to lawful collection, processing, storage and, where necessary, sharing your personal information by Johannesburg Water SOC Ltd. and consent is effective immediately and will remain effective until such consent is withdrawn in terms of POPIA.

1. I a natural person “herein referred to as the Data Subject” with ID Number hereby give my consent to Johannesburg Water SOC Ltd. “herein referred to as the Responsible Party” to collect, process and distribute my personal information where Johannesburg Water SOC Ltd. is legally required to do so.
2. I understand my right to privacy and the right to have my personal information processed in accordance with the conditions for the lawful processing of personal information.
3. I understand the purposes for which my personal information is required and for which it will be used and consent to third parties accessing my personal information and to Johannesburg Water SOC Ltd. sharing my personal information strictly for reporting purposes.
4. I understand that, should I refuse to provide Johannesburg Water SOC Ltd. with the required consent and/or information, Johannesburg Water SOC Ltd. will be unable to assist me.
5. I declare that all my personal information supplied to Johannesburg Water SOC Ltd. is accurate, up to date, not misleading and that it is complete in all respects and that I will notify Johannesburg Water SOC Ltd. of any changes to my Personal Information should any of these details change.
6. I also understand that I have the right to request that my personal information be corrected or deleted, if it is inaccurate, irrelevant, excessive, out of date, incomplete, misleading, or obtained unlawfully or that the personal information or record be destroyed or deleted if the Responsible Party is no longer authorised to retain it

Employer:		Contractor:	
Witness:		Witness:	



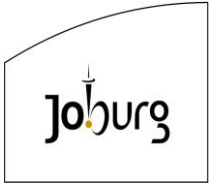
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Signed at this day of 20.....

.....
Full Name/Dept of Responsible Party Signature Date

Employer:		Contractor:	
Witness:		Witness:	



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DATA SUBJECT CONSENT WITHDRAWAL FORM
IN TERMS OF THE PROTECTION OF PERSONAL INFORMATION ACT, NO. 4 OF
(POPIA)

CONSENT

I a natural person "herein referred to as the "Data Subject" with identification number hereby withdraw my consent to process my personal information by Johannesburg Water SOC Ltd (Responsible Party). Therefore, Johannesburg Water SOC Ltd. no longer has my consent to process my personal information for the intended purpose

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.....
.....

which was previously granted using the DATA SUBJECT CONSENT FORM.

The withdrawal of consent does not affect the lawfulness of the processing activities up to the date on this form.

Details of Data Subject

Name and surname:
Identification number:
Date of Birth:
Residential address:

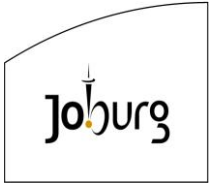
Contact number(s):
E-mail address:
Relationship to Responsible Party:

Signed at _____ on this _____ day of _____ 20 _____

Signature of Data Subject

Information Officer/Deputy
Johannesburg Water SOC Ltd

Employer:		Contractor:	
Witness:		Witness:	



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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE
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PROOF OF GOODSTANDING WITH MUNICIPALITY ACCOUNTS

The tenderer is to affix to this page:

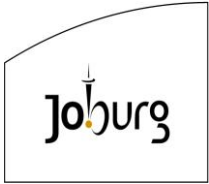
- Proof that the tenderer and directors of the tenderer are not in arrears for more than 90 days with municipal rates and taxes and municipal service charges. The latest municipal account is to be attached;
- Signed copy of the valid lease agreement if the tenderer or director of the tenderer is currently leasing premises and not responsible for paying municipal accounts

Note:

1. 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.
2. The proof may be a copy of the agreement or an updated municipal statement which reflects the arrangement.
3. 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.
4. Statement must not be older than 90 days from the closing date of this tender. Attach latest municipal account statement behind this page.
5. 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. Note 1 will be applicable.

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. Note 1 will be applicable.

Employer:		Contractor:	
Witness:		Witness:	



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PROOF OF GOODSTANDING WITH MUNICIPALITY ACCOUNTS

7. Where a municipal account submitted for purposes of compliance is in the name of a Trust, the bidder must submit the following documentation in order to establish the relationship between the director and the Trust and to confirm that municipal obligations are in order: a) Municipal Account

- A valid municipal account issued in the name of the Trust must be submitted.
- The municipal account must not be older than three (3) months from the date of the request.
- The account must not be in arrears, or alternatively, proof must be provided that arrangements have been made with the relevant municipality for payment of overdue amounts.
- Where the director occupies or resides at the property owned by the Trust and a valid lease agreement exists between the Trust and the director, a copy must be submitted as supporting documentation

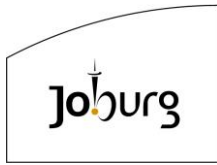
b) Proof of Trusteeship

- In order to establish the relationship between the director and the Trust, the bidder must submit a Letter of Authority issued by the Master of the High Court, confirming the appointment of the director as a trustee of the Trust.
- The name of the Trust reflected on the Letter of Authority must correspond with the name of the Trust appearing on the municipal account submitted. c) Affidavit by the Director

○ The director concerned must submit a sworn affidavit confirming that:

- The property reflected on the municipal account is owned by the Trust;
- The director is a duly appointed trustee of the Trust;
- The director resides at, occupies, or has a direct interest in the property reflected on the municipal account; and
- The municipal account submitted is the only applicable municipal account relating to the director's municipal obligations.

Employer:		Contractor:	
Witness:		Witness:	



Johannesburg Water (SOC) Ltd



CONTRACT NO: JW14427D

**GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL
PROJECT**

VOLUME 1

**TENDER PART 1: TENDERING
PROCEDURES**



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T1.1 TENDER DATA

T1.1.1 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.

T1.1.2 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 C1.3: Forms of Securities Contract Part 2: Pricing Data C2.1: Pricing Instructions

Employer:		Contractor:	
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Clause Number	Tender Data
	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: Jonathan Kekana Telephone: 011 688 1588 E-mail address: jonathan.kekana@jwater.co.za The SCM representative is: Contact Person: Nthabiseng Matabane Telephone: 011 688 1512 E-mail address: Nthabiseng.Matabane @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 8CE 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 8CE 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.”

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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)

Employer:		Contractor:	
Witness:		Witness:	



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Clause Number	Tender Data
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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Clause Number	Tender Data
	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 a) the name of that person; b) the capacity in which that person is in the service of the state; and

Employer:		Contractor:	
Witness:		Witness:	



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	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 11:00 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

Employer:		Contractor:	
Witness:		Witness:	



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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. 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.

Employer:		Contractor:	
Witness:		Witness:	



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Clause Number	Tender Data																																		
	(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>Specific Goals and Pricing Evaluation</td></tr></table> Stage 1: Mandatory Evaluation <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>CIDB grading 8CE or higher. Active Status at the required CIDB grading at the time of Evaluation</td><td></td><td></td></tr><tr><td>2</td><td>Attendance of 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><tr><td>4</td><td> Financial Capacity: Submit not older than 30 days Bank-stamped bank statements (only the page that shows the balance) and/or bank-stamped overdraft facilities and bank-stamped bank confirmation letter. For this requirement, contractors are required to demonstrate to have a minimum of 10% of the amount indicated in the form of offer excluding VAT and contingencies. Failure to comply with this requirement will be deemed as non-compliance by the contractor and will be disqualified immediately. *JW reserves the right of confirming authenticity of submissions with the financial institutions and any misrepresentations will lead to immediate disqualification. </td><td></td><td></td></tr></table>	Stage	Description	Stage 1	Mandatory Evaluation	Stage 2	Administrative Evaluation	Stage 3	Technical Evaluation	Followed by	Specific Goals and Pricing Evaluation	Description		Complied		No	Description	Yes	No	1	CIDB grading 8CE or higher. Active Status at the required CIDB grading at the time of Evaluation			2	Attendance of Mandatory Tender Briefing Meeting			3	Form of Offer Completed and Signed			4	Financial Capacity: Submit not older than 30 days Bank-stamped bank statements (only the page that shows the balance) and/or bank-stamped overdraft facilities and bank-stamped bank confirmation letter. For this requirement, contractors are required to demonstrate to have a minimum of 10% of the amount indicated in the form of offer excluding VAT and contingencies. Failure to comply with this requirement will be deemed as non-compliance by the contractor and will be disqualified immediately. *JW reserves the right of confirming authenticity of submissions with the financial institutions and any misrepresentations will lead to immediate disqualification.		
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Employer:		Contractor:	
Witness:		Witness:	



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Clause Number	Tender Data
	Tenderers who FAIL to meet the mandatory criteria or requirements of tender will result in disqualification.

Employer:		Contractor:	
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 BBBEE Certificate issued by SANAS accredited verification agency 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		

Employer:		Contractor:	
Witness:		Witness:	



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Clause No.	<u>Tender Data</u>			
Annexure	Municipal statement of account for Company (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	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		
T 2.3.2	Acknowledgement of Tender Drawings	Complete and submit signed T 2.3.2 Form		
T 2.3.1	Returnable Annexure A: Acknowledgement of SHE Specification & Annexures	Complete and submit signed T 2.3.1 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. 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. <u>Stage 3: Technical Evaluation - as per tender document and award strategy</u> The criteria maximum points in respect of each of criterion shall be as follows:				

Employer:		Contractor:	
Witness:		Witness:	



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Clause No.	<u>Tender Data</u>					
	METER INSTALLATION AND WATER PIPE LAYING SCOPE COMBINED AS ONE (1) PROJECT					
Criteria No #	Criteria	Evidence	Sub-Criteria/Clause		Max Score	Score
1.	Tenderers' Experience with Respect to a project with Water Meter Installations (minimum of 2000 Meters) and Water Pipe Laying (reticulation or bulk pipe laying) Scope and with a construction value of R30M (Incl VAT) per project.	Supporting Documents Required for completed projects are the following: - Bidder's Letter of Appointment, - Completion Certificate / Final Approval Certificate <i>and supported with</i> - Contactable References as per template given on section T2.1.7. <i>If the completed project was a Subcontract, the following is required:</i> Main Contractor's letter of appointment	NUMBER OF COMPLETED PROJECTS WITH WATER METER INSTALLATION (MINIMUM OF 2000 METERS) AND WATER PIPE LAYING (RETICULATION OR BULK PIPE LAYING) SCOPE AND WITH A CONSTRUCTION VALUE OF R30M (INCL. VAT) PER PROJECT.	0 (Zero) to 1 (One) completed project or project (s) completed have a value less than R30 million each OR project completed has no water pipe laying (reticulation/bulk) scope OR project completed involved fewer than 2000-Meter Installations.	100	0
				2 (Two) completed projects with a minimum of 2,000-Meter Installations & Water pipe laying (reticulation/bulk) scope and with a minimum value of R30 million		75

Employer:		Contractor:	
Witness:		Witness:	



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Clause No.	<u>Tender Data</u>						
			2. <i>Main Contractor's completion/final approval certificate</i> 3. <i>Subcontractor/Bidder's letter of appointment</i> 4. <i>Subcontractor/Bidder's completion/final approval certificate</i> 5. <i>Reference letter provided by the Main Contractor</i>		(Incl. VAT) on each project OR 1 (One) completed project with a minimum of 2,000-Meter Installations & Water pipe laying (reticulation/bulk) scope and with a minimum value of R60 million (Incl. VAT) each		
					3 (Three) or more completed projects with a minimum of 2,000-Meter Installations & Water pipe laying (reticulation/bulk) scope and with a minimum of R30 million (Incl. VAT) on each project, OR 2 (Two) completed projects with a minimum		100

Employer:		Contractor:	
Witness:		Witness:	



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Clause No.	Tender Data					
					of 2,000-Meter Installations & Water pipe laying (reticulation/bulk) scope and with a minimum value of R30 million (Incl. VAT) on each project, with cumulative value of a minimum R90 million (Incl. VAT)	
					MINIMUM QUALIFYING SCORE	75
					TOTAL	100
Tenderers who FAIL to meet the technical criteria or requirements (75 minimum Score) of tender will be disqualified.						
NOTE: It is the Tenderer's responsibility to ensure that the contactable references provided are accurate and reachable. The Johannesburg Water reserves the right, at its discretion, to verify references for tenderers who meet the minimum qualifying score, including conducting checks on selected references where deemed necessary for due diligence purposes. The Contactable Reference will have five working days from time of request by Johannesburg Water to confirm, in writing, the information on the Contactable Reference letter. Failure to confirm the reference by the Tenderer's reference contact within the stipulated time will result in the points for contactable reference not being allocated to the Tenderer.						

Employer:		Contractor:	
Witness:		Witness:	



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SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

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 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included). - If unclear, any preference points scoring may be included and the lowest acceptable tender will be used to determine the preference points to be used for the evaluation. Where the lowest acceptable tender is below R50 million, the 80/20 preference point system must be used and if the lowest acceptable tender is above R50 million, the 90/10 preference point system must be used. - 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 to exceed R50 000 000 (all applicable taxes included) and therefore the 90/10 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 border="1" style="margin-left: 100px;"> <thead> <tr> <th>Description</th><th>Points</th></tr> </thead> <tbody> <tr> <td>Price</td><td>90</td></tr> <tr> <td>Specific goals</td><td>10</td></tr> <tr> <td>Total points for Price and Specific Goals must not exceed</td><td>100</td></tr> </tbody> </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	Description	Points	Price	90	Specific goals	10	Total points for Price and Specific Goals must not exceed	100
Description	Points								
Price	90								
Specific goals	10								
Total points for Price and Specific Goals must not exceed	100								

Employer:		Contractor:	
Witness:		Witness:	



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SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

Clause number	Tender Data
	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 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

Employer:		Contractor:	
Witness:		Witness:	



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SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

Clause number	Tender Data
	• 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) 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

Employer:		Contractor:	
Witness:		Witness:	



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SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

Clause number	Tender Data																		
	Table 1: <table> <tr> <th>The specific goals allocated points in terms of this tender</th><th>Number of points allocated (90/10 system)</th></tr> <tr> <td>Locality (businesses within boundaries of Gauteng)</td><td>3</td></tr> <tr> <td>Business owned by 51% or more black people who are youth</td><td>4</td></tr> <tr> <td>Business owned by 51% or more-Women</td><td>3</td></tr> <tr> <td>Total</td><td>10</td></tr> </table> The following verification documents must be submitted with the tender document: <table> <tr> <th>Specific Goals – anyone or a combination of any</th><th>Means of verification that may be selected or a combination thereof</th></tr> <tr> <td>Locality (businesses within boundaries of Gauteng)</td><td>Proof of municipal account / valid lease agreement, 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>Business owned by 51% or more black people who are youth</td><td>Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency</td></tr> <tr> <td>Business owned by 51% or more-Women</td><td>Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency</td></tr> </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 Province and one is located in Free State, if one of the goals is locality and has total points of 3, the JV will only be entitled the proportional points of 1,5.	The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system)	Locality (businesses within boundaries of Gauteng)	3	Business owned by 51% or more black people who are youth	4	Business owned by 51% or more-Women	3	Total	10	Specific Goals – anyone or a combination of any	Means of verification that may be selected or a combination thereof	Locality (businesses within boundaries of Gauteng)	Proof of municipal account / valid lease agreement, 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 who are youth	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency	Business owned by 51% or more-Women	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency
The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system)																		
Locality (businesses within boundaries of Gauteng)	3																		
Business owned by 51% or more black people who are youth	4																		
Business owned by 51% or more-Women	3																		
Total	10																		
Specific Goals – anyone or a combination of any	Means of verification that may be selected or a combination thereof																		
Locality (businesses within boundaries of Gauteng)	Proof of municipal account / valid lease agreement, 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 who are youth	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency																		
Business owned by 51% or more-Women	Valid Construction Sector BBBEE Certificate issued by SANAS accredited verification agency																		

Employer:		Contractor:	
Witness:		Witness:	



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SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

Clause number	Tender Data		
	The following are the requirements for a valid Sworn Affidavit in terms of the BBBEE 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.			

Employer:		Contractor:	
Witness:		Witness:	



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SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

Clause number	Tender Data
	Requirements for a valid BBBEE Certificate are as follows: a) Copy of a certified valid BBBEE certificate (Only Valid BBBEE accredited by SANAS), or a valid Sworn Affidavit issued by the DTIC or the CIPC 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 or valid DTI / CIPC B-BBEE certificate 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. 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.

Employer:		Contractor:	
Witness:		Witness:	



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SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

Clause number	Tender Data
	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 90/10 PREFERENCE POINT SYSTEMS A maximum of 90 points is allocated for price on the following basis: 90/10 $Ps = 90 \left(1 - \frac{Pt - Pmin}{Pmin} \right)$ 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 T2.2.22 of this procurement document d) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation;

Employer:		Contractor:	
Witness:		Witness:	



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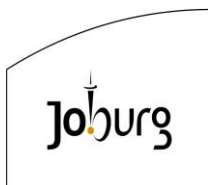
SECTION T1.1: TENDER DATA

Section T1 Tender and Contract

Clause number	Tender Data
	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 of 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: JW14427D

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT

VOLUME 1

TENDER PART 2: RETURNABLE DOCUMENTS

Employer:		Contractor:	
Witness:		Witness:	



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VOLUME 1 TENDER PART 2: 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.6
T2.1.3 Compulsory Enterprise Questionnaire	RD.11
T2.1.4 Preferential Procurement	RD.14
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.25
MBD 5 DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (VAT INCLUDED)	RD.27
MBD 9 CERTIFICATE OF INDEPENDENT BID DETERMINATION	RD.30
T2.1.5 Proposed Amendments and Qualifications	RD.33
T2.1.6 Schedule of the Tenderer's Experience	RD.35
T2.1.7	RD.36

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.38
T2.2.2 SARS Tax Compliance Status Pin and Proof of CSD registration	RD.39

T2.3 LIST OF RETURNABLE SCHEDULES

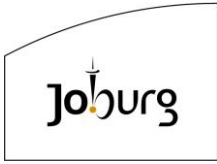
Other documents that will be incorporated into the contract

<u>Document</u>	<u>Page No.</u>
T2.3.1 Returnable Annexure A: Acknowledgement of SHE Specification &	RD.41
T2.3.2 Returnable Annexure B: Acknowledgment of Tender Drawings	RD.42
T2.3.3 Minutes of the Mandatory Tender Briefing	RD.43

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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.

Employer:		Contractor:	
Witness:		Witness:	



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VOLUME 1 TENDER PART 2: 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
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T2.1.4 Preferential Procurement	RD.14
T2.1.5 Proposed Amendments and Qualifications	RD.33
T2.1.6 Schedule of the Tenderer's Experience	RD.35
T2.1.7	RD.36

Employer:		Contractor:	
Witness:		Witness:	



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VOLUME 1 TENDER PART 2: RETURNABLE DOCUMENTS



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:	



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VOLUME 1 TENDER PART 2: RETURNABLE DOCUMENTS



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. JW14427D and any contract resulting from it on behalf of the company.

Chairman:

As Witnesses: 1

2

Date:

Employer:		Contractor:	
Witness:		Witness:	



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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:	



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(III) Certificate For Partnership

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

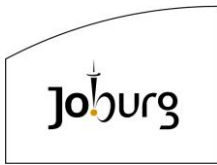
....., **hereby authorize Mr/Ms**,

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:	



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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:

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:	



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(V) Certificate For Sole Proprietor

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

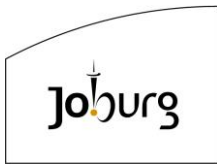
Signature of Sole Owner:

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:

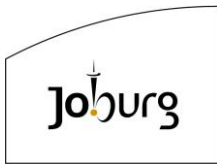
☐ a member of any municipal council	☐ an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
☐ a member of any provincial legislature	☐ a member of an accounting authority 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	☐ 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	

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) 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) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Employer:		Contractor:	
Witness:		Witness:	



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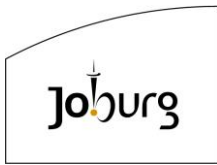


Signed: _____ Date: _____

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.25
MBD 5	DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (VAT INCLUDED)	Form to be completed by the Tenderer	RD.27
MBD 9	CERTIFICATE OF INDEPENDENT BID DETERMINATION	Form to be completed by the Tenderer	RD.30

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:	



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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

1.1 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).

1.2 To be completed by the organ of state

- a) The applicable preference point system for this tender is the 90/10 preference point system.

1.3 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.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	90
SPECIFIC GOALS	10
Total points for Price and SPECIFIC GOALS	100

1.5 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.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

Employer:		Contractor:	
Witness:		Witness:	



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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

3.1 Points Awarded For Price

3.1.1 The 90/10 Preference Point Systems

A maximum of 90 points is allocated for price on the following basis:

$$Ps = 90 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right) \quad 90/10$$

$$Ps = 90 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)$$

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

4.1 POINTS AWARDED FOR PRICE

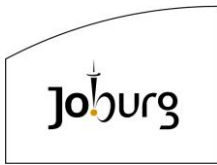
A maximum of 90 points is allocated for price on the following basis:

$$Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right) \quad 90/10$$

Where

- Ps = Points scored for price of tender under consideration

Employer:		Contractor:	
Witness:		Witness:	



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Pt = Price of tender under consideration
Pmax = Price of highest acceptable tender

5. POINTS AWARDED FOR SPECIFIC GOALS

5.1 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:

5.2 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 (90/10 system)	Number of points claimed (90/10 system) (To be completed by the tenderer)
Businesses located within the boundaries of Gauteng Province	3	
Business owned by 51% or more-Women	3	
Business owned by 51% or more- by Black Youth	4	
Total	10	

Employer:		Contractor:	
Witness:		Witness:	



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6. DECLARATION WITH REGARD TO COMPANY/FIRM

6.1 Name of company/firm.....

6.2 Company registration number:

6.3 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

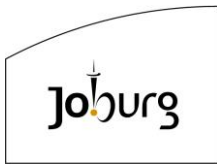
[TICK APPLICABLE BOX]

6.4 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.

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

Employer:		Contractor:	
Witness:		Witness:	



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6.5 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		
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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6.6 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:

6.7 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
☐ One person business/sole propriety
☐ Close corporation
☐ Company
☐ (Pty) Limited
[TICK APPLICABLE BOX]

6.8 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

.....

.....

6.9 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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6.10 MUNICIPAL INFORMATION

Municipality where business is situated:

Registered Account Number:

Stand Number:

6.11 Total number of years the company/firm has been in business:

6.12 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)

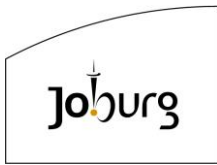
DATE:

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, shareholder²):
 - 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;
- (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**

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

Employer:		Contractor:	
Witness:		Witness:	



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

Full Name	Identity Number	State Employee Number

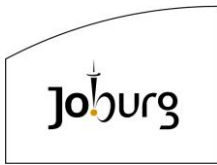
.....
Signature

.....
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:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
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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:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
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MBD 5

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (VAT INCLUDED)

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

1. Are you by law required to prepare annual financial statements for auditing? **YES / NO**
- 1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....

.....

2. If the bidder is not required by law to prepare annual financial statements for auditing, they shall be required to furnish their Annual Financial Statements -
- i. for the past three years , or
 - ii. since their establishment if established during the past three years

Do you have any outstanding undisputed commitments for municipal services towards a municipality or any other service provider in respect of which payment is overdue for more than 30 days? **YES / NO**

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

.....

.....

3. Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract? **YES / NO**

- 3.1 If yes, furnish particulars

.....

.....

Employer:		Contractor:	
Witness:		Witness:	



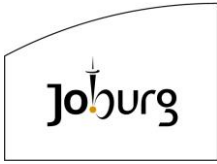
CONTRACT JW14427D
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- 4 Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic? **YES / NO**
- 4.1 If yes, furnish particulars

.....
.....

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 1 TENDER PART 2: RETURNABLE DOCUMENTS



CERTIFICATION

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

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14427D
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MBD 9

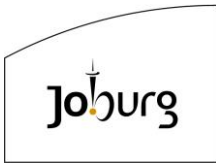
CERTIFICATE OF INDEPENDENT BID DETERMINATION

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:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
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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;
 - (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.

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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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:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 1 TENDER PART 2: RETURNABLE DOCUMENTS



Signed: _____ Date: _____

Name: _____ Position: _____

Tenderer: _____

Employer:		Contractor:	
Witness:		Witness:	



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GREATER ORANGE FARM PHASE 3D WATER
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T2.1.7 PROJECT WITH WATER METER INSTALLATION & WATER PIPE LAYING (RETICULATION/BULK PIPELINE) _CONTACTABLE REFERENCE (PROJECT 1)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorised to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW14427D** for **GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE RENEWAL PROJECT**

Name of Tenderer:

Project Name	
Subcontract? (Yes or No)	
Project Scope Description	
Number of Water Meters Installed in the Project	
Water (Reticulation/Bulk) Pipe Laid? (Yes or No)	
Construction Value (incl. VAT)	
Completion Date	

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

Telephone/Mobile of 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 may 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's Appointment letter & Completion Certificate in addition to the Subcontractor/Bidder's completion certificate.**

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
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T2.1.7 PROJECT WITH WATER METER INSTALLATION & WATER PIPE LAYING (RETICULATION/BULK PIPELINE) _CONTACTABLE REFERENCE (PROJECT 2)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorised to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW14427D** for **GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE RENEWAL PROJECT**

Name of Tenderer:

Project Name	
Subcontract? (Yes or No)	
Project Scope Description	
Number of Water Meters Installed in the Project	
Water (Reticulation/Bulk) Pipe Laid? (Yes or No)	
Construction Value (incl. VAT)	
Completion Date	

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.....

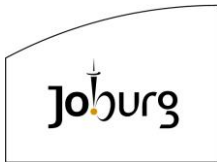
Signature of authorized person/Referee: Date

Telephone/Mobile of 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 may 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's Appointment letter & Completion Certificate in addition to the Subcontractor/Bidder's completion certificate.**

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
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T2.1.7 PROJECT WITH WATER METER INSTALLATION & WATER PIPE LAYING (RETICULATION/BULK PIPELINE) _CONTACTABLE REFERENCE (PROJECT 3)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorised to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW14427D** for **GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE RENEWAL PROJECT**

Name of Tenderer:

Project Name	
Subcontract? (Yes or No)	
Project Scope Description	
Number of Water Meters Installed in the Project	
Water (Reticulation/Bulk) Pipe Laid? (Yes or No)	
Construction Value (incl. VAT)	
Completion Date	

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

Telephone/Mobile of 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 may 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's Appointment letter & Completion Certificate in addition to the Subcontractor/Bidder's completion certificate.**

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 1 TENDER PART 2: RETURNABLE DOCUMENTS



T2.1.7 PROJECT WITH WATER METER INSTALLATION & WATER PIPE LAYING (RETICULATION/BULK PIPELINE) _CONTACTABLE REFERENCE (PROJECT 4)

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorised to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW14427D** for **GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE RENEWAL PROJECT**

Name of Tenderer:

Project Name	
Subcontract? (Yes or No)	
Project Scope Description	
Number of Water Meters Installed in the Project	
Water (Reticulation/Bulk) Pipe Laid? (Yes or No)	
Construction Value (incl. VAT)	
Completion Date	

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

Telephone/Mobile of 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 may 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's Appointment letter & Completion Certificate in addition to the Subcontractor/Bidder's completion certificate.**

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 1 TENDER PART 2: RETURNABLE DOCUMENTS



**T2.1.7 PROJECT WITH WATER METER INSTALLATION & WATER PIPE
LAYING (RETICULATION/BULK PIPELINE) _CONTACTABLE REFERENCE
(PROJECT 5)**

To Johannesburg Water (SOC) Ltd

I, the undersigned being duly authorised to do so, hereby furnish a reference to Johannesburg Water relative to tender Contract No. **JW14427D** for **GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE RENEWAL PROJECT**

Name of Tenderer:

Project Name	
Subcontract? (Yes or No)	
Project Scope Description	
Number of Water Meters Installed in the Project	
Water (Reticulation/Bulk) Pipe Laid? (Yes or No)	
Construction Value (incl. VAT)	
Completion Date	

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.....

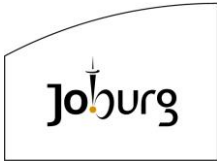
Signature of authorized person/Referee: Date

Telephone/Mobile of 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 may 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's Appointment letter & Completion Certificate in addition to the Subcontractor/Bidder's completion certificate.**

Employer:		Contractor:	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 1 TENDER PART 2: RETURNABLE DOCUMENTS



T2.2 LIST OF RETURNABLE DOCUMENTS

Other documents required only for tender evaluation purposes:

Document

Page No.

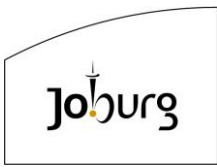
T2.2.1 Contractor's Certificate of Registration With CIDB

RD.47

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

RD.48

Employer:		Contractor:	
Witness:		Witness:	



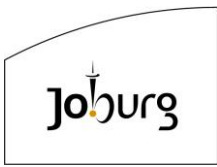
T2.2.1 CONTRACTOR'S CERTIFICATE OF REGISTRATION WITH CIDB

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.

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

DATE:

Employer:		Contractor:	
Witness:		Witness:	



**T2.2.2 SARS TAX COMPLIANCE STATUS PIN AND PROOF OF CSD
REGISTRATION**

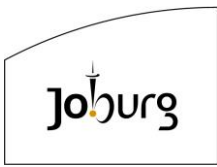
The Tenderer must attach hereto a copy SARS Tax Compliance Status Pin and Proof of CSD registration i.e. MA xxxxxxxxxxx number.

SIGNATURE:.....

DATE:

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

Employer:		Contractor:	
Witness:		Witness:	

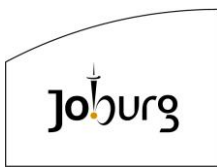


T2.3 LIST OF RETURNABLE SCHEDULES

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.50
T2.3.2 Returnable Annexure B: Acknowledgment of Tender Drawings	RD.51
T2.3.3 Minutes of the Mandatory Tender Briefing	RD.52
Error! Reference source not found.	

Employer:		Contractor:	
Witness:		Witness:	



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:

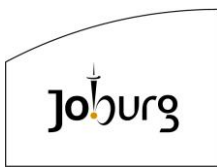
- Comply with all applicable SHE related legal and other requirements.
- Inform all staff of their role in managing environmental impacts and safety hazards on site.

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:	



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

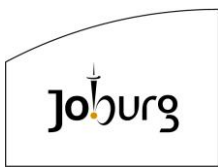
ITEM	DESCRIPTION	DRAWING NUMBER
1.	Meter Installation Layout Plan Erf/Stand	JW-OF-EXT2-LP-W03
2.	Water Upgrade Project Layout Plan Package 1	JW-OF-EXT2-LAY-W01
3.	Water upgrade project general layout plan package 1 & 4	JW-OF-EXT2-GLP-W01
4.	Water upgrade project layout plan package 1	JW-OF-EXT2-LP-W01
5.	Water upgrade project layout plan package 1	JW-OF-EXT2-LP-W01

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:	



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

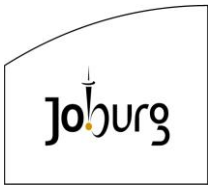
Attach additional pages if more space is required.

Signed: Date:

Name: Position:

Tenderer:

Employer:		Contractor:	
Witness:		Witness:	



Johannesburg Water (SOC) Ltd

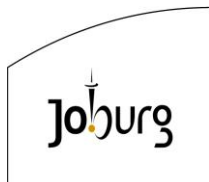


CONTRACT NO: JW14427D

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT

VOLUME 1 CONTRACT PART 1: AGREEMENT AND CONTRACT DATA

Employer:		Contractor:	
Witness:		Witness:	



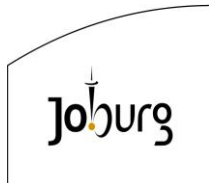
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VOLUME 1 CONTRACT PART 1: AGREEMENT AND CONTRACT DATA



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Employer:		Contractor:	
Witness:		Witness:	



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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:

JW14427D: GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT

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)

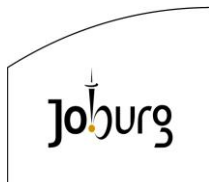
Name and signature of witness

(Name)

(Signature)

Date

Employer:		Contractor:	
Witness:		Witness:	



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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.

FOR EMPLOYER OFFICIAL USE ONLY

Name(s)

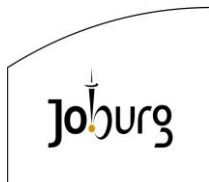
Capacity

For the Employer

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

(Name and address of organisation)

Employer:		Contractor:	
Witness:		Witness:	



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**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

Details

4 Subject

Details

5 Subject

Details

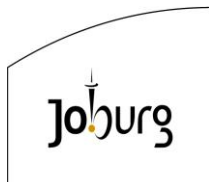
6 Subject

Details

7 Subject

Details

Employer:		Contractor:	
Witness:		Witness:	



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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

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)

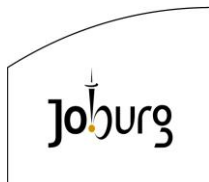
**Name and signature
of witness**

(Name)

(Signature)

Date

Employer:		Contractor:	
Witness:		Witness:	



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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

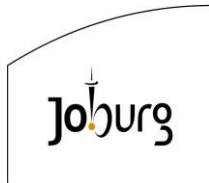
The following contract specific data are applicable to this Contract:

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 18 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 Jonathan Kekana
1.1.1.16	The name of the Employer’s Agent is Tawandira Mpandaguta.
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 1400 Fax: 011 688 1588 Email: jonathan.kekana@jwater.co.za
1.2.1.2	The address of the Employer’s Agent is TBA after Contract Award
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)

Employer:		Contractor:	
Witness:		Witness:	

GCC Clause	Information		
	• Approval to exceed the Contract Sum • Approval of Subcontracting Plan and work package breakdown • Stoppage/ suspension of Works by the Employer's Agent		
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 30% of the Contract Price shall be subcontracted to SMME's. Where the advised items for subcontracting do not form 30% 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 • Environmental Officer The minimum requirements in terms of qualifications and experience of these Key Personnel are listed in (see below).		
	Competent Employees	Qualifications	Experience
	Contracts Manager	Minimum Qualifications of Contract Manager Only Contract Managers with qualifications of BTech/ BSc/BEng: (Civil) or Quantity Surveying, Construction Management AND Professional Registration (Pr.Eng. / Pr. Technologist or PrCPM/PrCM) will be accepted. However, the date of registration of Contract Manager will not impact post	Four completed civil engineering projects as a Contract Manager.

Employer:		Contractor:	
Witness:		Witness:	

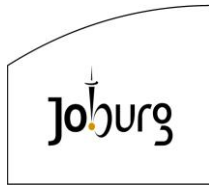


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GCC Clause	Information		
		qualification number of projects	
	Site Agent	Minimum Qualifications of Site Agent Only Site Agents with qualifications of National Diploma (Civil Engineering or higher) will be accepted.	2 (two) Water Meter Installation and Water Pipe Laying (reticulation or bulk pipe laying) completed projects with a minimum of R30 million each as a Site Agent
	Safety Officer	Post Qualification Experience of Safety Officer Only a Safety Officer Registered with SACPCMP as a Construction Health and Safety Officer or Construction Health and Safety Manager or Professional Construction Health and Safety Agent.	Three Completed Civil Engineering Projects as a Safety Officer
	Environmental Liaison Officer/ Environmental Officer	Post Qualification Experience of Environmental Liaison Officer/ Environmental Officer Only an Environmental Officer with qualifications of National Dip/BA/BSc in Environmental Management will be accepted.	Three years' experience in construction projects or Three Completed Civil Engineering Projects as an Environmental Liaison Officer/ Environmental Officer

Employer:		Contractor:	
Witness:		Witness:	

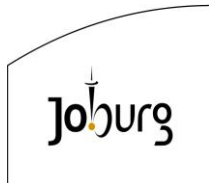


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GCC Clause	Information
5.3.1	The documentation required before commencement with Works execution are: • Approved Health and Safety File (Clause 4.3) • Approval of the Environmental File (Clause 4.3) • Initial programme & cashflow projections (Clause 5.6) • Performance Guarantee from Bank or Insurance Company which is registered as a Financial Service Provider (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 ○ Contractor's all Risk Insurance ○ Insurance of Motor Vehicle Liability, ○ Any other insurance to be submitted by the Contractor • 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. • Subcontract plan / proposal which includes a number of Subcontractors that meet requirements as per conditions of C1.2.1.2.14 • Organogram of resources - CVs and certified qualifications and registration of competent employees as per conditions of Clause 4.11.1 above (Contracts Manager, Site Agent and Safety officer).
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.
5.8.1	Working days shall be Monday to Friday, between 07h00 to 17h00.
5.8.1	The non-working days are Saturdays and Sundays. The special non-working days are all Public Holidays in terms of the Public Holidays Act (as amended), Election Day, and the annual "Builder's Break" as defined by SAFCEC on an annual basis.
5.11.1.2	Delete Clause 5.11.1.2
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.

Employer:		Contractor:	
Witness:		Witness:	

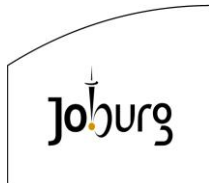


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GCC Clause	Information
5.14.1	The requirements for achieving Practical Completion are: • The secondary mains are tested and commissioned. • All the planned meters are installed, approved job cards, acknowledgement forms for receipt of Customer Interface Units and happy letters are submitted to the employer. • All the stands have been retrofitted; approved job cards and happy letters are submitted to the employer. Reinstate the surfaces to their original condition.
5.16.3	The latent defects period is 10 years.
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 Applicable for this Contract. The rates shall be adjusted by twelve-month year on year CPI index (as published in the monthly bulletin PO141.1 of statistics South Africa) ruling on the 12-month anniversary date of the Commencement of Contract.
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%.
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/ valid tax invoice. 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
6.11	Delete Clause 6.11
7.8.2	Cost of making good of defects

Employer:		Contractor:	
Witness:		Witness:	

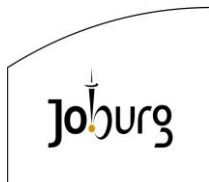


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GCC Clause	Information
	Amend Clause 7.8.2.1 as follows: In the first line, correct the spelling of 'therefore'.
8.1.1	Add to the end of Clause 8.1.1 the following text: "Although the extent of the Works and the Site are located within the boundaries of the Johannesburg City, 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.
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: a. 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

Employer:		Contractor:	
Witness:		Witness:	



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GCC Clause	Information
	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 by the Contractor 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. b. 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) c. 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. d. 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 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 adjudication followed by arbitration.
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

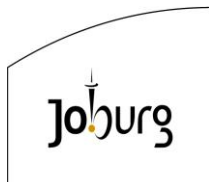
The additional Conditions of Contract are:

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 R2,000.00 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

Employer:		Contractor:	
Witness:		Witness:	



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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.

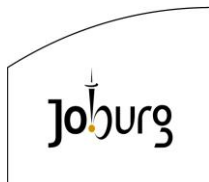
No liability in terms of this clause shall be attached to the Contractor if he can prove to the satisfaction of the Employer that the nature of the failure is due to fire, war, riot, strikes, act of God, lockout, accident or other unforeseen occurrences or circumstances beyond the Contractor's control, 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.

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 10,000.00 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

Employer:		Contractor:	
Witness:		Witness:	



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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 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 000,00 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 R5 000,00 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.

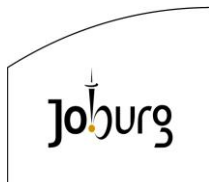
g) Penalties irreversible

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

Employer:		Contractor:	
Witness:		Witness:	



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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.

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

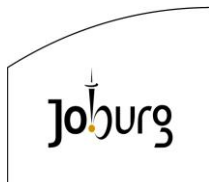
All maps, drawings, photographs, mosaics, plans, reports, recommendations, estimates, documents and all other data compiled by or received by the Contractor under the Contract shall be the property of the Employer, shall be treated as confidential and shall be delivered only to the Employer's Agent or 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

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- 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

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

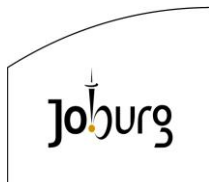
All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Employer's Agent's instructions and shall be subjected from time to time to such tests as the Employer's Agent may direct at the place of manufacture or fabrication, or on the Site or at 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.

Employer:		Contractor:	
Witness:		Witness:	



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 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.

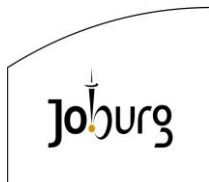
C1.2.1.2.12 Ambiguities and Inconsistencies

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.

Employer:		Contractor:	
Witness:		Witness:	



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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.

C1.2.1.2.14 Special Conditions

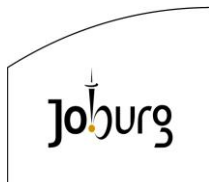
The successful Contractor must subcontract a minimum of 30% of the value of this Contract to an entity(s) described below. The value of the Contract for the purposes of this calculation shall be equal to the Contract Price (excluding VAT) as described in the General Conditions of Contract.

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. Local Subcontractors will be sourced from within the Ward/Region where the project will be implemented.
2. The Contractor will identify subcontracting items or tasks that will meet the subcontracting minimum of 30% 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 30% of the Contract Price, the Contractor shall identify additional works that will be subcontracted to ensure compliance with the minimum subcontracting percentage.
 - The Local sub-contracting appointment will be as per Johannesburg Water's Standard Operating Procedures (SOP attached as Annexure 2) for SMME

Employer:		Contractor:	
Witness:		Witness:	



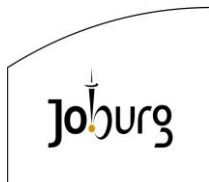
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appointments.

- 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 30% 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 30% 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 domicile 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)
 - 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,

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Witness:		Witness:	



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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.
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 BBBEE 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

Employer:		Contractor:	
Witness:		Witness:	

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.

The Contractor shall avail himself for all stakeholder engagement sessions leading to the appointment of subcontractors.

C1.2.1.2.15 Competent Employees

Please refer to Clause 4.11.1 of the Contract Data

C1.2.1.2.16 Tie-in Limitations

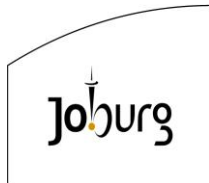
The connection of new infrastructure to the existing infrastructure is limited to low-flow periods and subject to prior arrangement and approval by the Works.

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

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Witness:		Witness:	

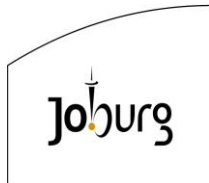


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	2.2.5 “STAGE 5 - CONSTRUCTION DOCUMENTATION AND MANAGEMENT”, and 2.2.6 “STAGE 6 - PROJECT CLOSE – OUT”, and 2.2.7 “ADDITIONAL RELATED SERVICES”, as published in “Registration Rules for Construction Health and Safety Agents in Terms of Section 18 (1) (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 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”

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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	<table border="1"><thead><tr><th colspan="2">The address of the Contractor is:</th></tr><tr><th>Physical Address:</th><th>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>	The address of the Contractor is:		Physical Address:	Postal Address:									Tel:	Fax:			Email	
The address of the Contractor is:																			
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 registered financial services provider.																		
Clause 6.8.3	The variation in cost of special materials is Type Unit Rate NOT APPLICABLE																		

Employer:		Contractor:	
Witness:		Witness:	

Johannesburg Water (SOC) Ltd



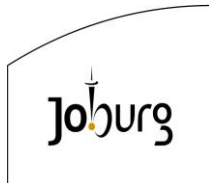
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**GREATER ORANGE FARM PHASE A WATER
 INFRASTRUCTURE UPGRADE AND RENEWAL
 PROJECT**

VOLUME 1

**CONTRACT PART 1 C1.3: FORMS OF
 SECURITIES**

Employer:		Contractor:	
Witness:		Witness:	



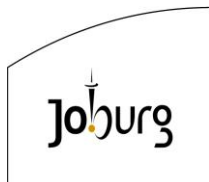
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SECTION C1.3: FORMS AND SECURITIES



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Employer:		Contractor:	
Witness:		Witness:	



C1.3 FORMS AND SECURITIES

FORMS FOR COMPLETION BY THE CONTRACTOR

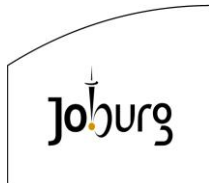
THE FOLLOWING FORMS ARE TO BE COMPLETED BY THE CONTRACTOR AFTER THE TENDER HAS BEEN AWARDED TO THE SUCCESSFUL TENDERER

- 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 execution of a Contract in terms of 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").

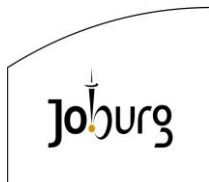
And whereas the Contract requires the Contractor to provide to the Employer an **on-demand** performance guarantee for the due and proper performance by the Contractor of its obligations in terms of the Contract.

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") (excluding VAT), 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 to with 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.

Employer:		Contractor:	
Witness:		Witness:	

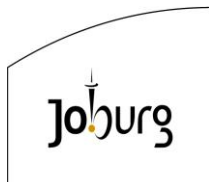


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2. To pay to the Employer the Guaranteed Amount or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor emailed to calling up this Performance Guarantee, such demand stating that:
 - 2.1. The Contract 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:
 - 3.1. Is in breach of its obligations under the Contract or that a defect had occurred following the non-performance by the Contractor of its obligations under the Contract.
 - 3.2. Is due to be terminated but the Employer elects for the Contractor to remain in risk for the appointment of a replacement contractor to correct the Contractor's defaults and/or complete the works, and without being required to prove or set out the nature of any such breach or defect.
4. Subject to the above, but without in any way detracting from the employer's rights to adopt any of the procedures provided for in the contract, the said demand can be made by the employer at any stage prior to the expiry of this guarantee.
5. 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.
6. The Guarantor hereby acknowledges that:
 - 6.1. 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;
 - 6.2. Its obligation under this Performance Guarantee is restricted to the payment of money.
7. 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.
8. 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.
9. 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.

Employer:		Contractor:	
Witness:		Witness:	



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-
10. This Performance Guarantee is neither negotiable nor transferable.
11. 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.
12. 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.
13. 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:

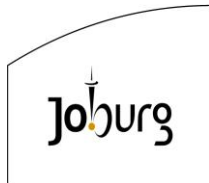
Designation:

Guarantor's signatory (2)

Name:

Designation:

Employer:		Contractor:	
Witness:		Witness:	



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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

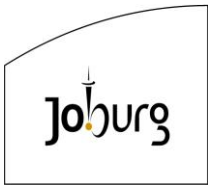
NOW THEREFORE THIS DEED WITNESSETH that the Contractor does hereby indemnify and hold harmless the Company in respect of all loss or damage that may be incurred or sustained by the Employer by reason of or in any way arising out of or caused by blasting operations that may be carried out by the Contractor 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.

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. _____

Employer:		Contractor:	
Witness:		Witness:	



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_____ Name & Surname	_____ Signature

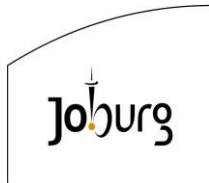
2.

_____ Name & Surname	_____ Signature

Duly authorised to sign on behalf of: _____

Address: _____

Employer:		Contractor:	
Witness:		Witness:	



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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 _____

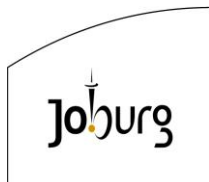
Signature on behalf of mandatory _____

Signature on behalf of Employer _____

Compensation Fund Registration No. of mandatory _____

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

Employer:		Contractor:	
Witness:		Witness:	



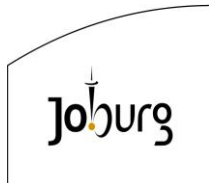
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C1.3.4 Health and Safety Contract: General Information

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 **JW14427D: GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT**
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:	



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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 _____

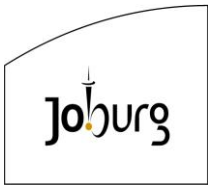
Signature Capacity

As witnesses:

1 _____

2 _____

Employer:		Contractor:	
Witness:		Witness:	



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Employer:		Contractor:	
Witness:		Witness:	



Johannesburg Water SOC Ltd



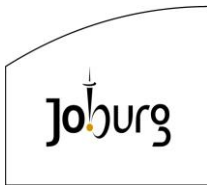
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VOLUME 1

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Employer:		Contractor:	
Witness:		Witness:	



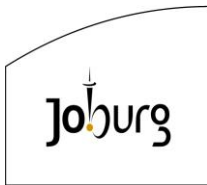
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Employer:		Contractor:	
Witness:		Witness:	



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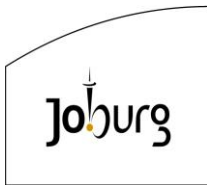
C2 PRICING DATA

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.

Employer:		Contractor:	
Witness:		Witness:	



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- 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:

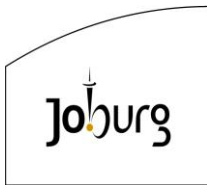
mm	=	millimetre	=	hour
m	=	metre	kg	= kilogram
km	=	kilometre	t	= ton (1000kg)
m ²	=	square metre	No.	= number
m ² pass	=	square metre pass	sum	= lump sum
ha	=	hectare	MN	= mega-newton
m ³	=	cubic metre	MN.m	= mega-newton-metre
m ³ km	=	cubic metre-kilometre	PC sum	= Prime Cost sum
l	=	litre	Prov sum	= 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:	



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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

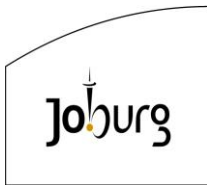
The additional costs, if any, to perform works outside normal working hours shall be deemed to have been allowed for in the provided activity pricing rates and/or prices.

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. All Sub-Contractors shall be appointed as per Johannesburg Standard Operating Procedures (SOP) for SMME appointments. 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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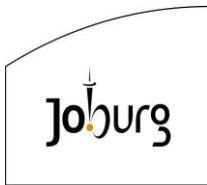


Further an allowance has been made for the Contractor to complete the following tasks:

- 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:	

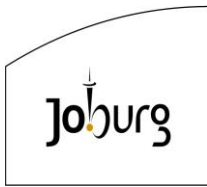


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BILL OF QUANTITIES

Employer:		Contractor:	
Witness:		Witness:	



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Employer:		Contractor:	
Witness:		Witness:	

JOHANNESBURG WATER

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
A.	SABS 1200A & 1200AB	SCHEDULE A: PRELIMINARY AND GENERAL				
	8,3	FIXED-CHARGE ITEMS				
1.1	8.3.1	Contractual requirements (sureties, insurance of the Works and plant, third party or public liability insurance and unemployment insurance to cover his compliance with the requirements of the Workmen's Compensation Act, 1941 (Act NO. 30 of 1941) and any other initial financing obligations of a preliminary and general nature, such as contributions to the CEITB)	Sum	1		
	8.3.2	PROVISION OF FACILITIES ON SITE:				
	8.3.2.1	Facilities for Engineer:				
1.2	PSA 8.3.2.1.a	a) Facilities for the Engineer (No:1) and Parking	Sum	1		
		b) JW ISD Team (No:1)	Sum	1		
		c) QCO's and CLO Office (No.1)	Sum	1		
		d) Boardroom (No:1)	Sum	1		
		e) Parking (No.2)	Sum	1		
		f) Nameboards (No=2)	Sum	1		
		g) Communication	Sum	1		
		h) Telephone and Computer facilities for Complaints Handler Team (No.4)	Sum	1		
		i) Ablution and latrine facilities	Sum	1		
1,3	8.3.2.2	Facilities for the Contractor				
		a) Offices and storage sheds	Sum	1		
		b) Workshops		1		
		c) Ablution and latrine facilities	Sum	1		
		d) Tools and equipment	Sum	1		
		e) Water supplies, electric power and communications	Sum	1		
		f) Dealing with water (SANS 1200A 5.5)	Sum	1		
	PS 7	g) Access (see SANS sub-clause 5.8)	Sum	1		
1.4		FACILITIES FOR SMME Fixed Charged Items				
		a) Establishment of storage and Facilities for the SMMEs	Sum	1		
		b) Tools and equipment	Sum	1		
		c) Other Fixed related obligations	Sum	1		
		d) Removal of Facilities	Sum	1		
1.5	PSA 8.3.5.2	OHS Act Obligations (Compilation of OHSAct file)	Sum	1		
1.6	PSA 8.3.5.3	EMP Obligations (Compilation of environmental file)	Sum	1		
1.8	PSA 8.3.5.3	Issuing of notices to Customers	Sum	1		
1.8	8.3.4	Removal of site Establishment	Sum	1		
1.9	8,4	TIME RELATED ITEMS				
1.10	8.4.1	Contractual requirements	Month	21		
1.11	8.4.2	Contractor's Supervision for the duration of construction	Month	21		
TOTAL CARRIED FORWARD						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
1.12	8.4.2.1	Facilities for Engineer:				
A.12		a) Facilities for the Engineer (No:1) and Parking	Month	21		
		c) JW ISD Team (No:1)	Month	21		
		d) QCO's and CLO Office (No.1)	Month	21		
A.13		e) Boardroom (No:1)	Month	21		
A.14		f) Parking (No.2)	Month	21		
A.15		g) Nameboards (No=2)	Month	21		
		h) Communication	Month	21		
		h) Telephone and Computer facilities for Complaints Handler Team (No.4)	Month	21		
		i) Ablution and latrine facilities	Month	21		
1.13	8.4.2.2	Facilities for the Contractor:				
8.4.4		Contractor's head office overhead costs for the duration of the Contract	Month	21		
1.14		Contractor's Supervision for the duration of the Contract	Month	21		
A.18		a) Offices and storage sheds	Month	21		
A.19		b) Ablution and latrine facilities	Month	21		
A.20		c) Tools and equipment	Month	21		
A.21		d) Water supplies, electric power and communications	Month	21		
A.22		e) Dealing with water (SANS 1200A 5.5)	Month	21		
A.23		f) Access (see sub-clause 5.8)	Month	21		
1.14	PSA 8.4.4	OHS Act Obligations	Month	21		
1.15	PSA 8.4.5	EMP Obligations	Month	21		
1.16	PSA 8.4.6	Security Services	Month	21		
1.17	PSA 8.4.6.1	g) Compliance with OHS & EM Plans including Safety Officer and Environmental Officer Salaries	Month	21		
1.18		Facilities for SMMEs Time Related Items				
		a) Storage Facilities	Month	21		
		b) Tools and equipment	Month	21		
	8.4.3	c) Contractor's Supervision of SMMEs for the duration of construction	Month	21		
		d) Other time related obligations	Month	21		
1.19	PS 3.2.8	SMME's Preliminary and General	Prov.Sum	1	8 290 943	8 290 943
A.30		a) Extra over items 1.16 above for overhead charges and profit	%	8 290 943		
1.20	PSA 8.4.6.2	Security Services on-site for SMMEs facilities	Month	0		Rate only
TOTAL CARRIED FORWARD						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
1.21	PSA 8.5	PROVISIONAL SUMS STATED BY ENGINEER				
		a) Community Liaison Officer Salaries and cellphone allowance (No 3)	Prov. Sum	1	945 000,00	R 945 000,00
		b) JW ISD representative (Community facilitator-including team leader and Complaints handler)	Prov. Sum	1	378 700,00	R 378 700,00
		c) Community awareness material	Prov. Sum	1	100 000,00	R 100 000,00
A.33		d) QCF and QCO(No:5)	Prov. Sum	1	660 000,00	R 660 000,00
		e) Training but not limited to the following: Plumbing	Prov. Sum	1	600 000,00	R 600 000,00
		f) MIS System or similar approved Training	Prov. Sum	1	100 000,00	R 100 000,00
		g) Reinstatement of Asphalt by JRA	Prov. Sum	1	350 000,00	R 350 000,00
		Overheads, charges and profit on item 1.19 (a) to 1.19 (g)	%	3 133 700		
1.22		TEMPORARY WORKS				
1.22.1		Existing Services				
		a) Excavation by hand in all material to expose existing services	m ³	1 000		
		b) Temporary protection of services	Sum	1		
		c) Accommodation of traffic	Sum	1		
	PSA 8.4.15	d) Provision of photographic records	Sum	1		
1.23	8.7	DAY WORKS (the rate shall cover overhead charges and profit of all day works items listed) (to be executed on instruction from the Engineer)				
1.23.1		<i>Labour</i>				
		a) Unskilled	hr	150		
		b) Semi skilled	hr	150		
		c) Skilled	hr	150		
		d) Armed Security guard	hr	150		
TOTAL CARRIED FORWARD						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
1.23.2		TLB's (Tractor loader backhoe)				
		a) 2x4	hr	150		
		b) 4x4	hr	150		
		Compactors				
1.23.3		a) Wacker	hr	48		
		b) Plate compactor	hr	48		
1.23.4		Generator (Wet Rate)				
		a) 3kVA	hr	100		
		b) 5kVa	hr	100		
TOTAL CARRIED FORWARD TO SUMMARY						

JOHANNESBURG WATER

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
2	SABS 1200C	SCHEDULE B: SITE CLEARANCE				
2.1	8.2.1	Clear and grub (2 metre width)	m	1 800		
2.2	PSC 8.2.14	Protection of trees as ordered by Engineer	No	50		
2.3	8.2.10	Remove topsoil to nominal depth of 150mm and stockpile for re-use as directed by Engineer	m ³	1 200		
2.4	PSC 8.2.11b	Removal of man-made surfaces, stockpile materials for later re-use				
		a) Footways and driveways				
		i) Asphalt (≤ 50mm thickness)	m ²	200		
		ii) Asphalt (≥ 50 - 100mm thickness)	m ²	200		
		iii) Interlocking concrete segmental paving blocks (all colours)	m ²	2 400		
		iv) Concrete slabs (450 x 450mm)	m ²	120		
		v) Brick paving	m ²	2 400		
		vi) Grassing and vegetation	m ²	1 200		
		vii) Unreinforced concrete <75mm thick	m ³	45		
		viii) Reinforced concrete <75mm thick	m ³	45		
		ix) Kerbing (All types of kerbs)	m	2 000		
		x) Dump rock/Stone pitching	m ³	60		
		xi) Steel palisade	m	400		
		xii) Concrete palisade	m	400		
		xiii) Removal of all other fences	m	4 000		
		xiv) Demolish of 115mm brick boundary wall	m	2 500		
		xv) Demolish of 230mm brick boundary wall	m	2 000		
		xvi) Tiles	m ²	1000		
2.5	PSC 8.2.12	Backfilling and reinstatement of man-made surfaces				
		a) Backfilling and reinstatement of footways and driveways using materials recovered in item 2.4 above				
		i) Interlocking concrete segmental paving blocks (all colours)	m ²	2 400		
		ii) Concrete slabs (450 x 450mm)	m ²	120		
		iii) Brick paving	m ²	2 400		
		iv) Grassing and vegetation	m ²	1 200		
		v) Kerbing (All types of kerbs)	m	2 000		
		vi) Dump rock/Stone pitching	m ³	60		
TOTAL CARRIED FORWARD						

JOHANNESBURG WATER

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
2.6	PSC 8.2.12	a) Backfilling and reinstatement of footways and driveways using new materials				
		i) Asphalt ($\leq$ 50mm thickness)	m ²	200		
		ii) Asphalt ($\geq$ 50 - 100mm thickness)	m ²	200		
		iii) Interlocking concrete segmental paving blocks (all colours)	m ²	720		
		iv) Concrete slabs (450 x 450mm)	m ²	36		
		v) Brick paving all colours	m ²	720		
		vi) Grassing and vegetation	m ²	360		
		vii) Unreinforced concrete <75mm thick	m ³	45		
		viii) Reinforced concrete <75mm thick	m ³	45		
		ix) Kerbing (All types of kerbs)	m	600		
		x) Dump rock/Stone pitching	m ³	18		
		xi) Steel palisade	m	400		
		xii) Concrete palisade	m	400		
		xiii) All other fences	m	4 000		
		xiv) 115mm brick boundary wall including plastering	m	2 500		
		xv) 230mm brick boundary wall including plastering	m	2 000		
		xvi) Tiles	m ²	1000		
TOTAL CARRIED FORWARD TO SUMMARY						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	RATE	AMOUNT
3	SABS 1200DB	SCHEDULE C: EARTHWORKS (PIPE TRENCHES)				
3.1	8.3.2	Excavation				
3.1.1	PSDB 8.3.2(a)	Excavate in all material for trenches, shore and dispose of surplus material using labour intensive construction methods for the depths of:				
		a) Over 0,0m and up to 1,5m	m³	14 850		
		b) Over 1,5m and up to 2,5m	m³	10		
		c) Over 2,5m	m³	10		
3.1.2	PSDB 8.3.2(3)	Excavate by hand in all material for tie-ins, house connections, backfill and compact including disposal of surplus unsuitable material for depth:				
		a) Over 0,0m and up to 1,0m	m³	2 228		
		b) Over 1,0m and up to 1,5m	m³	2		
		c) Over 1,5m	m³	2		
3.1.3	8.3.2(b)	Extra over Item 3.1.1 above for : Please refer to PSD 3.1.3 for Classification of materials for hand excavations				
		a) Intermediate excavation.	m³	5 198		
		b) Hard excavation.	m³	4 455		
		c) Rock excavation	m³	1 485		
3.2	8.3.3	Excavation Ancillaries				
3.2.1	8.3.3.1	Make up deficiency in backfill material (Provisional)				
		a) from other necessary excavations on site	m³	3 564		
		b) by importation from designated borrow pits	m³	3 713		
		c) by importation from commercial or off site sources selected by the Contractor	m³	1 485		
3.3	8.3.3.3	a) Additional compaction to 95% mod AASHTO density in road crossings	m³	1 040		
3.4	8.3.4 (a)	a)Shore trench opposite structure or service (Provisional)	m	1 500		
TOTAL CARRIED FORWARD						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
3.5	PSDB 8.3.5(a)	a) Services that intersect a trench				
		i) Water house connections.	No.	757		
		ii) Sewer pipes up to 300mm Dia.	No.	1 000		
		iii) Cables.	No.	1 400		
		iv) Stormwater pipes up to 1050mm dia.	No.	300		
		v) Kerbs and Channels	No.	500		
		vi) Water pipes of any diameter	No.	800		
		vii) Irrigation pipes	No.	100		
3.6	8.3.5(b)	b) Services that adjoin a trench				
		i) Water house connections	m	1 892		
		ii) Sewer pipes up to 600mm Dia.	m	2 000		
		iii) Cables.	m	3 000		
		iv) Stormwater pipes up to 1050mm dia.	m	1 500		
		v) Kerbs and Channels	m	4 000		
		vi) Water pipes of any diameter	m	6 000		
		vii) Irrigation pipes	m	200		
3.7	PSDB 8.3.5(c)	Services that require special care	No	200		
3.8		Trimming of tree roots on pipe alignment(This item will be measured as number of trees)	No	100		
CARRIED FORWARD TO SUMMARY						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
4	SABS 1200LB	SCHEDULE D: BEDDING (PIPES)				
4.1	8.2.1	Provision of bedding from trench excavation				
		a) Selected granular material	m³	2500		
		b) Selected fill material	m³	4005		
		c) Extra over item 4.1(a) and (b) for sieving where ordered by Engineer	m³	1626		
4.2	8.2.2.3	Provision of bedding imported from commercial sources (Provisional)				
		a) Selected granular material	m³	875		
		b) Selected fill material	m³	1201		
		c) 19mm Crushed stones bedding	m³	976		
4.3	8.2.4	a) Encasing of pipe in 20MPa concrete (Provisional)	m³	481		
		b) Concrete for Thrust/anchor blocks (including all required formwork) as per detail JW100-DET05-W01	m³	360		
TOTAL CARRIED FORWARD TO SUMMARY						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
5	SABS 1200L	SCHEDULE E: MEDIUM PRESSURE PIPELINES				
5.1	8.2.1	a) Supply, lay, bed (class B bedding), all test and disinfect, backfill complete with victaulic couplings denso wrapped including knock on collars at joints, high impact mPVC Class 16 pipes: i) DN110 ii) DN160 iii) DN200 iv) DN250	m m m m	10 000 0 0 0		Rate only Rate only Rate only
5.1.1	PSL 8.2.1	Pressure Testing of existing pipes	m	23000		
5.1.2	PSL 8.2.2	Commissioning (Locating, disinfecting and commissioning of existing road reserve water pipes of all materials with diameters ranging from 110 mm to 250mm)	m	23000		
5.1.3	PSL 8.2.3	Decommissioning Material for existing pipes	Prov.Sum	1	R 2 000 000,00	R 2 000 000,00
5.1.4		Extra over items 5.1.3 above for overhead charges and profit	%	R 2 000 000,00		
		Fittings to suit High Impact Class 16 uPVC pipes				
5.2.1	8.2.2	a) Shouldered end Steel Bends Fusion Bonded Epoxy coated 250 microns including thrust blocks to suit high impact mPVC pipe: DN110 i) 11¼° ii) 22.5° iii) 45° iv) 90°	No No No No	25 20 90 25		
	8.2.2	b) Shouldered end Steel Reducer Fusion Bonded Epoxy coated 250 microns to suit High Impact mPVC pipe: i) 150mm x 100mm dia. ii) 200mm x 100mm dia.	No No	25 25		
		c) Steel Flanged Crosses, Fusion Bonded Epoxy coated 250 microns to suit High Impact mPVC piping including thrust block i) 100mm dia. equal cross ii) 150mm dia. equal cross	No No	45 3		
		e) Steel End Caps Fusion Bonded Epoxy coated 250 microns to suit High Impact mPVC piping including thrust block i) DN110 ii) DN160	No No	8 2		
		Extra-over item 8.2.2 for encasing joints (Denso wrapping or similar approved of metal joints).	No	500		
5.3		a) Supply, fixing and bedding of valves with its fittings complete (including chambers as per drawing JW100-DET03-W01. Gate Valves Class 16, anti-clockwise closing (except for Midrand Depot) for the following pipe sizes: Valves to be manufactured in accordance with SANS 664				
5.3.1	PSL 8.2.19	i) DN100 RSV Class 16 Non rising spindle Detail JW100-DET03-W01 ii) DN150 RSV Class 16 Non rising spindle Detail JW100-DET03-W01	No No	160 2		
5.3.2	PSL 8.2.19	b) Supply, fixing and bedding of above ground fire hydrants with fittings and galvanised pipe for connection to the main line as per detail JW100-DET06-W01 (Rate to include all fittings required to connect to main line e.g. tees, bends, distance piece, approved coating on the fire hydrant etc.) i) DN80 fire Hydrant mainline 110mm dia ii) DN80 fire Hydrant mainline 160mm dia	No No	140 5		
5.4	8.2.4	Extra-over 5.1 for cutting and joining of pipes to length where required:				
5.4.1		a) "Press on" shouldered end collars including 1 victaulic coupling for mPVC pressure pipe: i) DN110 ii) DN160	No No	240 10		
TOTAL CARRIED FORWARD						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
5.4.2		b) Steel Flanged Adaptors with victaulic ends, Fusion Bonded Epoxy coated 250 microns to suit High Impact mPVC piping including thrust block i) DN110 ii) DN160	No No	500 14		
5.4.3		c) Steel flanged adaptors (VJ type), Fusion Bonded Epoxy coated 250 microns to suit High Impact mPVC piping including thrust block i) DN110 ii) DN160	No No	90 2		
5.5	8.2.15	Special wrapping in corrosive soil per joint and as instructed by the Engineer	No	315		
5.6		Tying into existing Pipes				
5.6.1	PSL 8.2.17	Tying into existing water line. Supply all fittings to suit pipe size including labour for the following pipe sizes, excavations will be allowed under pipe excavations: a) Tying new 110mm-160mm uPVC/HDPE/mPVC into existing steel/HDPE/AC/uPVC pipes for the following pipe sizes: i) 100mm to 200mm ii) 201mm to 400mm b) Tying new 200mm-250mm HDPE/MPVC into existing steel/HDPE/AC/uPVC pipe for the following pipe sizes: i) 100mm to 200mm ii) 201mm to 400mm	No No No No	15 10		Rate Only Rate Only
5.6.2		Tying into existing water line using under pressure drilling. Supply all fittings to suit pipe sizes including labour for the following pipe sizes: a) Tying new 110mm-160mm HDPE/MPVC into existing steel/HDPE pipe for the following pie sizes: i) 100mm to 200mm ii) 201mm to 400mm	No No	2		Rate Only
5.7	PSL 8.2.24.2	Supply, handle, install the following HDPE pipes using Horizontal Directional Drilling (HDD) in soft and intermediate material for any depth a) DN110 (HDPE pipe, Class 16 PE100 SDR 11) b) DN160 (HDPE pipe, Class 16 PE100 SDR 11)	m m	300		Rate Only
5.8		Extra over item 5.7 for Horizontal Direction Drilling in rock material	m	450		
5.8.1		Excavate in all materials Launching and reception shafts/pits	m³	1 013		
5.9	PSL 8.2.18	a) Recover valves, fittings, meters, specials of all sizes etc and deliver to the respective Depot or as instructed by the Employer's Agent. i) Valves following sizes: 1) 100mm to 300mm 2) 301mm to 600mm ii) Fire Hydrants all sizes	No No No	450 220		
CARRIED FORWARD TO SUMMARY						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
6.	SABS1200 DB	SCHEDULE F: ERF CONNECTIONS (WATER)				
6.2		EXCAVATIONS				
	8.3.2(a)	Excavate in all materials for trenches 400mm wide, backfill, compact, dispose of surplus / unsuitable material, levelling and cleaning for the following pipe diameters:				
		a) 0 - 40mm diameter	m³	5 298		
		b) > 40mm - 50mm diameter	m³	560		
6.3	PSDB 8.3.2 (b)	Extra-over items (8.3.1 (a)) for				
		i) Intermediate excavation	m³	1 854		
		ii) Hard rock excavation	m³	530		
6.4		ERF CONNECTIONS				
6.4.1		Illegal erf connection locating and removal	No.	2 270		
6.4.2		Erf connection provision and installation				
		1) Domestic erf connections				
		All erf connections HDPE				
		a) Single short erf connections	No.	3 027		
		b) Double short erf connections	No.	1 514		
		c) Single long erf connections	No.	1 892		
		d) Double long erf connections	No.	1 135		
6.4.3	PS4.2.2	HORIZONTAL DRILLING (LONG ERF CONNECTIONS)				
	C2.1.3.1	Supply and installation of pipe through horizontal drilling				
		a) 20 mm diameter HDPE pipes	m	1 230		
		b) 25 mm diameter HDPE pipes	m	2 706		
		c) 32 mm diameter HDPE pipes	m	19 172		
		c) 40 mm diameter HDPE pipes	m	1 000		
6.4.4		Extra-over item for horizontal drilling.	m	3 689		
6.5	PF22.9	VALVES				
		Provision and installation of ball valves				
		a) Provision and installation of ball valves on existing and new erf connections. (Less than 500mm deep)				
		1) 20 mm diameter ball valve	No.	1896		
		2) 25 mm diameter ball valve	No.	1139		
		3) 32mm diameter ball valve	No.	1400		
		4) 40mm diameter ball valve	No.	20		
6.6		b) Provision and installation of ball valves on existing erf connections (More than 500mm deep)				
		1) 20mm diameter ball valve	No.	4 916		
		2) 25 mm diameter ball valve	No.	6 429		
		3) 32mm diameter ball valve	No.	7 186		
		4) 40mm diameter ball valve	No.	20		
TOTAL CARRIED FORWARD						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
6.7		Extra-over above item for ball valve installation for existing pipes other than HDPE.				
		1) 20 mm diameter ball valve	No.	0		Rate only
		2) 25 mm diameter ball valve	No.	2 270		
		3) 32 mm diameter ball valve	No.	0		Rate only
		4) 40mm diameter ball valve	No.	20		
6.8		Supply and install valve boxes for ball valves	No.	7 568		
		Additional items pertaining to bulk water meters and apperutenances to be procured on instruction from the Engineer	Prov. Sum	1	R100 000	R100 000
		Overheads, charges and profit on item 6.5	%	R 100 000,00		
TOTAL CARRIED FORWARD TO SUMMARY						

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GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
7		SCHEDULE G: YARD CONNECTIONS				
7.1	PS1.3 (A)	YARD CONNECTIONS				
7.1.1		Provision and installation of yard connections	Prov.Sum	1	R 5 640 421	R 5 640 421
7.1.2		Extra over items C1 above for overhead charges and profit	%	5 640 421		
7.2		LEAK DETECTION				
	PA8.2.19	Leak free tests	No.	7 000		
TOTAL CARRIED FORWARD TO SUMMARY						

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Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
8		SCHEDULE H: ON-PROPERTY PLUMBING RETROFITTING				
8.1	PA8.2.8	Preparation and delivery of notice to owner	No.	7 568		
8.2	PA 8.2.20	100% pre-intervention survey on customer properties	No.	7 568		
8.3	PA8.2.2	Provision and installation of on-property plumbing retrofitting	Prov.Sum	1	R957 264	R 957 264
8.4		Extra over items 8.3 above for overhead charges and profit	%	957 264		
		Remove and replace or refurbish existing and test plumbing fittings				
8.5	PA 8.2.22	Water closet (WC) pans	No.	4 541		
8.5.1	PA 8.2.23	Water closet (WC) cistern and flushing mechanism				
		a) 6-Litre plastic unit	No.	2 649		
		b) 6-Litre porcelain unit	No.	2 649		
8.5.2		Flushing unit only				
		a) Plastic flushing unit	No.	2 649		
		b) Ceramic flushing unit	No.	2 649		
8.5.3	PA 8.2.24	Water closet (WC) cistern peripherals				
		a) Cistern-pan connection (Flush pipe)	No.	4 541		
		b) Flexible cistern tank supply connection 20X20mm pipe.	No.	4 541		
		c) Rubber cone for flush pipe (black)	No.	4 541		
8.4	PA 8.2.25	Draw-offs (taps) and stop taps (also known as stopcocks) 1) Bib taps				
		i) Internal Taps	No.	3 784		
		ii) External taps	No.	3 784		
8.5		2) Pillar taps				
		i) Internal Taps	No.	3 784		
		ii) External taps	No.	3 784		
8.6		3) Mixers	No.	1 514		
8.7		4) Stoptaps	No.	1 514		
8.9		5) Rubber washers	No.	5 298		
8.10	PA8.2.2	PIPEWORK				
		Cut, remove and dispose of existing pipe section/s. Supply, handle, thread/couple, install and test new pipe sections for diameters 15-20mm for the following pipe;				
		a) I.P.S threaded union system	m	3 500		
		b) HDPE	m	7 000		
		Cut, remove and dispose of polytube pipe section/s. Supply, handle, thread/couple, install and test new pipe sections for diameters 15-20mm.	m	4 000		
TOTAL CARRIED FORWARD						

JOHANNESBURG WATER

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE						
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD						
8.11	PA8.2.26	EXTRA-OVER ITEM FOR THE REMOVAL AND RE-INSTATEMENT OF SURFACES				
		a) Remove, temporarily store and re-instate all types of tiles	m²	7 000		
		b) Remove, temporarily store and re-instate all types of brickwork, and re-plaster	m²	7 000		
8.12		PLUMBING FITTINGS				
8.12.1		Remove and dispose damaged item. Supply new, install, test and commission.				
		a) Equal tees for 0 -40mm diameter and the following materials				
		i) I.P.S threaded union system	No.	10 595		
		ii) HDPE	No.	7 946		
		iii) Copper	No.	10 595		
8.12.2		b) Unequal tees for 0-40mm diameter and the following materials				
		i) I.P.S threaded union system	No.	5 298		
		ii) HDPE	No.	7 946		
		iii) Copper	No.	7 946		
8.12.3		c) Reducing bush 0 to 40mm diameter for the following pipe materials:				
		i) I.P.S threaded union system	No.	10 595		
		ii) HDPE	No.	5 298		
		iii) Copper	No.	7 946		
8.12.4		d) 90 degree Bends/Elbows				
		i) I.P.S threaded union system	No.	5 298		
		ii) HDPE	No.	7 946		
		iii) Copper	No.	10 595		
8.15		ELECTRICAL EARTHING AND BONDING				
		Electrical Earthing	No.	7 946		
		Electrical Bonding				
		a) U-Clamp	No/Set of 2 m	10 595		
		b) Galvanised stay wire/ copper earth peg				
		c) Copper earth peg	No.	5 298		
TOTAL CARRIED FORWARD TO SUMMARY						

JOHANNESBURG WATER

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
9.		SCHEDULE I: CUSTOMER METER INSTALLATION				
9.1	PF22.5	a) Supply of 15mm diameter STS Pre-payment water meter as per JW Metering Guidelines complete inclusive of couplings and Meter Box Unit (MBU)	No.	7 568		
9.2	PF22.7	STS Customer Interface Unit (CIU-IOT) (Supply and pairing of STS meter & Switching of meters from Conventional to Prepaid Mode)	No.	7 568		
9.3	PF22.8	Annual Data Management Fee IOT Network Hosting for 3 years after completion of the contract. (To cover cost for meter reading, meter performance audit and reporting) Please refer to Schedule A and B in the specifications.	No.	7 568		
9.4	PF22.6	b) Installation of meter per stand	No.	7 568		
9.5		TRAINING				
9.5.1	PF22,2,1	Training for Employer's staff per session (20 people per group)	No.	15		
9.5.2	PF22.3.3	Meter demonstration per stand by the Supplier's technicians	No.	7 568		
9.6		TECHNICAL SUPPORT				
9.6.1	PF22.3.1	On- Site Support during construction	Month	21		
9.6.2	PF22.3.2	After hours On-Site Support	No	1 000		
9.6.3	PF 22.3.4	On-Site Support-for 12 months after completion of the contract.	No	3 500		
9.6.4	PF 22.5	Removal of existing meters	No	7 568		
TOTAL CARRIED FORWARD TO SUMMARY						

JOHANNESBURG WATER

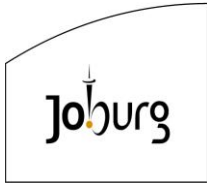
GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE

Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
Item No.	Payment Clause	Description	Unit	Qty	Rate	Amount
10.		SCHEDULE J: OCCUPATIONAL HEALTH AND SAFETY				
		SUPPLY OF ALL ITEMS OF PERSONAL PROTECTIVE CLOTHING/EQUIPMENT & ENSURE USE THEREOF FOR FULL COMPLIANCE				
10.1		Steel toe capped safety boots	No.	60		
10.2		Appropriate protective clothing	No.	60		
10.3		Gloves	No.	60		
10.4		Colour coded hardhats	No.	60		
10.5		Induction tags /cards	No.	60		
10.6		Luminous high visibility safety vests	No.	60		
10.7		Additional items: Contractor to specify (To be approved by the Engineer)	No.	60		
10.8		BARRICADING				
		Supply & install Proper Safety Nets, including removal upon completion to ensure full compliance to legislation				
10.8.1		Rigid type barricading	m	300		
10.8.2		Additional items: As specified by the Engineer	Prov.Sum	1	400 000	400 000
10.8.3		Profit on item 10.8.2 above	%	400 000		
TOTAL CARRIED FORWARD TO SUMMARY						

JOHANNESBURG WATER

CONTRACT NUMBER: JW14427D

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE		
DESCRIPTION		
SCHEDULE A: PRELIMINARY AND GENERAL	R	
SCHEDULE B: SITE CLEARANCE	R	
SCHEDULE C: EARTHWORKS (PIPE TRENCHES)	R	
SCHEDULE D: BEDDING (PIPES)	R	
SCHEDULE E: MEDIUM PRESSURE PIPELINES	R	
SCHEDULE F: ERF CONNECTIONS	R	
SCHEDULE G: YARD CONNECTIONS	R	
SCHEDULE H: ON PROPERTY PLUMBING	R	
SCHEDULE I: METER INSTALLATION	R	
SCHEDULE J: OCCUPATIONAL HEALTH AND SAFETY	R	
SUBTOTAL 1.....	R	
Add Estimated Escalation (@ 7% of Subtotal 1)	R	
SUBTOTAL 2	R	
Add Contingencies (@ 10% of Subtotal 2)	R	
SUBTOTAL 3.....	R	
Add VAT (15% of Subtotal 3)	R	
Amount Incl.VAT	R	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



Johannesburg Water SOC Ltd



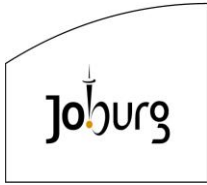
CONTRACT NO: JW14427D

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT

VOLUME 2

CONTRACT PART 3: SCOPE OF WORK

Employer:		Contractor	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



C3 PREAMBLE TO SCOPE OF WORK

GENERAL

This section specifies and describes the supplies, services and Engineering 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

These Project Specifications are set out in two portions:

PORTION 1: PROJECT SPECIFICATION covers a general description of the project, the facilities available and the requirements to be met.

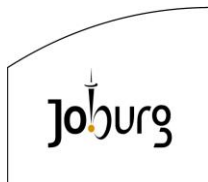
PORTION 2: VARIATIONS AND ADDITIONS TO THE STANDARDISED SPECIFICATIONS covers variations to the standardized specifications and particular specifications which are applicable to the contract.

PORTION 3: PARTICULAR SPECIFICATIONS covers project specific standards

STATUS

Should any requirement of the Project Specification conflict with any requirement of the Standardized or particular specifications, the requirements of the Project Specifications shall prevail.

Employer:		Contractor	
Witness:		Witness:	



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GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK

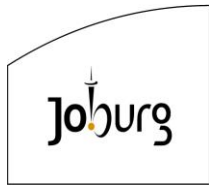


ABBREVIATIONS AND DEFINITIONS

For the purpose of this Contract the following abbreviations shall have the associated meaning:

BEE	:	Black Economic Empowerment
BS	:	British Standard
CE	:	Civil Engineering Works
CESA	:	Shall mean the Consulting Engineers of South African
CETA	:	Shall mean the construction education and training authority
CIDB	:	Construction Industry Development Board
CLO	:	Shall mean community liaison officer
CDO	:	Shall mean the JW community officer
CoJ	:	City of Johannesburg
CLO	:	Community Liaison Officer
CONTRACT	:	Shall mean an identified super-block or part thereof of the Project where an ITQS or a Consortium is appointed
HDI and HDC	:	Shall mean historically disadvantage individuals and companies
ITQS	:	Shall mean independent technical and quantity surveyor
CONSORTIUM	:	Shall mean design and construct consortium appointed for the implementation of a contract of the project
CONTRACT AREA	:	shall mean the area within the boundary of the Project Area with suburbs listed under the contract scope in Part PS 1.2 of Volume 1 that is normally defined as a superblock
ECSA	:	Engineering Council of South Africa
EDA	:	Enterprise Declaration Affidavit
ERF Connection	:	Shall mean a connection from the secondary mains to property boundary
EMP	:	Environmental Management Plan
EPWP	:	Expanded Public Works Programme
Ext	:	Extension
GCC	:	General Conditions of Contract
GIS	:	Geographic Information System
JW	:	Johannesburg Water (SOC) Ltd as the employer or client
JASWIC	:	Joint Acceptance Scheme for Water Installation Components
l	:	Litres
LOCAL	:	Shall mean within suburb/s within the boundaries of the project area
LOS	:	Level of Service
MI	:	Megalitres
PROJECT	:	Shall mean "Supply, Installation and Technical Supply of STS Prepayment Water Meters in Soweto Orlando East
PROJECT AREA	:	Shall mean the area within the boundary of the scope of works Area as defined in section PS1
PROPERTY	:	Shall mean a stand or sub-division thereof resulting in the separate issue of water and /or other service accounts to owner or occupier

Employer:		Contractor	
Witness:		Witness:	

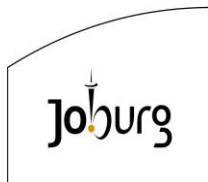


CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



PROPERTY CONNECTION	:	Shall mean a pipe which connects a property drain to a collector sewer or manhole or the meter to the secondary supply mains. In addition to straight pipes, it includes a junction on the collector sewer or saddle on the secondary supply mains.
QAS	:	Shall mean quality assurance system
QCO	:	Quality Control Officer
SABS	:	South African Bureau of Standards
SANS	:	South African National Standard
SERVICE PROVIDER	:	Shall mean either a consultant or contractor appointed to provide a particular service, i.e. investigations, design, labour provision and/or construction.
SMME	:	Shall mean small, medium and micro enterprises
SOP	:	Standard Operating Procedure
STAND	:	Shall mean a designated property as per JW drawings for purposes of human occupancy
mPVC	:	Modified polyvinyl chloride
uPVC	:	Un-plasticised Polyvinyl Chloride
HDPE	:	High Density Polyethylene
UAW	:	Unaccounted for Water
WISA	:	Shall mean water institution of South Africa
VAT	:	Shall mean Value Added Tax in terms of the Value Added Tax Act 89 of 1991 as amended.
YARD CONNECTION	:	Shall mean on property connection on any point

Employer:		Contractor	
Witness:		Witness:	



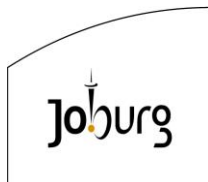
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VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



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Employer:		Contractor	
Witness:		Witness:	

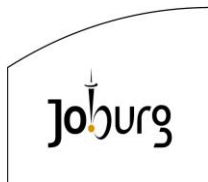


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GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
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Employer:		Contractor	
Witness:		Witness:	

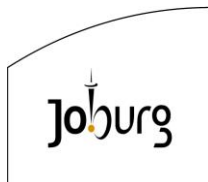


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Employer:		Contractor	
Witness:		Witness:	

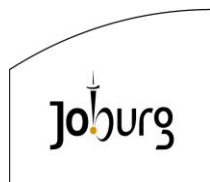


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INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
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Employer:		Contractor	
Witness:		Witness:	

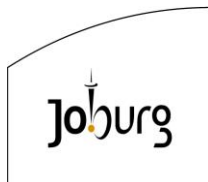


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INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



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Employer:		Contractor	
Witness:		Witness:	

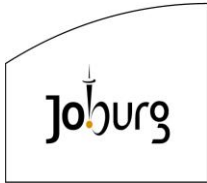


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INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



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Employer:		Contractor	
Witness:		Witness:	

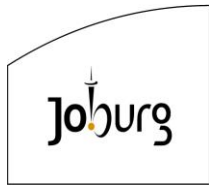


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VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



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Employer:		Contractor	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



PORTION 1: PROJECT DESCRIPTION AND GENERAL INFORMATION

PS 1 DESCRIPTION OF THE WORKS

PS 1.1 EMPLOYER'S OBJECTIVES

Johannesburg Water has high non-revenue water and as a result has prioritised implementation of the water conservation and water demand management strategies. Johannesburg Water is implementing the water infrastructure upgrade and rehabilitation programme that employs establishment of district metered areas, installation of customer meters, water pipe replacement, retrofitting and removal of wasteful devices in private properties.

The primary objective of the project is to replace and upgrade water pipelines, install STS prepayment water meters and retrofitting to the Community of Orange Farm Ext 0, Orange Farm Ext 1, Orange Farm Ext 3, Orange Farm Ext 4, Orange Farm Ext 6, Orange Farm Ext 7 and Orange Farm Ext 8 in Ward 3, 4 and 131. . Johannesburg Water (JW) aims to employ the STS technology in order to reduce non-revenue water and also increase vending platforms, whereby customers will be able to vend online, through multiple retailers and cell phones

It is envisaged that the STS prepayment water meters will inculcate a culture of water conservation which will in turn contribute to the reduction of the Non-Revenue Water (NRW).

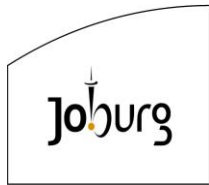
The scope of works entails supply, installation and technical support of STS prepayment water meters. To implement the project, JW has resolved to implement the following interventions:

- Replace and upgrade water pipelines.
- Complete incomplete pipelines and pressure test before commissioning
- Construct road crossings through trenchless and open trench methods
- Installation of erf connections
- Replacement of leaking Yard connections
- Supply of 15mm STS prepayment water meters and CIUs
- Pairing of the meters with the CIU prior to installation
- Installation of STS prepayment water meters
- Retrofitting
- Replacement of leaking gate valves / installation of gate valves where required
- Conducting a leak-free test after meter installation
- Reinstatements where required
- Meter demonstration and issue water meter pamphlets to customers
- Provide technical support during meter installation and stand-by technicians with their own transport for the duration of the contract.

PS 1.2 OVERVIEW OF THE WORKS

The work to be carried out under this contract includes the supply of goods, construction material and labour for the successful completion of the project within the constraints of time, cost and quality.

Employer:		Contractor	
Witness:		Witness:	



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The overview of the works to be implemented for construction is as follows:

- Replace/ repair yard connections where necessary.
- Water pipe replacement and upgrades
- Supply of STS prepayment water meters and CIUs and installation (approval of Supplier is subject to JW's approval). Supplied STS prepayment water meters MUST be complete and be inclusive of associated couplings and fittings.
- Conduct leak-free tests on all properties after meter installation
- Re-instatements works on all properties. i.e grass replacements, paving & concrete slabs that were damaged during yard connections and meter installation.

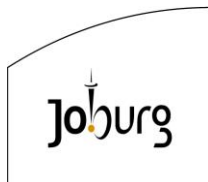
The overview of the works to be implemented for Technical Support by the Contractor's Meter Supplier is as follows:

- Connect meters to IOT and maintain connectivity for a period of 3 years after construction.
- Pairing of Customer Interface Units CIU per stand during meter installation
- Provide training to the Employer's project stakeholders, JW prepayment & Revenue departments' staff and JW facilitators.
- Conduct meter demonstration to customers and issue meter pamphlets per stand.
- Compile a draft of the meter pamphlet for JW's approval. Upon approval print and distribute meter pamphlets in 3 languages. Pamphlets to demonstrate the supplier's meter functionality and the CIU.
- Manage the scheduling of the meter orders placed by JW and delivery thereof.
- Provide Technicians to attend to meter Technical queries during meter installations and after hours (5pm-7am), weekends and public holidays and three years after project completion.
- Manage site staff (foreman, technicians) to ensure that site support & stand-by support and customer complaints are managed adequately.
- Provide monthly reports as per the KPI i.e. delivered meters & meter verification certificates submission and complaints reports.

The scope of works will be implemented within the area of Orange Farm Extension 2.

The project shall deliver AMI hardware, software and data analysis as per Diagram A below:

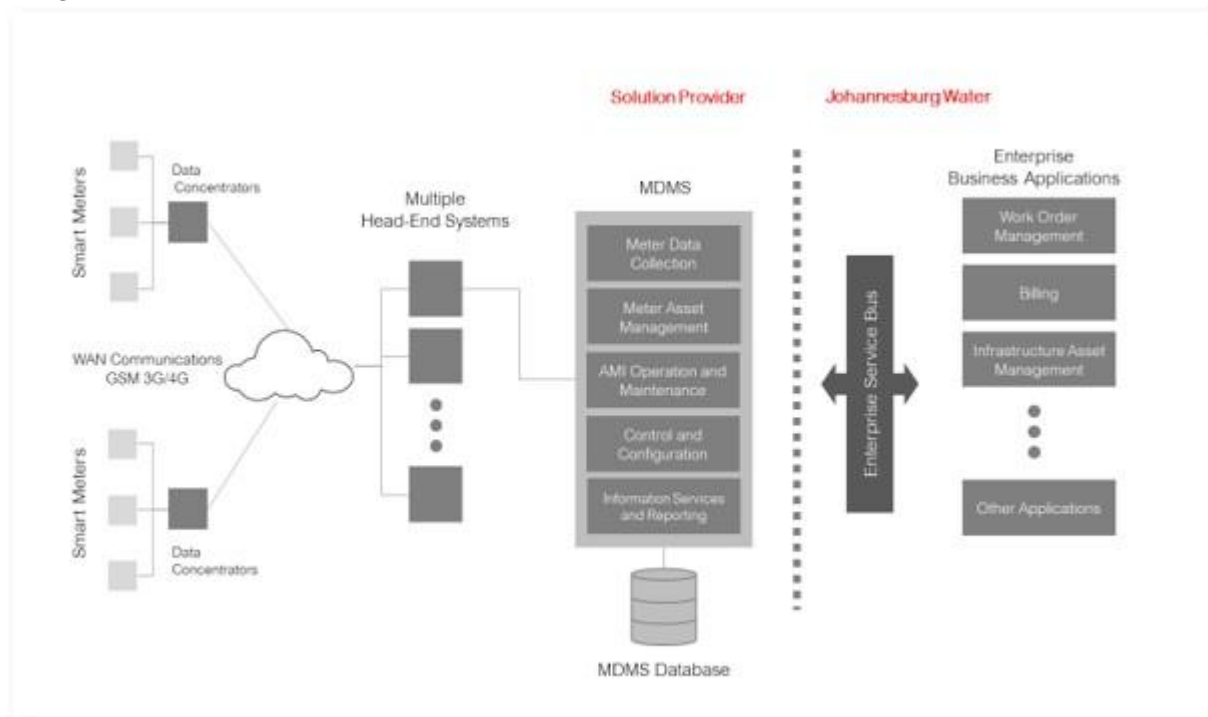
Employer:		Contractor	
Witness:		Witness:	



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DIAGRAM A:



PS 1.3 EXTENT OF THE WORKS

The Works to be completed under this Contract consists of the following:

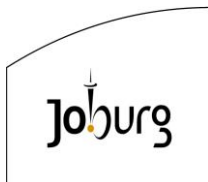
A. YARD CONNECTION INSTALLATION

The scope of work for this section entails the repair and replace Yard connections that was identified during the pre-intervention inspection survey.

Activities shall typically include:

- Arrange access if required with all stakeholders to commence with the works;
- Review work order items as per the pre-intervention survey conducted;
- Locating and exposing existing Yard connection by hand excavation;
- Arrange shutdown with all stakeholders
- Supply and installation of HDPE pipes and pipe specials;
- Material testing
- Connecting from point of supply to the property Yard
- Backfilling and compaction;
- Re-instatement of the surface to restore topsoil to original state by levelling and removing debris;
- Link stand number to the meter serial number prior to installation and submit an AMR report of such in an excel spreadsheet format.
- Signature of the customer acknowledging satisfaction of the work done (confirmation

Employer:		Contractor	
Witness:		Witness:	



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of meter installation, leak free meter, provision of the CIU to the customer).

B. CUSTOMER METER INSTALLATION

The scope of work for this section entails the installation of STS prepayment water meters on the domestic properties. Only water meters compliant with the specification document shall be installed at **all user connections**.

Meters are to be sourced, ***from approved metering supplier(s) appointed by the Contractor for the purposes of supplying meters during the period in question.***

Details of the required certificates from the Supplier and scope of works are outlined on PE 2

Activities shall typically include:

- Arrange access with all stakeholders to commence with the works;
- In cases where Johannesburg Water supplies the meters, the contractor will collect the customer meter at storage site as specified by JW and including fittings and couplings. (All materials making up the meter box shall be supplied by the Employer)
- Locating and exposing Yard connections by hand excavation;
- Arrange shutdown with all stakeholders;
- Connecting to Yard connection;
- Leak free test and commissioning
- Backfilling and compaction;
- Re-statement of the surface to restore top soil, pavements, surroundings to original state by levelling and removing debris;
- Contractor to provide record of evidence that installed Meter corresponds to correct stand number.
- Location of meter to be provided in DDMMSS and WGS XY coordinates.
- Contractor to record meter details for Client Management Information System (MIS).

NOTA BENE: The contractor shall supply all customer domestic meter including; meter and immediate associate accessories (STS prepayment water meter CIU's, connection adapters, meter cover, and inline upstream strainer).

- a) The Contractor to supply record of installation, device information, stand information to be used by the Employer
- b) **Meters will be tested upon delivery at the designated JW Lab prior to installation and meter failed meter batches will be rejected.**

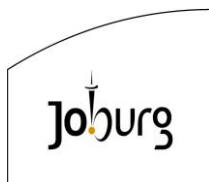
C. TECHNICAL SUPPORT

The scope of work for this section entails the provision of sufficiently experienced and dedicated personnel, including, Supervisor and Technicians from the Supplier, Team leaders for management and coordination for meter or MBU supply, delivery and technical support.

Qualifications:

Job Description	Qualifications	Years of Experience

Employer:		Contractor	
Witness:		Witness:	



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Supervisor	NQF 6 Civil Engineering or equivalent	4 years' experience in meter installation and maintenance projects.
Technician	NQF 6 Civil Engineering or equivalent	1 years' experience in meter installation and maintenance.

Activities shall typically include:

- a) Pairing of the meters with the CIU prior to installation
- b) Ensuring that all installed meters dispense water
- c) Attend and rectify meter errors
- d) Meter demonstration and issue water meter pamphlets to customers
- e) Provide overall technical support during meter installation and stand-by technicians with their own transport
- f) Training of designated JW project stake holders

D. SECONDARY MAINS RETICULATION UPGRADING

The Works entails the following:

- The alterations of secondary mains reticulation in the road reserve and shall generally be applicable to areas where secondary mains were installed in the previous phases,
- The upgrading of secondary mains reticulation from mid-block to road reserve in areas where the secondary mains are still located in mid-block.

The Section activities shall typically include:

- trench excavations,
- provision of materials, meter/s, pipes, fittings (bends, valves, hydrants, etc.), couplings, and manhole construction materials (unless otherwise instructed),
- construction of valve and hydrant boxes,
- bed, lay, disinfect, and test meter/s, pipes sections, fittings and couplings,
- backfilling and compaction,
- de-commissioning of existing mid-block and other redundant secondary reticulation, and
- re-instatement of pre-intervention surface finishing or top soiling, levelling and debris removal.

Leakage detection shall be conducted through approved methods such as;

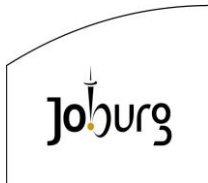
- i) Step testing,
- ii) Sounding,
- iii) Leak noise correlation,
- iv) Fast Fourier Transform (FFT),
- v) Gas injection,
- vi) Ground radar (subsurface radar), and/ or
- vii) Infrared.

E. BULK METER INSTALLATION

The Works entails the following:

- The inspection and rectification of defects of bulk meters and shall be applicable to areas of the previous intervention where no bulk tonal meters are present.
- The installation of bulk / zonal meters on existing and new secondary mains reticulation for Block discretization.

Employer:		Contractor	
Witness:		Witness:	



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The Section activities shall typically include:

- Locating bulk meters and inspection for any defects
- small excavations,
- provision of material, meter/s, pipes sections, fittings (bends, valves, hydrants, etc.), couplings, and chamber construction materials (unless otherwise instructed),
- construction of bulk meter chamber/s,
- bed, lay, disinfect, and test meter/s, pipes sections, fittings and couplings,
- backfilling and compaction, and
- Re-instatement of pre-intervention surface finishing or top soiling, levelling and debris removal.

F. ERF CONNECTION INSTALLATION

The works under this section consists of:

- The rectification of existing erf connections installed in the previous phases; and
- The installation of erf-connections on existing and new secondary mains reticulation located within the road reserves in the Block.

The Section activities shall typically include:

- Connection investigation
- trench excavations,
- provision and installation of pipes (HDPE, unless otherwise stated or instructed by the Engineer), stop tap/s, stop tap chambers, couplings, connecting to existing yard connection or meter (old or new) at erf boundary supply point,
- backfilling and compaction, and
- re-instatement of pre-intervention surface finishing or top soiling, levelling and debris removal.

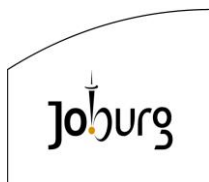
NOTA BENE: Sections 5 and 6 of the Works shall always, unless otherwise instructed by the Engineer, be separated with two valves (stop taps) on either side of a 2.5-meter (minimum) section of HDPE or Polypropylene pipe of similar diameter as pipes for Sections 5 and 6 of the Works. This shall ensure undisturbed water supply while consumer meters are installed or maintained.

G. ON-PROPERTY PLUMBING FITTING LEAK REPAIRS AND RETROFITTING

The scope of this section shall be limited only to plumbing fittings and pipe work that contribute to potable water wastage or the proper drainage of water into the existing wastewater system. The Section activities shall include:

- On property survey,
- Trench excavations
- Backfilling and compaction,
- Repair of leaking or damaged:
 - i). pipes (HDPE or galvanised),
 - ii). taps (mostly biptaps),
 - iii). stop taps,
 - iv). cisterns, and
 - v). external toilet structural brickwork and concrete floor.
- Retrofitting of:
 - i). pipes (HDPE or galvanised),
 - ii). taps (mostly biptaps),
 - iii). stop taps,
 - iv). toilet pans,
 - v). cisterns tanks, and
 - vi). cisterns flushing mechanism complete.

Employer:		Contractor	
Witness:		Witness:	



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- Re-instatement of pre-intervention surface finishing or top soiling, levelling and debris removal.

The Contractor shall conduct a pre-intervention property-to-property survey to assess the condition of on-property plumbing fittings for all occupied properties to receive or who have already received prepayment meters (domestic and small non-domestic properties), with the aim of assessing whether repair or retrofitting is required, to quantify and price such requirement for intervention approval. The Contractor shall not commence with intervention without prior approval and written instruction from the Engineer. If the Contractor does commence without such approval the Employer shall not be liable for any cost incurred for such non-approved intervention. Once approval has been obtained from the Employer for on-property intervention the Contractor shall not deviate from the approved scope without prior approval from the Engineer.

H. DECOMMISSIONING

Decommissioning of secondary mains located in the mid-block and partial removal thereof.

This description of the works is not necessarily complete and shall not limit the work to be carried out by the Contractor under this contract.

PS 1.4 LOCATIONS OF THE WORKS

The works is located within Orange Farm Extension 2.

PS 1.5 TEMPORARY WORKS

Temporary works conducted by the Contractor shall be as follows:

- Temporary water connections, Contractor's offices, storage sheds, latrines, barricading of Works shall be located in an approved position and subject to the approval of all authorities concerned.
- Safety and security of the Contractors' temporary works shall be at the Contractors' discretion, but always in accordance with stipulated Occupational Health and Safety requirements.
- The camp shall be adequately guarded during or outside working hours.
- include the works required to locate, verify and protect existing services within the works area.
- be such to ensure no or limited interruption to vehicular and pedestrian traffic; and

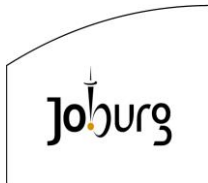
Further the Contractor shall note that no stockpiling of materials, TOOLS & EQUIPMENT, excavated material or any other construction related infrastructure shall be allowed in locations that may interfere with the operations of the Employer and the public in general.

PS 2 ENGINEERING

PS2.1 EMPLOYER'S SPECIFICATIONS

The Contractor undertakes to follow the construction on the basis of the specifications and construction drawings laid out by the Employer.

Employer:		Contractor	
Witness:		Witness:	



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PS 2.2 DRAWINGS

PS 2.2.1 VOLUME 3

Drawings are included in Volume 3 of this Contract Document based on current available information. Such drawing may be updated (based on actual site situation uncovered during execution of 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 three (3) sets of construction drawings, since the works on the project only involves yard connections and meter installations, As Built drawings will not be applicable.

the later shall be:

- a) Made available to the Employer's Agent or his duly authorised representative within 24-hour on request.

PS 2.2.3 SHOP DRAWINGS

Where an item to be supplied in conformance with this Contract specification has not been designed by the Employer's Agent or Employer, the Contractor shall be required to supply the Employer's Agent with 3 copies of detailed shop drawings prior to delivery of materials, including an electronic copy in drawing format that is compatible with the software packages (AutoCAD or DXF) used by the Employer's Agent and/or Employer.

NOTA BENE: Only on approval of such shop drawings or an amended version thereof, shall the Contractor proceed with the manufacturing, supply and installation of the designed item.

PS3 PROCUREMENT

PS 3.1 PREFERENTIAL PROCUREMENT PROCEDURES

The Employer's promotes preferential procurement.

PS 3.2 SUBCONTRACTING

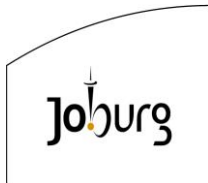
PS 3.2.1 PERFORMANCE AND EXECUTION OF THE SUBCONTRACT WORK

The main contractor must ensure that his subcontractors shall supply sufficient, suitable resources (e.g. equipment, labour, material) to execute all the Subcontract Work including the portion identified by the Employer as outlined in the Scope of Work PS 3.2 and Bill of Quantities.

The Contractor shall also ensure that the Subcontractor(s) shall execute the Subcontract Work in accordance with the Scope of Work and Programme to the reasonable satisfaction of the Employer.

PS 3.2.2 QUALITY OF THE SUBCONTRACT WORK

Employer:		Contractor	
Witness:		Witness:	



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In accordance with the requirements of Clause 4.4 in the General Conditions of Contract for Civil Engineering Works (2015), 3rd Edition, it is the responsibility of the Contractor to ensure that the Subcontractor shall be capable of executing the Subcontract Work efficiently and in accordance with the Scope of Work.

PS 3.2.3 LAWS AND REGULATIONS

The Contractor shall ensure that the Subcontractor(s) complies with the 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,

PS 3.2.4 RESOURCES TO COMPLETE SUBCONTRACT WORK

Although it is preferred by JW that the Contractor ensure that the Subcontractor(s) supply all required resources such as labourers, equipment, hand tools, power-driven tools if need be, which are required by him for the execution of the Subcontract Work, however the onus is upon the Contractor to determine the extent of resources the subcontractor shall supply to ensure that the works are completed in time. The agreement between the Contractor and subcontractor is the Contractor's responsibility and JW is indemnified from any agreements entered between Contractor and his Subcontractor (s)

PS 3.2.5 PAYMENT

The Contractor shall ensure that sub-contractor(s) are paid within stipulated time as per the Agreement with the subcontractor, failure which the Contractor can be reported to the Employers' Supply Chain Department and may prejudice his future employment with Johannesburg Water.

PS 3.2.6 RETENTION MONIES

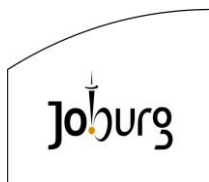
The Employer will deduct Retention money for the overall works including the Subcontract Work at the percentage stated in the Contract Data.

PS 3.2.7 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.

PS 3.2.8 LOCAL SUBCONTRACTING

Employer:		Contractor	
Witness:		Witness:	



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- a) The Contractor shall be required to sub-contract 30% of the Contract Sum.
- b) The Contractor is expected to include in the rates all direct and indirect costs for SMMEs. These costs are but NOT limited to:
 - Management
 - Overheads
 - PPE
 - Supervision
 - Insurances
 - Health and Safety
 - Facilities for SMMEs
 - Other Fixed and Time-Related Obligations

N.B No separate allowances shall be made for SMMEs

- c) For all other facilities such as Site Camp, storage of tools etc. the Subcontractors will use the facilities established by the Contractor.
- d) The Contractor will identify items in the BOQ to be subcontracted and a separate BOQ for subcontracting will be prepared.

PS4 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 for Construction Works 2015 Third Edition (GCC 2015).

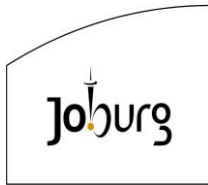
PS 4.1.2 Applicable Standardized Specifications

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

SANS Description

- 1200 A : General (1986)
- 1200 AB : Employer's Agent's office (1986)
- 1200 C : Site clearance (1980)
- 1200 D : Earthworks (1988)
- 1200 DB : Earthworks (Pipe trenches) (1989)
- 1200 GA : Concrete (Small works) (1982)
- 1200 GE : Precast Concrete (1984)
- 1200 L : Medium pressure pipe lines (1983)
- 1200 LB : Bedding (Pipes) (1983)
- 1200 LC : Cable ducts (1981)
- 1200 LF : Erf connection (water) (1983)
- 1200 DM : Earthworks (Roads, Subgrade) (1981)

Employer:		Contractor	
Witness:		Witness:	



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Safety Act, 1993 (Act 85 of 1993)" wherever they appear. For "maintenance period" read "Defects Liability Period in terms of Clause 1.1.1.13 of the General Conditions of Contract, 2015" wherever it appears

PS4.1.3 Other Standards

Other Standard Specifications applicable to this Contract shall be:

PA : SMALL DIAMETER PIPEWORK WITHIN ERVEN
PD : EMPLOYMENT AND TRAINING OF LABOUR
PO : EXTRA OVER FOR OCCUPATIONAL HEALTH & SAFETY
PF : JOHANNESBURG WATER METER SPECIFICATIONS AND METER TECHNICAL SUPPORT

PS4.2 Particular generic specifications

PS4.2.1 Minimum health and safety requirements

This section of the specifications is to be read in conjunction with the Contract Health and Safety specifications, included as Volume 2. The following requirements shall be deemed minimum compliance requirements to ensure the health and safety of the public and workers during the execution of the Contract.

PS4.2.1.2 Personal safety equipment

The construction team unit shall be provided with:

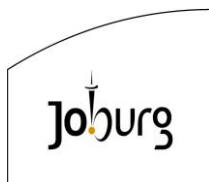
Personal equipment per member:

- i) safety helmet.
- ii) safety boots.
- iii) disposable protective gloves.
- v) Cloth Musk (Tripple layer) or Surgical
- vi) First Aid Kit suitable to cater for the number of team members.
- vii) facilities for washing, including:
 - a. soft soap.
 - b. disinfectant.
 - c. clean water.
 - d. Hand sanitizer (70% alcohol based)
- viii) radio equipment and cellular phone for onsite and emergency communication.
- ix) fire extinguisher.

PS4.2.3 Site preparation

Prior to any Works commencement the Contractor shall photograph or video tape entire work area. One copy of which shall be given to the Employer's Agent's authorized representative, and one copy shall remain with the Contractor for a period of 12 months following the issue of a Completion Certificate. This record shall be used to establish accountability for damages during the execution of the Contract.

Employer:		Contractor	
Witness:		Witness:	



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No alterations beyond what is required for Works are to be made. Contractor shall confine all activities to designated work areas, to the absolute minimum required.

PS4.2.4 Pipe handling and storage

Pipes shall be handled and stored in accordance with safe lifting practice. The lifting capacity of the equipment shall not be exceeded.

Where slings are used for lifting

- a) timber, timber wedges or sandbags. Pipes shall be placed on timber bearers not more than 1.5m apart. Where pipes are stacked, timber bearers shall be placed between each layer of pipes.
- b) HDPE/Plastic pipes shall be stored away from contact with chemicals or ground contaminated with chemicals.
- c) Care shall be taken to prevent scoring and scratching of HDPE/Plastic pipes.

PS4.2.5 Inspection of pipes and fittings

Pipeline rehabilitation components shall be checked for damage and flaws immediately before installation, where:

- a) plastic pipes and fittings shall be checked for gouges, cracks, holes, flattening and indentations.

Damaged or flawed pipes and fittings can only be used if approved by the Employer's Agent. Pipes and fittings considered unsuitable for use by the Employer's Agent shall be removed from the site at the Contractor's expense. The Employer's Agent may approve the repair of any damage where the pipe or joint may be repaired without affecting its performance.

PS4.2.6 Cutting of pipes

Pipes shall at all times be cut square to the barrel of the pipe. For:

- a) rubber ring and solvent cement jointed pipe, the deviation from square shall not be in excess of 5mm.
- b) butt or electro-fusion jointed PE pipes the deviation from square shall not be in excess of 1mm.

Jagged edges shall be removed from pipe ends. Cut edges of rubber ring or solvent cemented plastic pipes shall be bevelled in accordance with the manufacturer's instructions.

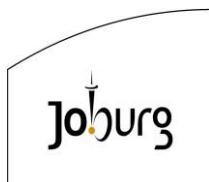
PS4.2.7 Acceptability of damaged pipe

Cuts or gouges that reduce the pipe wall thickness in excess of 10% is not acceptable and shall be cut out and discarded.

PS4.2.8 Property or branch connection excavation

- a) Property or branch connections shall be exposed and disconnected from the existing pipe prior to commencement of bursting. Property or branch connections to be redirected to temporary water line.
- b) All excavations for property or branch reconnections shall be the minimum necessary to execute the operations. Care shall be taken to prevent material entering the live existing system when performing the disconnection and/or connection.

Employer:		Contractor	
Witness:		Witness:	



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PS4.2.9 Reconnection of property and branch connections

Property connections shall not to be out of service for more than 8 hours, unless otherwise agreed in writing with the property owner or occupier. If this is not possible, temporary connections are to be made at convenient locations as approved by the Employer's Agent.

All connections shall be by means of approved fittings, in accordance with the manufacturer's instructions, for:

- a) PVC pipes and fittings, using either, solvent-cement joints, push-on joints, threaded joints, clamps or flanged joints.
- b) HDPE pipe and fittings, using fusion jointing techniques, clamps or flange joints (either installing flange ended fittings, HDPE flange adapters and mechanical couplings)

PS4.2.10 General Requirements for all Water Meter Installations

All metering installation within the City of Johannesburg shall be of the above ground type, except for threaded 32 - 40mm meters for which a surface meter box may be used. All plastic meters shall also be appropriately protected from exposure to sunlight in a meter box compliant with Section PF 4.2

PS4.2.11 Pre-delivery Requirements for delivered STS meters

Before delivery, all compliance certificates of STS meters should be delivered to JW flow lab together with a sample meter for approval. After the approval, meters are delivered to site from which another sample is taken for testing before the installation commences.

PS4.2.12 Meter Selection, Sizing and Installation

The standard meter size for all small connections shall be a **15mm** diameter **Class C** meter complying with Johannesburg Water Metering GuidelinesError! Reference source not found. regardless of the size of the connection pipe 20mm and 25mm meters.

PS4.2.13 Cement

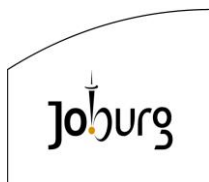
Cement shall be Portland cement (or similar approved) complying with the requirements of SANS 50197-1/EN 197-1 or SANS 5831.

Samples of cement from anyone, or from every consignment, may be required by the Employer's Agent or his duly authorized representative for test purposes. Cement in any consignment from which a sample may have been taken for testing shall not be used until it has been approved. Allowance shall be made for possible delay in that tests may take 10 days to carry out.

Bags of cement shall be stacked in a waterproof, solidly constructed shed with a central door and a floor rendered damp-proof with a tarpaulin. The bags of cement shall be closely stacked (but not against walls) in order to reduce air circulation in such a manner that the cement is used in the order in which it was received, i.e. first in first out.

Unless otherwise specified in the documents the use of ordinary Portland cement blended with ground granulated blast furnace slag complying with SANS 1491, or ordinary Portland Cement blended with Pulverized Fly Ash complying with SANS

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50197-1/EN 197-1 will be allowed in certain instances as an alternative, after acceptance of tender offer, but only with the approval of and at the sole discretion of Employer's Agent. If not so specified in the documents the Contractor must demonstrate a saving in favour of the Employer together with this alternative.

PS 4.3 EQUIPMENT AND MATERIALS

The Contractor shall provide all tools and equipment required to install pipework in accordance with this specification. The Contractor shall only use tools that are approved by the Engineer. Any materials that are damaged by the use of non-approved implements or tools will be rejected and the replacement cost shall be borne by the Contractor.

No additional allowances other than those already specified in the Schedule of Rates shall be allowed for with respect to tools, equipment and materials.

PS 4.4 ENGAGEMENT OF LABOUR

PS 4.4.1 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 that has been established for this purpose.

The Labour Desk shall assist in identifying available local labour and, where available, semi-skilled labour. The Labour Desk shall also assist and advice 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 for Construction Works 2015.

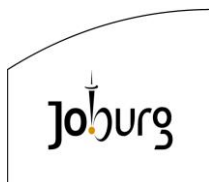
The Occupational Health and Safety Act must be adhered to with reference to the safety of any employee irrespective of whether such employee is employed by the Contractor. Furthermore, a contract of employment must be signed between the Contractor and each of his employees. and each of the contractor's 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.

Company Policy regarding the following:

- Rain time
- No work no pay - sick, absent

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- 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 Agent for approval before construction commences.

PS 4.4.2 Transportation of labourers

The labour employed on this Contract shall be local labour from the nearest local community. Transportation should be provided for the labourers from Site Office to where they are working and back to the Site Office.

PS 4.4.3 Minimum wage for local labour

Contractor to comply with the latest Government Gazette: Labour Relations Act, 1995 as set out by the Bargaining Council for Civil Engineering Industry.

PS 4.4.4 Training

The Contractor will be expected to provide formal training for the labourers and the CLOs. In this regard the labourers will be attending training for five days and the labourers should receive their full salary while on training. The Contractor is expected to have allowed for this in his rates elsewhere.

PS 4.4.5 Labour Returns

The Contractor will be required to submit his payment certificate together with monthly labour returns including copies of certified IDs, individual contracts, proof of payment, timesheets and training returns. **No payment certificate will be processed if correct labour returns are not submitted.**

PS 4.5 SITE ESTABLISHMENT, FACILITIES AVAILABLE AND REQUIRED

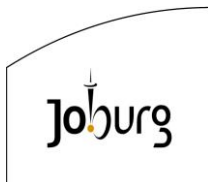
PS4.5.1 General

In order to facilitate compliance with the General Conditions of Contract and Conditions of Contract 2015 the Contractor shall be required to set-up an individual construction camp. The size and functionality of the site camp shall be in relation to the individual Contracts. It is, however, expected that the Contractor would have made themselves aware on whether one or multiple site camps are required for the execution of the complete Works.

The Contractor shall price accordingly and state so in their proposal. For the camp/s, the following shall apply:

- a) The Contractor shall make arrangements with the relevant authority for a suitable site to establish a construction camp, storage, works offices, workshop/s, kitchen, and shelters for security personnel.
- b) The Contractor shall note that only security personnel shall be permitted to remain in the campsite overnight.

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- c) Ablution facilities shall be provided for men and women separately. One toilet per twenty workers shall be provided. Such facilities shall at all times be maintained in a clean and hygienic condition. Toilets shall be screened from public view and their use shall be enforced.
- d) Covered accommodation shall be provided for perishable or corrodible materials, fittings and the like and shall be adequate and suitable for their purpose. In the case of cement stores, they shall be well ventilated, weatherproof and waterproof with appropriate floors to keep the materials dry and freely aerated.
- e) All such accommodation shall be subject to the approval of the Employer's Agent who shall have free access thereto at all times.
- f) Temporary buildings and fencing are to be safe, neat and presentable and the surrounding areas must at all times be kept in a neat, clean and orderly condition for the duration of the Works.
- g) It shall be the Contractor's responsibility to ensure that they are in compliance with all relevant laws and regulations as well as tribal requirements.

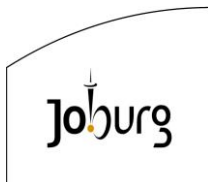
PS4.5.2 Site facilities required for Employer's Agent

- a) Source of water supply: It will be the responsibility of the Contractor to make his own arrangements for the supply of water. Potable water is available in the area and the Contractor is to make the necessary arrangements for the provision of a metered point of supply with the Employer. The sum entered by the Contractor in the Bill of Quantities for provision of water shall be deemed to include full compensation for the procurement, transport, storage (where necessary), supply and application of water and for all the work necessary and incidental thereto for the various items of work where water is required for the purposes of the contract. The Employer does not guarantee the availability, sufficiency or continuity of any supply and no claims in this regard will be considered.

The Contractor is to be aware of the fact that this Contract is to be carried close to a built-up environment and that, as such, excessive dust creation will be considered unacceptable by the local residents. The Contractor is to make provision for regular watering of the works in order to alleviate dust creation. During dry weather, or during periods when dust is created by the construction process, the Contractor will be required to water the works a minimum of twice a day, or as specified by the Employer's Agent. This is a requirement over and above the normal requirement for watering of the works.

- b) Source of power supply: It will be the responsibility of the Contractor to make his own arrangements for the supply of electricity. The sum entered by the Contractor in the Bill of Quantities for the provision of power shall be deemed to include full compensation for the procurement and supply of powers to the works. The Employer does not guarantee the availability, sufficiency or continuity of any supply and no claims in this regard will be considered.
- c) Contractor's camp: A suitable site for the Contractors camp will be identified prior to Commencement by the Contractor. The Contractor is to make the necessary arrangements for any approvals and payment of services to the Municipality where applicable. The camp site shall be kept clean and tidy, and at the completion of the

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contract shall be restored to its original condition at the Contractor's own cost, and to the satisfaction of the Employer's Agent. In order to facilitate compliance with the Conditions of Contract and the Specification, the Contractor may establish storage accommodation, works offices, workshops, mess-rooms, kitchens, shelters for watchmen, latrines, ablutions and the like in such positions and under such conditions as may be agreed by the Employer's Agent and indicated in the Addendum to the EMP.

Temporary buildings and fencing are to be neat and presentable, and the surrounding areas must at all times be kept in a neat, clean and orderly condition.

The Contractor shall not make any excavation without written permission of the Employer's Agent.

Covered accommodation for perishable or corrodible materials, fittings and the like shall be adequate and suitable for their purpose, and, particularly in the case of cement stores, shall be well ventilated, weatherproof and waterproof with floors raised off the ground, so as to keep the materials perfectly dry and freely aerated. All such accommodation shall be subject to the approval of the Employer's Agent who shall have free access there at all times.

In addition to the above, the Contractor shall provide one toilet per 20 workmen. Portable toilet facilities shall be made available to workers of both male and female genders, the number provided to be in proportion to the ratio of the sexes. The toilets shall be located in the vicinity of the work site, shall be screened from public view and the use thereof shall be enforced. The Contractor shall, where applicable, make the necessary arrangements for the regular removal of night soil.

The Contractor may not house members of his permanent staff except for a security guard at the site and is to make the necessary arrangements for the transport of his staff members to and from the site on a daily basis. As the Contractor's Camp may be located in close proximity to a residential area, attention to noise levels, particularly after hours, will be essential.

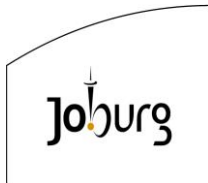
- d) Site facilities required for Employer's Agent and others: The requirements of the Employer's Agent's Site Establishment are detailed in Project Specification PSA and PSAB.

The Contractor shall provide the following office facilities at his main site camp for the Employer's Agent and others:

- One office for the Employer's Agent's Representative.
- Temporary office accommodation to suit his own requirements.
- Covered parking facilities for two (2) cars for the Employer's Agent's Representative.

A cell phone will be required for the sole use of the Employer's Agent's Representative. The Contractor shall be responsible for the payment of calls related to the Contract made by the Employer's Agent's Representative, on this mobile phone, during the course of the Contract. A Wi-Fi line with modem facilities shall be provided on site and be available for the sole use of the Employer's Agent's Representative at all times.

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PS 4.6 SITE USAGE

PS4.6.1 Work on private or state property

The Contractor shall regulate his work so as to cause the least possible inconvenience to consumers. The Contractor shall endeavour to minimise possible damage to private property and shall, after backfilling, make good those portions of lawns, flower beds, driveways, pathways, etc., that have been disturbed or damaged by his operations.

The Contractor shall, as soon as is practically possible, inform the Employer's Agent of any damages to services and shall not repair any such damage unless instructed to do so. The Contractor shall be responsible for making good at his own cost and to the satisfaction of the Employer's Agent, all damage caused by him to buildings and other improvements to properties.

Should the Contractor consider that damage to buildings and structures is unavoidable in the execution of any portion of the Works, he shall obtain the approval of the Employer's Agent before proceeding with the work. Where damage is noticed before commencement of work on that erf, this should be reported to the Employer's Agent in order to prevent a possible liability claim from the owner.

PS4.6.2 Site safety and precautions against nuisance

The Contractor shall ensure that all safety measures are strictly adhered to. The Contractor shall ensure that excavations on sidewalks within the road reserves or within the erven do not at any time present a safety hazard to pedestrians. All excavations that remain open overnight are to be adequately protected.

The Contractor shall provide all safety materials and equipment necessary for barricading and safeguarding the excavations. The safety of staff and labour involved with the Works and the security of installations, tools and equipment is of major concern and need special attention during the execution of the Works.

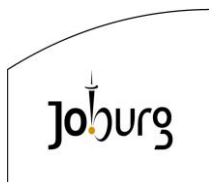
Tools used on the Works shall be as efficiently silenced as possible and noisy operations will be permitted only between the hours of 07:00 and 17:00. Any work outside normal hours will be permitted only on the written authority of the Employer's Agent. Wherever trench excavations or loading of material is liable to form dust, an effective method of spraying water over the excavated area and loaded material shall be instilled. Any rock or debris falling from trucks on the roads shall be removed immediately. Precautions shall be taken to prevent fouling of public roads or private surfaces. The Employer's Agent may order the Contractor to broom off and clean roads or surfaces where debris may constitute a danger to the public or a nuisance to the owners.

PS4.6.3 Work outside normal working hours

Normal working hours shall be defined as between 07:00 and 17:30 Mondays to Fridays and also 07:00 to 13:00 on Saturdays.

Should the Contractor choose to work outside normal working hours without having been ordered to do so by the Employer's Agent, permission will not be unreasonably withheld but all additional costs arising out of such work shall be entirely to the Contractor's account.

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PS 4.7 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, 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 as well as any costs involved in refuting or processing such claims.

PS 4.8 WATER, SANITATION AND ELECTRICITY FOR CONSTRUCTION PURPOSES

PS4.8.1 Water

The Contractor shall make his own arrangements with the Employer to obtain a potable water metered standpipe connection for which at least 14 days' notice shall be given. The size of the connection provided will be as specified in the Water and Sanitation By-laws.

The Contractor may only draw water from fire hydrants through means of a legal, Employer owned, potable water metered standpipe. Failure to use such Employer owned potable water metered standpipes, or using illegal, non-Employer owned equipment for purposes of drawing water from fire hydrants, will result in the Contractor having to pay an account to the Employer, for an amount determined by the Employer

The potable water metered standpipe(s) must be made available to the Employer's water inspectors for purposes of reading and inspection, and failure to do so, will result in the immediate withdrawal of such potable water metered standpipe(s). The onus is on the Contractor to return such potable water metered standpipe(s) if they are found to be defective (not registering consumption). Failure to do so will result in an account being levied, payable to and determined by the Employer. Claims for delays caused where standpipe(s) are withdrawn and/or replaced will not be considered.

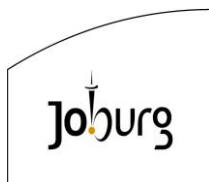
The current water tariffs applicable to the Contract are available from the Employer.

PS4.8.2 Sewer

The Contractor shall provide, maintain, move to positions as required and finally remove proper sanitary accommodation at each work front. Sanitary accommodation shall be properly screened and its use strictly enforced. The Contractor shall comply with the Employer's Sanitation General By-Laws Section 19(1) and 19(3).

The situation of sanitary accommodation prescribed in terms of the Sanitary General By-Laws shall be approved by the Employer's Agent as being convenient for the person for whose use it is intended. The sanitary accommodation provided must be adequately ventilated, properly disinfected and kept in a thoroughly clean condition at all times.

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The Contractor shall bear all costs associated with the provision of sanitary accommodation. Compensation for these costs will be made under the relevant item in the Schedule of Rates.

PS4.8.3 Power

The Contractor shall make arrangements with the relevant authority for the supply and distribution of power for purposes of this Contract, the cost of which shall be deemed to be included in the rates inserted in the Schedule of Rates.

Power used for carrying out of the works in accordance with these Specifications will not be subject to measurement or payment.

PS4.9 EXISTING SERVICES

PS4.9.1 Treatment of existing services

The Contractor must liaise with all relevant local authorities to satisfy himself that all relevant services have been located. At the commencement of the contract, the Contractor must hand excavate a distance 0,5 metre on each side of the located service to expose it. The exposed service shall be identified and recorded on a drawing.

A copy of the drawing with all known services shall be submitted to the Engineer before construction can commence in any road reserve. Once the exposed service is identified and recorded the excavation must immediately be backfilled. Re-excavation by hand at construction stage will not be measured in addition to normal trench excavation.

The Contractor shall retain full responsibility for establishing the exact positions of the various services in advance of any construction work. No allowance for delays or disruption shall be entertained unless the Contractor complies fully with the provisions of this clause regarding the establishment of the exact positions of the various services in advance of any construction work.

PS4.9.2 Use of detection equipment for the location of underground services

The Contractor:

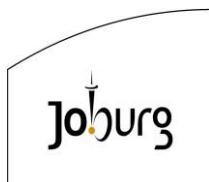
- a) is responsible to provide his own equipment in order to determine the location of existing services, and
- b) shall locate and expose existing services by hand.

PS4.9.3 Damage to existing services

The Contractor:

- a) must make provision for the possible existence of numerous services within and in close proximity to the work areas.
- b) shall take necessary steps to protect any existing services whatsoever against damage which may arise as a result of his operations on site. Adequacy in terms of protection of existing services shall be at the discretion of the Engineer. The Contractor is to make good the protection of and any breakages to existing services.

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- c) must inform the relevant service provider immediately (within 2 hours of the incident) such that procedures for the re-instatement of the service can be effected, should he damage or break an existing service (whether known or unknown);
- d) shall bear the cost of the repair of damages to any service, the possible existence of which could reasonably have been ascertained by him in good time.

Contractor shall contact the following persons should there be any disruption, damage or co-ordination required with the relevant services agencies:

☐	EGOLI GAS	Joice / Selo	(011) 718 7133
☐	ESKOM	Mr Christo Louw	(011) 711 2941
☐	CITY POWER	Mr D Oliver	(011) 490 7000
☐	CITY PARKS	Mr Mike Griffiths	(011) 407 3722
☐	JOBURG WATER	Thula / Nkala	(011) 688 1400
☐	JRA	Mr Theo Molamu	(011) 866 8697
☐	RAND WATER	Mr Job Kubheka	(011) 682 0911/0433
☐	NEOTEL	Mr Shane Cannon	(011) 359 1105
☐	TELKOM	Mr L Ramolobela	(011) 309 9186
☐	SASOL	Mr B van der Heuvel	(011) 865 8563
☐	MTN	Shasha le Grange	(011) 912 3289
☐	DFA / VODACOM	Ms Nadia Verhoog	(012) 345 7520

The Contractor's attention is drawn to Clause PSA 5.4.

PS4.10 PERMITS AND WAYLEAVES

The Contractor will be required to obtain permits and wayleaves from all the applicable service providers who may have services in the vicinity of the Works. These include the following: Rand Water, Sasol Gas, Egoli Gas, Telkom, Eskom, City Power, Johannesburg Roads Agency, Johannesburg City Parks, Johannesburg Water, Neotel and the like.

The Employer will assist the Contractor to obtain clearance from the various authorities with services that are likely to be affected by the Contract. It is, however, the Contractor's responsibility to obtain final permit and wayleave approval according to applicable procedures and specifications. In the case of Johannesburg Roads Agency, this will be as per the City of Johannesburg Code of Practice for Work within the Road Reserve. Further, a processing fee of R400,00 per wayleave per project per suburb will be payable to cover the cost of processing and approval of the Johannesburg Roads Agency wayleave applications.

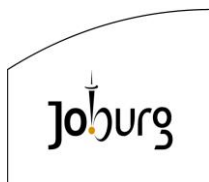
Permits and way leave associated costs shall be deemed to have been included in the scheduled rates for excavation and location of existing services under the relevant section of SANS 1200A.

PS 5 MANAGEMENT OF THE WORKS

PS 5.1 PLANNING AND PROGRAMMING

PS5.1.1 Work plan

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Seven days prior to commencing with any part of the Works, the Contractor shall submit to the Employer's Agent, for review and approval, a work plan detailing the procedure and schedule to be used to execute such works, detailing and substantiating any deviation from the originally proposed approach. Further, the work plan shall include the following:

- a) time frame.
- b) description of all equipment and tools to be used.
- c) list of personnel and their qualifications and experience (including back-up personnel in the event that an individual is unavailable).
- d) list of sub-contractors, schedule of work activity.
- e) safety plan (clearly highlighting any potentially hazardous substances to be used).
- f) traffic control plan (if applicable).
- g) an environmental protection plan; and
- h) Contingency plans for possible problems.

The approval given by the Employer's Agent shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as prescribed under this Contract

Work plan shall be comprehensive, realistic and based on actual working conditions. Further it shall form the various sub-sections of the overall Contract programme and plan

NOTA BENE: No works shall be allowed to commence without an approved work plan.

PS5.1.2 Planning

The Contractor shall ensure that he:

- a) is well informed with regard to the Employer's overall maintenance programme and avail resources as required to efficiently complete this Contract; and
- b) delivers goods and services timeously to meet the Employer's prevalent performance standards and where applicable to not unnecessarily delay any other contractors, service providers and suppliers.

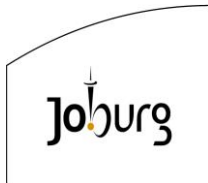
PS5.1.3 Programming

In order to ensure a clear understanding, at the inception of the Contract, of the programming and documentation format requirements, the Contractor shall appoint a project programmer/ planner for liaison during the Contract. The Contractor shall for the Contract Period provide and regularly update (maximum monthly) a Contract Programme.

The programme shall at minimum contain:

- a) Time Scale (minimum):
 - i) Days, where the period does not exceed three months. Weeks, where the project period exceeds three months.
 - ii) Months, where the period does not exceed one year.
 - iii) Years, where the project period exceeds one year.
- b) 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.

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Witness:		Witness:	



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- c) Start and Finish Dates: All tasks shall have specific start and finish dates.
- d) 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.
- e) Progress Tracking: The Contractor shall be required to periodically indicate progress per task graphically and on a percentage basis.
- f) Non-working Time: All South African public holidays, weekends and the local traditional annual builder's break shall be incorporated in the programme.

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 show clearly the anticipated quantities of work to be performed each month, together with the manner in which the listed TOOLS & EQUIPMENT is to be used, as well as the anticipated earnings for the various sections of work.

NOTA BENE: A Contract programme shall be submitted to the Employer's Agent no later than 28 days after Contract Commencement Date.

The Contractor shall provide the Employer's Agent with a method statement indicating the manner and sequence in which he intends to construct the works, for each work area, with the program. In the method statement the Contractor must address at least the following items:

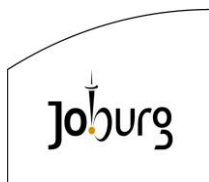
- a) sequence of the works for the relevant works area.
- b) target dates for the tasks identified in sequence of the works for the relevant works area.
- c) materials requirements.
- d) construction TOOLS & EQUIPMENT to be used.
- e) services affecting construction; and
- f) any factors that could affect construction progress after commencement.

The method statement must be approved by the Employer's Agent before commencement of construction. In order to minimize the impact on traffic, pedestrians and business the Contractor will be required to segment the works in such a manner that no portion of the works is more than one day ahead of the following position. These segments of the works shall be clearly defined in the Contractor's method statement for each work area.

If, during the progress of the work, the quantities of work performed per month fall below those shown on the program or if the sequence of operations is altered, or if the program is deviated from in any other way, the Contractor shall, within one week after being notified by the Employer's Agent, submit a revised program.

If the program is to be revised by reason of the Contractor falling behind his program, he shall produce a revised program showing the modifications to the original program necessary to ensure completion of the Works or any part thereof within the time for completion. Any proposal to increase the rate of work must be accompanied by positive steps to increase production by providing more labour and TOOLS & EQUIPMENT on the Site, or by using the available labour and TOOLS & EQUIPMENT in a more efficient manner.

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Failure on the part of the Contractor to submit or to work according to the program or revised program shall be sufficient reason for the Employer to take steps as provided for in the GCC.

The approval by the Employer's Agent of any program shall have no contractual significance other than that the Employer's Agent would be satisfied if the work is carried out in accordance with such program and that the Contractor undertakes to carry out the work in accordance with the program. It shall not limit the right of the Employer's Agent to instruct the Contractor to vary the program should circumstances make this necessary.

PS 5.1.4 Sequences of the Works

Notwithstanding any changes that the Employer's Agent deems necessary the sequences should include the following:

- Mobilisation, project planning and control and communications to stakeholders
- Delivery of meters and arrange for testing by JW prior to installation
- Investigation of Yard connections
- Investigation of gate valves
- Exposing existing services and driveways
- Hand excavation for Yard connections and meter installations
- Supply, bedding and laying of pipes
- Provision and installation of gate valves and chambers
- Backfilling including compaction
- Trenchless installations
- Reinstatement of paved and other areas where affected.
- Leak free testing of the installation
- Clearing of the site including removal of spoil
- Site hand over

PS 5.1.5 Software Applications for Programming

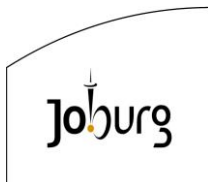
The construction programme shall be completed in Microsoft ® Project Standard (Latest version) or compatible software. The construction programme and updated versions thereof shall be made electronically available to the Employer's Agent.

PS 5.1.6 Methods and Procedures

The Contractor shall submit to the Employer's Agent, within a period stated in the Contract Data, a detailed construction programme, detailing the date of commencement and completion of the work activities, dates, duration and extent of traffic accommodation interruption water supply to affected consumers. The detailed programme shall be based on the preliminary programme submitted with the tender and shall make an allowance for the following:

- Normal working hours shall be defined as between 07:00 and 17:30 Mondays to Fridays and also 07:00 to 13:00 on Saturdays.
- No work outside working hours will be allowed. Should the Contractor wish to work outside normal working hours written permission shall be obtained from the

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Witness:		Witness:	



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Employer's Agent and all additional costs arising out of such work shall be entirely to the Contractor's account.

Once a detailed programme has been approved, the Contractor shall not deviate from the planned operations.

PS 6 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.

PS 7 ACCESS TO PROPERTIES

Adequate access shall at all times be maintained to public and private properties unless otherwise arranged and approved. Details of the proposed means of access shall be submitted before any such access is restricted. Claims arising from impeded access shall be the responsibility of the Contractor.

At least 7 days before commencing any work affecting access to a property, the Employer's Agent and the occupier/owner of each such property shall be notified of the Contractor's intention to commence work, the date of commencement, expected duration and arrangements which will be made regarding maintenance of access.

PS 8 OTHER CONTRACTORS ON SITE

There may be other Contractors working within the same area. As such, the Contractor is required to make adequate allowances for such possibilities. No claims with respect to works being carried out by other Contractors shall be entertained by the Employer.

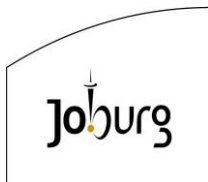
PS 9 TESTING, COMPLETION, COMMISSIONING AND CORRECTION OF DEFECTS

The onus is on the Contractor to produce goods and services which shall conform in quality and in accuracy of detail to the requirements hereinafter specified. The Contractor must clearly understand that it is not the 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 experienced Construction Manager/Site Agents, foremen and surveyors together with all transport, instruments and equipment for supervising, checking and controlling the work.

The act of passing any completed work or accepting materials or goods for payment by the Employer's Agent shall not be construed as signifying approval or acceptance thereof.

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Witness:		Witness:	



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Failure on the part of the Employer's Agent to reject any defective work or material or goods shall not in any way relieve the Contractor of his obligations under the Contract, nor prevent later rejection when such work or material is discovered.

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 be authorised to 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 shall 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.

PS 10

RECORDING OF WEATHER AND ABNORMAL RAINFALL

If during the time for completion of the works or any extension thereof abnormal rainfall or wet conditions shall occur, then an extension of time in accordance with Clause 5.12.2 of the General Conditions of Contract 2015 hereof shall be granted by the Employer calculated in accordance with the formula given below for each calendar month or part thereof.

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

Extension of time in calendar days in respect of the calendar month under consideration.

Actual number of days during the calendar month on which a rainfall of Y mm or more has been recorded.

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.

Actual rainfall in mm recorded for the calendar month under consideration.

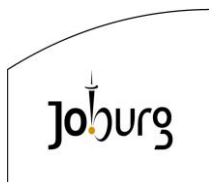
Average rainfall in mm for the calendar month as derived from existing rainfall records.

For purposes of the contract Nn, Rn, X and Y shall have those values assigned to them in the Appendix 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
Pretoria, Tel.: 082 233 8484

Y= 10 mm/24-hour day

X= 20 mm

Table 5.1: Statistical rainfall

STATISTICAL INFORMATION: JOHANNESBURG SOWETO: 1985-2006		
Month	RAINFALL	
	Nn = Actual number of days during the calendar months in which a rainfall of more than Y-mm has been received	Rn Average monthly rainfall
January	4.1	116.4
February	3.6	121.3
March	2.6	96.0
April	1.1	30.4
May	0.5	15.2
June	0.1	5.9
July	0.0	1.5
August	0.2	8.7
September	0.3	13.2
October	2.0	66.0
November	3.0	84.5
December	3.8	105.4
TOTAL	21.3	664.6

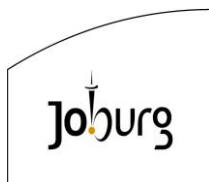
The Contractor shall be permitted to take his own rainfall measurements on site subject to the Employer's Agent's approval, but access to the measuring gauge(s) shall be under the Employer's Agent's control. The Contractor is to provide and install all the necessary equipment for accurately measuring 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.

PS 11 FORMAT OF COMMUNICATIONS

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

PS 12 KEY PERSONNEL

Employer:		Contractor	
Witness:		Witness:	



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The key role players involved or associated with the contract are listed below with references made to the General Conditions of Contract for Construction Works 2015 3rd Edition.

- 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 Construction Manager (GCC, Clause 4.12.2)
- Responsible person in terms of the OHAS Act (GCC, Clause 3.2.4)

On appointment in terms of the new Construction Regulations, the Contractor will be required to appoint a Construction Manager and Safety Officer (registered with SACPCMP.)

PS 13 MANAGEMENT MEETINGS

Fortnightly site meetings shall be arranged and facilitated by the Employer's Agent or his representatives. Senior Contractor management staff attendance shall be compulsory. The Contractor shall be required to provide reporting with regard to project progress, resources (human, TOOLS & EQUIPMENT and equipment), community issues, environmental and health and safety aspects.

PS 14 FORMS FOR CONTRACT ADMINISTRATION

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

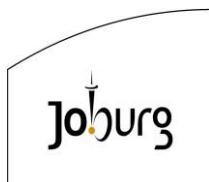
PS 15 DAILY RECORDS

The Contractor shall keep daily site records as required by the Employer or his representative and as specified herein. Daily records shall include, labour, TOOLS & EQUIPMENT, materials, rainfall, environmental issues, health and safety issues, daily diary and the like. Such records shall be 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.

PS 16 BONDS AND GUARANTEES

In addition to GCC 2015 Clause 8.6, the Contractor shall provide the Form of Guarantee for the due and punctual fulfilment and completion of all the Contractor's obligations under the Contract. No extension of time of the Contract Period of Performance or neither any variation of the Contract, nor the determination of the Contract by the Employer in terms of Clause 8.6 hereof, shall in any way impair or diminish or terminate any liability to the Employer under and by virtue of such Guarantee.

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Witness:		Witness:	



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Should the Contractor, when notified of the acceptance of his offer, fail to provide an approved Guarantee 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 17 PAYMENT CERTIFICATES

Measurements will be done continuously between the Employer's Agents Representatives and the Contractor on dates and times agreed on. Dates must be arranged by these parties. 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 the 20th of 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.
- Payment certificates must be completed monthly and submitted to the Employer's Agent before or on the 20th of each month. The payment certificate shall be accompanied by the monthly EPWP stats, copies of individual contracts, certified copies of individual IDs, Timesheets and proof of payment.
- The Contractor shall note that payment shall only be made for Works activities successfully (delivering the end result) executed, complying with the quality requirements and provided to the Employer's Agent or his duly authorized representative.
- The Contractor will be required to submit his payment certificate together with monthly labour returns including copies of certified IDs, individual contracts, proof of payment and timesheets. **No payment certificate will be processed if correct labour returns are not submitted.**

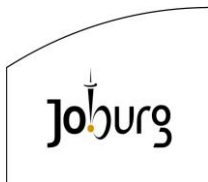
PS 18 FEATURES REQUIRING SPECIAL ATTENTION

PS18.1 Security

The Contractor shall be responsible to provide security on site(s):

- a) as he deems necessary. The Employer shall not be held responsible for any loss or damage(s) suffered by the Contractor, his TOOLS & EQUIPMENT, equipment, materials, subcontractors or employees as a result of a security incident of any nature.

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Witness:		Witness:	



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b) which have been identified, by the Employer's Agent and/or Employer, as potential high risk areas requiring security during site visits for the duration of the contract. The Contractor shall arrange that the security meet with the Employer's Agent and/or Employer representative at a convenient and safe location and thereafter escort to the necessary areas.

PS 18.2 Work outside normal working hours

The Contractor is permitted to work outside of normal working hours only upon obtaining written permission from the Employer's Agent. It is anticipated that the Contractor would find it necessary to re-visit stands where access was not initially obtained during normal hours for the purpose of installing meters. Prior arrangement with the property owner must be arranged to visit the relevant stands outside normal working hours.

PS18.3 Sanitary facilities

The Contractor is required to supply adequate sanitary facilities for employees, visitors, the Employer's Agent and Employer. The facilities will be as per standards acceptable by OHS regulations.

PS18.4 Community liaison and community relations

For the purpose of this project, Community Liaison Officers will be required, who shall be required to inform the community with regards to Contractor's activities in particular where such activities may affect the service provision to the affected community (See PD 2).

PS18.5 Notices and warning to consumers

The Contractor shall ensure he maintains service (water and/or sanitation) provision at all times whilst executing the works where:

a) The maximum amount of time of no service shall be 8 hours for any property. Any service disruption longer than 8 hours shall be temporary bypassed by methodologies approved by the Employer's Agent or his duly authorized representative.

b) A Public Notification Program shall be implemented, requiring at minimum that the Contractor shall deliver written notices to each domestic and non-domestic customer affected by the works, 48 hours before commencement of the works, including providing:

i) a summary of work to be completed.

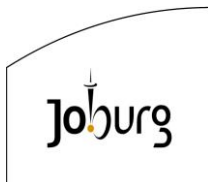
ii) the time and duration of service interruption; and

iii) a local telephone number to contact the Contractor for inquiries or complaints. All complaints received shall be addressed and resolved within the standard Employer response times and a summary of such complaints and associated actions shall be presented to the Employer's Agent or his duly authorized representatives on a monthly basis.

PS18.6 Continuity of service supply to customers

The activities of the Contractor shall not unreasonably interfere with the service supply to customer and be executed outside the agreed and notice time frames.

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Witness:		Witness:	



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Where the Contractor cannot reasonably re-establish services within times agreed and notice time frames, he shall proceed to contact the affected customer and make alternative arrangements that shall be acceptable to the customer and the Employer's Agent.

The associated costs of any customer claim arising from a lack of service provision due to the Contractor's negligence or his disregard for the Employer's SOP or his disregard for the conditions of this Contract, whilst executing activities as per this Contract, shall be solely for his account. The Employer shall have the right to make equivalent monetary deductions from monies owed to the Contractor or from his Guarantee under this Contract and any other active contract(s) with the Employer.

PS18.7 Generic labour-intensive specifications

EPWP guidelines shall not be applicable to this Contract, although it is expected that the Contractor execute the majority portion of the works utilising local labour. The Contractor will be required to submit monthly labour returns, including individual contracts, certified ID copies, Timesheets and proof of payment.

PS18.8 Return of materials

All old valves, valve covers, meter boxes and all pipework that can be reused shall be returned by the Contractor to the Johannesburg Water Depot or as directed by the Employer's Agent. The Contractor shall obtain the signature of the Superintendent acknowledging receipt of materials returned. The Contractor shall determine the condition of the materials.

PS18.9 Political and Community unrest

The Contractor shall notify the Employer or its duly Authorized Representative/s of any unrest situation and shall indicate all active Contract sites affected.

PS19 HEALTH AND SAFETY SPECIFICATION FOR CONSTRUCTION WORK

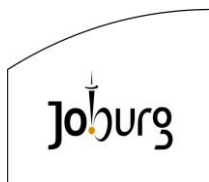
The Occupational Health and Safety Specification of the Employer's is bound in Volume 2 of these contract documents. Volume 2 forms an integral part of the Contract Specification and, in particular, shall be a part of the HEALTH AND SAFETY SPECIFICATION FOR CONSTRUCTION WORK.

In terms of Construction Regulations 5 (1) (b) 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.

Employer:		Contractor	
Witness:		Witness:	



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The Contractor, appointed by the Employer in terms of Regulation 5 (1) (k), is required to prepare an occupational health and safety plan.

This plan has to be prepared in terms of Regulation 7 (1) as well as the Employer's occupational health and safety specification. In terms of Regulation 7 (1) (L), the Employer and the Principal 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 2, as a minimum.

PS 20 ENVIRONMENTAL MANAGEMENT

Tendering Contractors are to adhere to the mitigation measures listed in the EMP (refer to Volume 2: Occupational Health and Safety Specification and Environmental Management Plan for Capital Investment Projects). Environmental mitigation measures are actions needed to align a project implementation phase with environmental control principles, where potential impacts to the natural and social environment are prevented, minimised or remediated. Environmental safeguarding is governed by various sets of legislation, with the most noteworthy for this project constituting the National Environmental Management Act (No. 107 of 1998) and the National Water Act (No. 36 of 1998).

To comply with Environmental Management Acts, The Employer's Agent when required, may issue instruction to the contractor to appoint Environmental Officer with experience and qualification as shown in the table below:

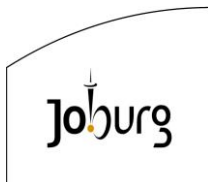
Appointment	Qualifications and Experience
Full time site Environmental Liaison Officer/Environmental Officer	- National Dip in Environmental Management/ + 3 years' experience in construction project; or - BA/BSc Environmental Management + 3 years' experience in construction project;

PS 21 Domestic Water Meter

Preferred Type of Meter to be used by Johannesburg Water

Sizes (Nom Dia)	Customer Type / End Use	Approved Meter Type	Class	Strainer Required

Employer:		Contractor	
Witness:		Witness:	



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15	Domestic	Multi-jet or volumetric (Plastic Bodied) Above ground Existing Areas	C	No
15	Domestic	Concentric Multi-jet or volumetric (Plastic Bodied) Above ground New Areas	C	No

PS 21.1 Domestic meter boxes
All domestic water meters must be fitted into a proprietary meter box for above ground configuration

PS 21.2 Above Ground Meter Boxes
Above ground meter boxes are to be installed in new areas and existing areas.

Meters and related plastic components in above ground installations must be protected from direct sunlight and from freezing where freezing is considered a danger.

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 A 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.

PSA GENERAL

PSA 2 INTERPRETATIONS

PSA 2.3 DEFINITIONS

General

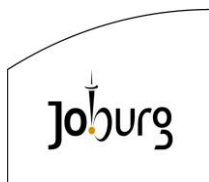
ADD THE FOLLOWING DEFINITIONS:

“General conditions: The General Conditions of Contract specified for use with this Contract and the special conditions of Contract as applicable.

Specified: As specified in the standardized specifications, the Drawings or the Project Specifications. Specifications shall have the corresponding meaning.”

b) Measurement and payment

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Witness:		Witness:	



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REPLACE THE DEFINITIONS FOR “fixed charge”, “time-related charge” AND “value-related charge” WITH THE FOLLOWING:

“Fixed charge: A charge that is not subject to adjustment on account of variation in the value of the Contract amount or the Contract Time of Completion.

Time-related charge: A charge, the amount of which varies in accordance with the Time for Completion of the work, adjusted in accordance with the provisions of the Contract.

Value-related charge: A charge, the amount of which varies pro rata with the final value of the measured work executed and valued in accordance with the provisions of the Contract.”

PSA 3 MATERIALS

PSA 3.1 QUALITY

ADD THE FOLLOWING:

“All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified in accordance with SANS Specifications shall bear the SANS mark, whether so specified or not.”

ADD THE FOLLOWING SUB-CLAUSE:

PSA 3.1 ORDERING OF MATERIALS

The quantities set out in the Schedule of Quantities have been carefully determined from calculations based on data available at the time and should therefore be considered to be approximate quantities only. Before ordering materials of any kind the Contractor shall check with the Employer’s Agent whether or not the scope of the work for which the materials are required is likely to change substantially. No liability or responsibility whatsoever shall be attached to the Employer for materials ordered by the Contractor except when ordered in accordance with written confirmation issued by the Employer’s Agent.”

PSA 4 TOOLS & EQUIPMENT

PSA 4.1 SILENCING OF TOOLS & EQUIPMENT

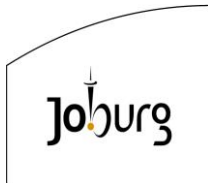
REPLACE THE HEADING OF SUBCLAUSE 4.1 “PLANT” AND INSERT “TOOLS” AND

REPLACE THE CONTENTS OF SUBCLAUSE 4.1 WITH THE FOLLOWING:

“The Contractor’s attention is drawn to the applicable regulations pertaining to noise and hearing conservation, framed under the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) as amended.

The Contractor shall at all times and at his own cost, be responsible for implementing all necessary steps to ensure full compliance with such regulations, including but not restricted to the provision and use of suitable and effective silencing devices for

Employer:		Contractor	
Witness:		Witness:	



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pneumatic tools and other tools & equipment which would otherwise cause a noise level in excess of that specified in the said regulations.

Where appropriate, the Contractor shall further, by means of temporary barriers, effectively isolate the source of such noise in order to comply with the said regulations."

PSA 5 CONSTRUCTION

PSA 5.3 PROTECTION OF EXISTING STRUCTURES

REPLACE "Machinery and Occupational Safety Act, 1983 (Act No 6 of 1983)" WITH "Occupational Health and Safety Act, 1993 (Act No 85 of 1993), as amended," AND INSERT THE FOLLOWING AFTER "(Act No. 27 of 1956)": "as amended."

PSA 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

REPLACE THE HEADING AND THE CONTENTS OF SUBCLAUSE 5.4 WITH THE FOLLOWING:

PSA 5.4 LOCATION AND PROTECTION OF EXISTING SERVICES

PSA 5.4.1 Location of existing services

Before commencing with any work in an area, the Contractor shall ascertain the presence and actual position of all services which can reasonably be expected by an experienced and competent Contractor to be present on, under, over or within the Site.

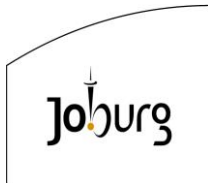
Without in any way limiting his liability in terms of the Conditions of Contract in relation to damage to property and interference with services, the Contractor shall, in collaboration with the Employer's Agent, obtain the most up-to-date plans as are available, showing the positions of services existing in the area where he intends to work. Neither the Employer nor the Employer's Agent offers any warranty as to the accuracy or completeness of such plans and because services can often not be reliably located from plans, the Contractor shall ascertain the actual location of services depicted on such plans by means of careful inspection of the Site.

Thereafter, the Contractor shall, by the use of appropriate methodologies, carefully expose the services at such positions as are agreed to by the Employer's Agent, for the purposes of verifying the exact location and position of the services. Where the exposure of existing services involves excavation to expose underground services, the further requirements of Clauses 5.1.2.2 of SANS 1200 D (as amended) shall apply.

The aforesaid procedure shall also be followed in respect of services not shown on the plans, but which may reasonably be anticipated by an experienced Contractor to be present or potentially present on the site.

All services, the positions of which have been determined as aforesaid at the critical points, shall henceforth be designated as 'known services and their positions shall be indicated by the Contractor on a separate set of drawings, a copy of which shall be furnished to the Employer's Agent without delay.

Employer:		Contractor	
Witness:		Witness:	



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As soon as any service which has not been identified and located as described above is encountered on, under, over or within the site, it shall henceforth be deemed to be a known service and the aforesaid provisions pertaining to locating, verifying and recording its position on the balance of the site shall apply. The Contractor shall notify the Employer's Agent immediately when any such service is encountered or discovered on the Site.

Whilst he is in possession of the Site, the Contractor shall be liable for all loss of, or damage as may occur to

- (a) known services, anywhere along the entire lengths of their routes, as may reasonably be deduced from the actual locations at which their positions were verified as aforesaid, due cognizance being taken of such deviations in line and level which may reasonably be anticipated, and
- (b) any other service which ought reasonably to have been a known service in accordance with the provisions of this clause.

The Contractor shall also be liable for consequential damage in regard to (a) and (b), whether caused directly by the Contractor's operations or by the lack of proper protection.

No separate payment will be made to the Contractor in respect of any costs incurred in preparing and submitting to the Employer's Agent the Drawings as aforesaid. These costs shall be deemed included in the Contractor's other tendered rates and prices included in the Contract.

Payment to the Contractor in respect of exposing services at the positions agreed by the Employer's Agent and as described above will be made under the payment items (if any) as may be provided for in the respective sections of the specifications pertaining to the type of work involved.

PSA 5.4.2 Protection during construction

The Contractor shall take all reasonable precautions and arrange its operations in such a manner as to prevent damage occurring to all known services during the period which the Contractor has occupation and/or possession of the Site.

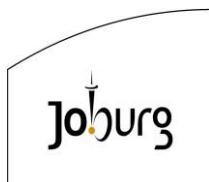
Services left exposed shall be suitably protected from damage and in such a manner as will eliminate any danger arising there from to the public and/or workmen, all in accordance with the requirements of the prevailing legislation and related regulations.

Unless otherwise instructed by the Employer's Agent, no services shall be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services shall be promptly backfilled and compacted. In roadways, the requirements of Subclause 5.9 of SANS 1200 DB should be observed. In other areas compaction is to be to 90% modified AASHTO density.

PSA 5.4.3 Alterations and repairs to existing services

Unless the contrary is clearly specified in the Contract or ordered by the Employer's Agent, the Contractor shall not carry out alterations to existing services. When any such alterations become necessary, the Contractor shall promptly inform the Employer's Agent,

Employer:		Contractor	
Witness:		Witness:	



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who will either make arrangements for such work to be executed by the owner of the service or instruct the Contractor to make such arrangements himself.

Should damage occur to any existing services, the Contractor shall immediately inform the Employer's Agent, or when this is not possible, the relevant authority, and obtain instructions as to who should carry out repairs. In urgent cases, the Contractor shall take appropriate steps to minimize damage to and interruption of the service. No repairs of telecommunication cables or electric power lines and cables shall be attempted by the Contractor.

The following list of contact telephone numbers is provided for:

Service	Authority	Contact Details	Contact Number
Communication	Telkom	J Tshabalala	(011) 301-9052
Electricity	Eskom	K Bedessie	(011) 711-2290
Municipal Electricity	City Power	D Oliver	(011) 490-7195
Gas	Sasol	B van der Heuvel	(011) 617-8261
Bulk Water	Rand Water	I Davids	(011) 682-0911
Provincial Road	Gautrans	J Olivier	(012) 310-2200
Municipal Road	Johannesburg Roads Agency	J Montero	(011) 298-5000

PSA 7 TESTING

PSA 7.2 APPROVED LABORATORIES

REPLACE THE CONTENTS OF SUBCLAUSE 7.2 WITH THE FOLLOWING:

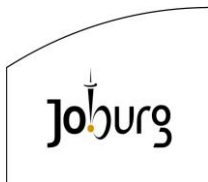
"Unless otherwise specified in the relevant specification or elsewhere in the Project Specification, the following shall be deemed to be approved laboratories in which design work, or testing required in terms of a specification for the purposes of acceptance by the Employer's Agent of the quality of materials used and/or workmanship achieved, may be carried out:

- (a) Any testing laboratory certified by the South African National Accreditation Systems (SANAS) in respect of the nature and type of testing to be undertaken for the purposes of the Contract.
- (b) Any testing laboratory owned, managed or operated by the Employer or the Employer's Agent.
- (c) Any testing laboratory established and operated on the Site by or on behalf of the Employer or the Employer's Agent.
- (d) Any other laboratory that the Employer's Agent approves in his absolute discretion."

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.1 MEASUREMENT

Employer:		Contractor	
Witness:		Witness:	



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PSA 8.1.2 Preliminary and General Item or Section

PSA 8.1.2.1 Contents

REPLACE THE LAST SENTENCE OF SUBCLAUSE 8.1.2.1(b) WITH THE FOLLOWING:

"Separate items will be scheduled to cover the fixed, value-related and time-related components of the Contractor's preliminary and general costs."

PSA 8.1.2.3 Contractor to Price all Items

ADD THE FOLLOWING PARAGRAPH.

"The grouping of payment items under one all-inclusive rate is prohibited. Each payment item shall have its own rate. Where the Contractor elects not to insert a rate for any particular item, then it shall be deemed to be zero".

PSA 8.2 PAYMENT

PSA 8.2.1 Fixed-charge and Value-related Items

REPLACE THE CONTENTS OF SUBCLAUSE 8.2.1 WITH THE FOLLOWING:

PSA 8.2.1.1 Fixed-charge Items

Payment of fixed charges in respect of item 8.3.1 will be made as follows:

- (a) EIGHTY PER CENT (80%) of the sum tendered will be paid when the facilities have been provided and approved.
- (b) The remaining TWENTY PER CENT (20%) will be paid when the works have been completed, the facilities have been removed, and the site of the Contractor's establishment has been cleared and cleaned to the satisfaction of the Employer's Agent.

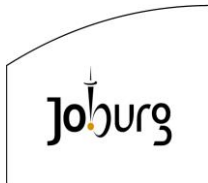
No adjustment will be made to the sum tendered in respect of item 8.3.1 should the value of the works finally executed or the time for completion vary in any way from that specified in the tender."

PSA 8.2.1.2 Value-related Items

Payment for the sum tendered under item 8.3.2 will be made in three separate instalments as follows:

- (a) The first instalment, which is 40% of the sum, will be paid when the Contractor has fulfilled all his obligations to date under this specification, the General Conditions of Contract and the Special Conditions of Contract, and when the value of work certified for payment, excluding materials on site and payments for preliminary and general items, is equal to not less than 5% of the total value of the work listed in the Schedule of Quantities.

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Witness:		Witness:	



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- (b) The second instalment, which is 40% of the sum, will be made when the amount certified for payment, including retention moneys but excluding this second instalment, exceeds 50% of the tender sum.
- (c) The final payment, which is 20% of the sum, will be made when the works have been certified as completed and the Contractor has fulfilled all his obligations to date under this Specification, the General Conditions of Contract and the Special Conditions of Contract.

Should the value of the measured work finally completed be more or less than the tender sum, the sum tendered under item 8.3.2 will be adjusted up or down in accordance with the provisions of *Clause 6.11* of the *Conditions of Contract 2015*, and this adjustment will be applied to the third instalment."

PSA 8.2.2 Time-related Items

REPLACE THE CONTENTS OF SUBCLAUSE 8.2.2 WITH THE FOLLOWING:

"Subject to the provisions of sub clauses 8.2.3 and 8.2.4, payment under item 8.4.1 (time-related item) will be made monthly in equal amounts, calculated by dividing the sum tendered for the item by the tendered contract period in months, provided always that the total of the monthly amounts so paid for the item is not out of proportion to the value of the progress of the Works as a whole.

Note: An approved extension of time will qualify the contractor to receive payment for each relevant time-related item at a unit rate determined from the sum tendered for such item and for designated operation, the period stated for the completion of the tender contract period as applicable."

PSA 8.3 SCHEDULED FIXED-CHARGE AND VALUE-RELATED CHARGE

REPLACE THE CONTENTS OF ITEMS 8.3.2.1 WITH THE FOLLOWING AND GUIDED BY PSAB EMPLOYER'S AGENT'S OFFICE

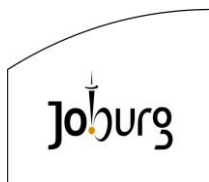
PSA 8.3.2.1 Facilities for the Engineer

PSA 8.3.2.1. a) Engineer's Office Type 2.....Unit: Sum

PSA 8.3.2.1.b) Johannesburg Water Engineering Team Unit: Sum

PSA 8.3.2.1.c) QCO and CLO Office.....Unit: Sum

Employer:		Contractor	
Witness:		Witness:	



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PSA 8.3.2.1.d) Boardroom	Unit: Sum
PSA 8.3.2.1.e) Parking.....	Unit: Sum
PSA 8.3.2.1.f) Name boards	Unit: Sum
PSA 8.3.2.1.g) Communication.....	Unit: Sum
PSA 8.3.2.1.h) Telephone & Laptop facilities for Complaints Handler Team.....	Unit: Sum
PSA 8.3.2.1.i) Ablution and latrine facilities.....	Unit: Sum

ADD THE FOLLOWING NEW SUB CLAUSE TO CLAUSE 8.3.2.2

PSA 8.3.2.2 Facilities for the SMMEs Fixed charge items

The rate shall cover all requirements listed below:

PSA 8.3.2.2. a) Establishment of storage and Facilities for SMMEs.....	Unit: Sum
PSA 8.3.2.2.b) Tools and Equipment	Unit: Sum
PSA 8.3.2.2.c) Other Fixed related Obligations.....	Unit: Sum
PSA 8.3.2.2.d) Removal of facilities.....	Unit: Sum

ADD THE FOLLOWING NEW SUB CLAUSE TO CLAUSE 8.3.2.2

PSA 8.3.2.3 Satellite facilities for CLO & QCO Team

The rate shall cover all requirements listed below:

PSA 8.3.2.3. a) Office for CLO & QCO Team.....	Unit: Sum
PSA 8.3.2.3. b) Water Supplies and electric power	Unit: Sum
PSA 8.3.2.3.c) Ablution and latrine facilities.....	Unit: Sum
PSA 8.3.2.3.d) Removal of facilities.....	Unit: Sum

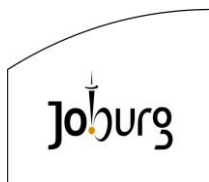
ADD THE FOLLOWING NEW SUBCLAUSES TO CLAUSE 8.3

PSA 8.3.5 Additional Contractual Obligations

PSA 8.3.5.1 OHS Act Obligations	Unit: Sum

The rate shall include the complete cost for the provision of resources (human and equipment), communication, transportation and travelling, documentation of activities and

Employer:		Contractor	
Witness:		Witness:	



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reporting activities required to fully comply with the implementation and maintenance of the Health and Safety Plan as per the Health and Safety Specifications contained in Volume 2 for the duration of the Contract. The contractor shall ensure that all personnel comply including SMMEs and the Meter Supplier's technical support staff. The rate to include the compilation of the OHS files for the contractor and the sub-contractors appointed by the contractor.

PSA 8.3.5.2 EMP Obligations Unit: Sum

The rate shall include the complete cost for the provision of resources (human and equipment), communication, transportation and travelling, documentation of activities and reporting activities required to fully comply with the implementation and maintenance of the Environmental Management Plan contained in Volume 2 for the duration of the Contract. The contractor shall ensure that all personnel comply including SMMEs and the Meter Supplier's technical support staff. The rate to include the compilation of the Environmental Management files for the contractor and the sub-contractors appointed by the contractor.

PSA 8.3.5.3 Issuing of notices to customers Unit: Sum

The rate shall include the complete cost for the issuing of notices to all the affected customers for the duration of the project.

PSA 8.3.5.4 Other fixed charge obligations..... Unit: Sum

The rate shall include the cost of additional fixed charge obligations which are provision if not made for in the bill of quantities. Contractor will be required to provide a rate composition for the above item for approval by the Engineer prior to submitting a claim.

PSA 8.4 SCHEDULED TIME-RELATED ITEMS

REPLACE THE CONTENTS OF ITEMS 8.4.2 WITH THE FOLLOWING AND GUIDED BY PSAB EMPLOYER'S AGENT'S OFFICE

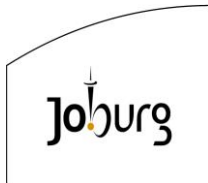
Facilities for Engineer

PSA 8.4.2 a) Engineer's Office Type 2.....Unit: Month

PSA 8.4.2b) Johannesburg Water Engineering Team Unit: Month

PSA 8.4.2c) QCO and CLO Office.....Unit: Month

Employer:		Contractor	
Witness:		Witness:	



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- PSA 8.4.2d)** Boardroom Unit: Month
- PSA 8.4.2e)** Parking.....Unit: Month
- PSA 8.4.2f)** Name boards Unit: Month
- PSA 8.4.2g)** Communication.....Unit: Month
- PSA 8.4.2.h)** Telephone & Laptop facilities for Complaints Handler Team.....Unit: Month
- PSA 8.4.2.i)** Ablution and latrine facilities.....Unit: Month

ADD THE FOLLOWING NEW SUB CLAUSE TO CLAUSE 8.4.3

PSA 8.4.3 Facilities for Contractor

- PSA 8.4.3 a)** Head Office overhead costs for the duration of the contract.....Unit: Month
- PSA 8.4.3b)** Contractor's Supervision for the duration of the contract Unit: Month
- PSA 8.4.3c)** Office & Storage Sheds.....Unit: Month
- PSA 8.4.3d)** Ablution and latrine facilities.....Unit: Month
- PSA 8.4.3e)** Water supplies, electric power and communications.....Unit: Month
- PSA 8.4.3f)** Dealing with water Unit: Month
- PSA 8.4.3g)** Access.....Unit: Month

ADD THE FOLLOWING NEW SUB CLAUSE TO CLAUSE 8.4.4 to 8.4.5

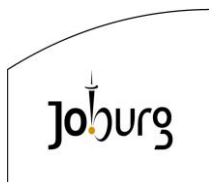
- PSA 8.4.4** OHS Act Obligation.....Unit: Month

The sum shall cover the full compensation and all-time related costs for the duration of the contract, for the compliance with the Occupational Health and Safety Act, Construction Regulations and all the requirements stipulated in the Employer's Health and Safety Specifications. The cost shall include the salary for a full time OHS Officer for the duration of the project.

- PSA 8.4.5** EMP Obligations Unit: Month

The sum shall cover the full compensation and all-time related costs for the duration of the contract, for the compliance with the Environmental Management Regulations Act, and all the requirements stipulated in the Employer's Environmental Management Specifications. The cost shall include the salary for a full time Environmental Control Officer for the duration of the project.

Employer:		Contractor	
Witness:		Witness:	



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PSA 8.4.6 Security services costs on site.....Unit: Month

The sum shall cover the full compensation and all costs for a sufficient 24 hour guarded services for the duration of the contract.

PSA 8.4.7 Contractor's supervision of SMMEs for the duration of the contract.....Unit: Month

Contractors shall price the monthly rate for the Management of SMMEs. This rate shall cover all the management costs for the main Contractor to manage local Subcontractors / SMMEs. The monthly rate will only be claimed at inception of the appointment of the SMMEs until such a time when the SMME contracts are concluded. The Employer shall not be liable for payment of the management beyond the contract duration. A schedule of quantities will be prepared for each subcontract Work package to be issued and the management fee to main Contractor will be paid based on the completed subcontracted work by SMMEs as and when it is invoiced to Client.

ADD THE FOLLOWING NEW SUBCLAUSES TO CLAUSE 8.4.8

PSA 8.4.8 Facilities for the SMMEs

PSA 8.4.8a) Storage facilities.....Unit: Month

PSA 8.4.8b) Tools and equipment.....Unit: Month

PSA 8.4.8c) Other time related obligations.....Unit: Month

ADD THE FOLLOWING NEW SUBCLAUSES TO CLAUSE 8.4.9

PSA 8.4.9 Satellite facilities for CLO and QCO Team

PSA 8.4.9a) Office for CLO and QCO Team.....Unit: Month

PSA 8.4.9b) Water supplies and electric power.....Unit: Month

PSA 8.4.9c) Ablution and latrine facilities.....Unit: Month

PSA 8.4.9d) Security services.....Unit: Month

Refer to PSA 8.4.

Additional Obligations

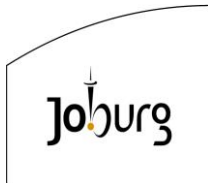
PSA 8.5 SUMS STATED PROVISIONALLY BY EMPLOYER'S AGENT

AMEND SUBCLAUSE 8.4.11.b)1 AND ADD THE FOLLOWING ITEMS:

. Community Liaison Officer Unit: Prov. Sum

The stated sum shall cover full compensation and all costs payable monthly, to provide a full time qualified and suitable experienced Community Liaison Office for the duration of the contract. The stated sum shall also cover for the CLO salary, the cost of typing, printing and distributing notices, cellular facilities of minimum of R300 up to R500.

Employer:		Contractor	
Witness:		Witness:	



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. Complaints Handling team and Field Workers..... Unit: Prov. Sum

The stated sum shall cover full compensation and all costs payable monthly, to provide a full time qualified and suitable experienced Complaints Handlers for the duration of the contract. The stated sum shall also cover for the Field Workers' (as and when required) salary, the cost of typing, printing meter data reports, cellular facilities of minimum of R300 up to R500.

. Community awareness material Unit: Prov. Sum

The sum stated shall be for the sourcing of community awareness material, from 3 independent sources and shall be reviewed and selected by the client for approval and acceptance.

. QCO and QCF..... Unit: Prov. Sum

The stated sum shall cover full compensation and all costs payable on a monthly basis, to provide a full time qualified and suitable experienced QCOs and QCF for the duration of the contract. The stated sum shall also cover for the QCO and QCF salary.

. Training but not limited to the following: plumbing.....Unit: Prov. Sum

The sum stated shall be for the training of labour but not limited to plumbing, sourcing of community awareness material, from 3 independent sources and shall be reviewed and selected by the Employer's Agent for approval and acceptance.

. MIS System or similar approved training.....Unit: Prov. Sum

The sum stated shall be for the training the contractor's staff on the MIS System or similar training to be approved by the Employer's Agent. The contractor will be required to source quotations from 3 independent sources which shall be reviewed and selected by the Employer's Agent for approval and acceptance.

. *Reinstatement of Asphalt by JRA*.....Unit: Prov. Sum

The sum stated shall be for the reinstatement of Asphalt by JRA, to be approved by the Employer's Agent. The contractor will be required to source quotations from 3 independent sources which shall be reviewed and selected by the Employer's Agent for approval and acceptance.

AMEND SUBCLAUSE 8.5.b)1 AND ADD THE FOLLOWING ITEMS:

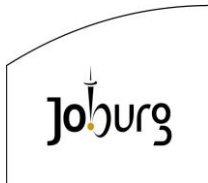
PSA 8.4.12 Excavation by hand in all materials to exposing services.....Unit: m³

Rate to include all for excavating by hand to expose existing services. The cost of protecting the exposed services shall be included in this rate.

PSA 8.4.13 Temporary protection of services.....Unit: Sum

Rate to include the costs for the temporary protection of services during construction.

Employer:		Contractor	
Witness:		Witness:	



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PSA 8.4.14 Accommodation of traffic.....Unit: Sum

Rate to include the costs for the temporary accommodation of traffic during construction.

PSA 8.4.15 Provision of photographic records.....Unit: Sum

Add the following

Contractors will be required to take pictures of the site conditions and customers driveways, lawns BEFORE constructions and again AFTER construction. The photographic record should be stored safe for reference when there are disputes pertaining to original condition of surfaces before construction. Contractors to also take pictures of the existing meters prior to removal, showing the meter number, meter reading and stand number. The meter images to be attached to the meter job cards. The rate to include all costs associated with the provision of photographic records as stated.

PSA 8.16 DAYWORKS

ADD THE FOLLOWING NEW CLAUSES:

PSA 8.7.1 Scope

This section covers the method of measurement and payment for work carried out on a day work basis.

PSA 8.7.1.1 General Requirements

Work will be classified as day work only if the Employer's Agent considers no other rate in the Bill of Quantities appropriate for payment purposes.

An instruction regarding all work to be carried out under day work in terms of Clause 6.5 of the General Conditions of Contract 2015 will be issued at the discretion of the Employer's Agent. Some or all of the items priced under day work in the Bill of Quantities may possibly not be required for this Contract.

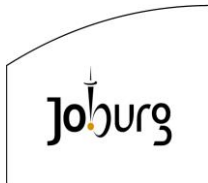
Before ordering any material, the Contractor shall submit quotations to the Employer's Agent for his approval and shall submit such receipts or vouchers to the Employer's Agent as may be necessary for proving the amount claimed.

PSA 8.7.1.2 Measurement and Payment - Day works

The day work rates submitted for vehicles and construction equipment, in the Bill of Quantities shall be a hire charge for the use of the vehicle and driver or constructional tools & equipment/equipment and operator (excluding VAT) and shall apply only to vehicles and construction equipment approved in writing by the Employer's Agent. The rate shall include for maintenance, fuels and oils and other operating costs, establishment, insurance and other contingency costs relating to the running of the vehicle, tools & equipment or equipment.

Where there is ambiguity between the power developed at the flywheel and mass of a machine, the power shall govern the measurement category.

Employer:		Contractor	
Witness:		Witness:	



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The Contractor and the Employer's Agent will agree on the method of recording the working hours prior to the commencement of the work. Any long period of idling at any one time which in the opinion of the Employer's Agent or his representative is beyond that required for normal operating conditions will not be paid for as working time. Non-working hours for any reason shall not be measured for payment.

The rate shall cover full compensation for all administrative costs, supervision, overheads, liabilities and obligations related to the running of the vehicles, constructional tools & equipment and also include for profit and shall be subject to the Contract Price Adjustment factor laid down in the Contract Data

SANS1200 AB: ENGINEER'S OFFICE (1986)

The following variations and additions to the standardised specifications

PSAB EMPLOYER'S AGENT'S OFFICE

PSAB 3 MATERIALS

PSAB 3.1 NAME BOARDS

DELETE THE ENTIRE CLAUSE AND REPLACE WITH:

"The name board shall be of either tempered hardboard at least 12mm thick or steel sheeting so braced on the reverse side as to prevent warping or buckling and shall be mounted on two or more firmly planted poles as necessary. The quality of the paint shall conform to SANS Standard Specification CKS 193. The colour of the paint shall conform to SANS 1091-1975 colour F11, strong blue. The height of the larger name board shall be 2400mm and the width 4800mm, whilst the height of the smaller name board shall be 800mm and the width 1600mm".

PSAB 3.2 OFFICE BUILDING(S)

Delete this sub-clause entirely and re-title the sub-clause "FACILITIES FOR THE EMPLOYER'S AGENT"

Add the following sub-clause.

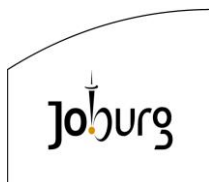
PSAB 3.2.1 Office Building(s)

The Contractor shall provide, furnish and equip one or more offices (as scheduled) for the use of the Employer's Agent.

Each office shall be weatherproof The Contractor shall provide and furnish one office for the use of the Employer's Agent. Each office shall consist of one room with a floor area of at least 15 m² and a ceiling height of at least 2.5 m.

, shall be air conditioned, shall have a wooden boarded floor that is at least 150 mm above the ground, and shall be provided with a ceiling and a lining to the walls, or equivalent insulation, with an acceptable type of door with a secure lock, and two opening windows of glazed area at least 3 m². Each office shall be well ventilated and shall be so insulated as to provide comfortable working conditions.

Employer:		Contractor	
Witness:		Witness:	



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Office building shall be painted with an approved paint after erection and the paintwork shall be maintained during the contract period.

Each door shall be provided with a lock and two keys.

The sitting of all offices shall be to the Employer's Agent's satisfaction and shall be decided upon in consultation with him/her and confirmed in writing before erection.

All accommodation shall include the provision of access roads where required, fresh clean portable water and sewerage, which will be considered as part and parcel of the accommodation provided and will not be paid for separately.

The site Office shall be fenced using diamond wire mesh right round with access gate.

All accommodation shall meet with the approval of the Employer's Agent.

The offices shall comply with the following requirements.

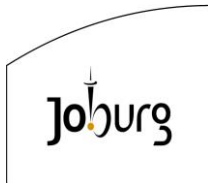
<u>Dimensions</u>	<u>Boardroom</u>	<u>Employer's</u> <u>Agent's</u>
<u>Office</u>		
Minimum floor area	28 m ²	15 m ²
Minimum window area	4.0 m ²	3.0 m ²
Minimum window area opening	2.4 m ²	1.5 m ²
Minimum clear height	2.5 m	2.5 m
Shaded parking for vehicles		2

Furniture and Equipment

Employer's Agent's shall be equipped with the following:

- (i) Office desk with a surface area of at least 1.5m² with at least 3 drawers one of which can be locked.
- (ii) Two office chairs.
- (iii) a lockable upright steel cabinet with three shelves or a steel filing cabinet with four drawers
- (iv) Refrigerator
- (v) Printer
- (vi) Sufficient racks and hangers for hanging contract drawings. The hangers shall be of the "Barhold" type, with one hanger to five drawings.
- (vii) 1 x Double 80-watt fluorescent light fittings complete with ballast and tubes.

Employer:		Contractor	
Witness:		Witness:	



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The Boardroom shall be equipped with the following:

- (i) Conference table large enough to accommodate twelve people and have an area of at least 15m².
- (ii) Fifteen office chairs
- (iii) 2 x Double 80-watt fluorescent light fittings complete with ballast and tubes.

The Contractor shall also supply a toilet for the exclusive use of the Employer's Agent(s).

The Contractor must provide basic survey instruments: dumpy level, tripod stand and staff.

On completion of the Works, ownership of the buildings, furnishings and equipment shall revert to the Contractor who shall remove them from the Site.

PSAB 3.3 CARPORT

ADD THE FOLLOWING NEW CLAUSE:

The Contractor shall construct the number of carports specified in Portion 1 of the Project Specifications, for the sole use of the Employer's Agent and his staff. Each carport shall be constructed so that the vehicle parked under it is always protected against the direct rays of the sun. The carport area shall be at least 20 m² and the floor shall be covered with a layer of crushed stone to alleviate dusty and muddy conditions. The carport(s) shall be positioned so as to provide easy and convenient access to the Employer's Agent's office."

PSAB 4 TOOLS & EQUIPMENT

PSAB 4.1 TELEPHONE

REPLACE SUBCLAUSE 4.1 OF SANS 1200 AB WITH THE FOLLOWING:

"The Contractor shall arrange for the provision of a suitable approved by the Employer's Agent cellular phone and airtime and data bundles per month for the Employer's Agent's Representative. The Contractor at the tendered rates under the relevant scheduled item shall recover the associated charges and telephone calls and data bundles associates with the contract.

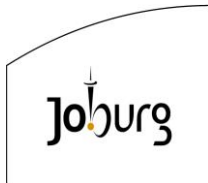
PSAB 4.2 COMPUTER FACILITIES

ADD THE FOLLOWING NEW CLAUSE:

The Contractor shall, for the duration of the Contract, provide the computer equipment complete with printer, modem and telephone connection including 4G connection together with the software specified hereunder, for the exclusive use of the Employer's Agent and his staff:

- a) 1 laptop
- b) 1 printer

Employer:		Contractor	
Witness:		Witness:	



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The laptop shall comply with the following minimum specifications:
 JW approved laptop Intel Core i7 17-4700MQ, 8GB, 1TB, DVD+-RW DL, 15.6FHD (1920X1080), NVIDIA 1GB, 3
 WAR: 3 Year on-site Warranty upgrade
 Mem: JW approved 8GB DDR3L 1600 (PC3-1280D) 50 DIMM Memory
 Dock: JW approved Dock-65W-South Africa

Printers shall, unless otherwise approved by the Employer's Agent, be Samsung SCX-4600 Colour Laser Printer Series or equivalent compatible.

All computer hardware shall be provided complete with the requisite connecting cables and all interfacing devices and software necessary for its efficient operation as an integral system.

The following software shall be properly installed on the computer, and the original license agreements and disks shall be provided to the Employer's Agent for safekeeping:

- Microsoft Windows 10
- MS-Office 360
- MS Projects 2010 or Latest version

All computer equipment provided shall be kept fully serviceable at all times by the Contractor. The Contractor shall have any defective equipment repaired or replaced at his own cost within 12 hours after notification by the Employer's Agent's staff.

The Contractor shall further provide at his own cost, all paper and black ink cartridges and other consumables reasonably required by the Employer's Agent."

PSC SITE CLEARANCE

PSC 3 MATERIALS

PSC 3.1 DISPOSAL OF MATERIALS

ADD THE FOLLOWING:

"The Contractor shall obtain his own dumping sites for the disposal of material and all transport costs shall be included in the rates tendered for site clearance."

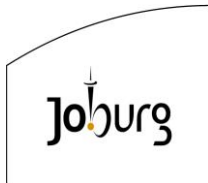
PSC 5 CONSTRUCTION

PSC 5.1 AREAS TO BE CLEARED AND GRUBBED

ADD THE FOLLOWING:

"Small diameter pipeline routes shall be cleared to a distance of 1,0m on both sides of the pipeline centre line and large diameter pipeline routes shall be cleared to a distance of

Employer:		Contractor	
Witness:		Witness:	



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2,0m on both sides of the pipeline centre line. Route pegs or markers shall not be destroyed or damaged during clearing operations.”

PSC 5.2 CUTTING OF TREES

PSC 5.2.3 Protection of trees

PSC 5.2.3.2 Individual trees

REPLACE THE LAST SENTENCE WITH THE FOLLOWING:

“An amount of R 2000.00 will be deducted from moneys due to the Contractor as a penalty for every tree that is damaged or removed unnecessarily.”

PSC 8 MEASUREMENT AND PAYMENT

PSC 8.2 PAYMENT

PSC 8.2.1 Clear and grub

REPLACE THE FIRST LINE WITH THE FOLLOWING:

“The area designated by the Employer’s Agent to be cleared and grubbed will be measured in square metre to the nearest square metre or,” otherwise specified.

PSC 8.2.5 Take down existing fences

REPLACE ITEM 8.2.5 WITH THE FOLLOWING:

PSC 8.2.5 Take down existing fences:

(a) Description of fence Unit: m
or km

(b) Etc for other items

The unit of measurement shall be the metre or kilometer of fence taken down and removed from the site.

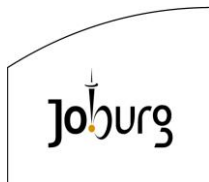
The rate shall cover the cost of taking down the complete fence (fence height up to 2m) as scheduled and removing all fence material from the site, filling of holes, leveling ground surfaces and cleaning the site as well as providing temporary fence during construction.”

PSC 8.2.8 Demolish and remove structures/buildings and dismantle steelwork, etc.

REPLACE “Unit: sum” WITH “Unit: sum or number of m²”.

REPLACE THE LAST SENTENCE WITH:

Employer:		Contractor	
Witness:		Witness:	



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“The rate shall cover the cost of all such separate items as scheduled in the Schedule of Quantities.”

ADD THE FOLLOWING ITEMS:

PSC 8.2.11a Temporary fencing or hoarding:

- (a) Indicate temporary usage, description and type Unit: m
- (b) Etc for other usage and types.

The unit of measurement shall be the linear metre of fence or hoarding supplied and erected, and in the case of temporary fencing for maintaining and removing on completion of the works or part of the works.

The tendered rate shall include full compensation for the cost of supplying and erecting the complete fence as specified or scheduled and in the case of temporary fencing for taking down the fences, removing from the site, filling of holes, leveling ground surfaces and cleaning the site.

Seventy per cent (70%) of the tendered rate shall be payable on completion and approval of the temporary fences, and the remaining thirty per cent (30%) on completion of the removal of the fences.

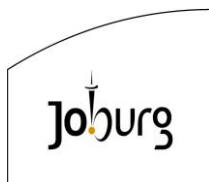
PSC 8.2.11b Removal of man-made surfaces

The rate shall cover all plant, labour, material, saw cutting (asphalt and concrete), breaking up, lifting, loading, transportation, off-loading surfacing and storing (where applicable).

a) Footways and driveways

- i) Asphalt (≤ 50 mm thickness) Unit: m²
- ii) Asphalt ($\geq 50 - 100$ mm thickness) Unit: m²
- iii) Interlocking concrete segmental paving blocks (all colours) Unit: m²
- iv) Concrete slabs (450 x 450mm) Unit: m²
- v) Brick paving..... Unit: m²
- vi) Grassing and vegetation..... Unit: m²
- vii) Unreinforced concrete <75mm thick..... Unit: m³
- viii) Reinforced concrete <75mm thick..... Unit: m³
- ix) Kerbing (All types of kerbs) Unit: m
- x) Dump rock/Stone pitching..... Unit: m³

Employer:		Contractor	
Witness:		Witness:	



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- xi) Steel palisade..... Unit: m
- xii) Concrete palisade..... Unit: m
- xiii) Removal of all other fences..... Unit: m
- xiv) Demolish of 115mm brick boundary wall..... Unit: m
- xv) Demolish of 230mm brick boundary wall..... Unit: m²

PSC 8.2.12 Backfilling and reinstatement of man-made surfaces

The rate shall cover the cost of all associated plant, labour, material, loading, transportation from storage, off-loading and placing (levelling and compacting where applicable) the following materials in roadways, footways and driveways in accordance with the COP:

PSC 8.2.12.1 Backfilling and reinstatement of roads

Unit:m²

a) Scenario A

- i) 150mm base – G2 Graded crushed stone to 102% Mod AASHTO density
- ii) 150mm subbase – G5 Graded crushed stone to 97% Mod AASHTO density
- iii) 150mm Fill – G7 material compacted to 95% Mod AASHTO density
- iv) 150mm selected subgrade – Insitu material compacted to 90% Mod AASHTO

b) Scenario B

- i) 150mm base – G2 material compacted to 97% Mod AASHTO density
- ii) 150mm subbase – C4 Stabilised gravel material to 95% Mod AASHTO density*
- iii) 150mm selected subgrade - Insitu material compacted to 93% Mod AASHTO

***Rate shall include stabilization agent.**

c) Scenario C (Foot paths)

- i) 150mm base – Recovered material compacted to 93% Mod AASHTO
- ii) 150mm selected subgrade – Insitu material compacted to 90% Mod AASHTO

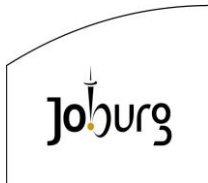
d) Surfacing

- i) 30mm Bitumen hot –mix: Fine
- ii) 70mm Bitumen hot –mix: BTB

PSC 8.2.12.2 Backfilling and reinstatement footways

- a) Using removed materials:
 - i) Interlocking concrete segmental paving blocks (all colours) Unit: m²
 - ii) Concrete slabs (450 x 450mm)..... Unit:m²
 - iii) Brick paving..... Unit:m²
 - iv) Grassing.....Unit:m²
 - v) Kerbing..... Unit: m
 - vi) Dump rock/Stone pitching..... Unit: m³
- b) Using new supplied materials:

Employer:		Contractor	
Witness:		Witness:	



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- i) 30mm Bitumen hot –mix: Fine
- ii) Interlocking concrete segmental paving blocks, including a 20mm river sand bedding layer, jointing sand (plaster sand) and mortar infill between edge restraint and blocks
 - . Grey blocks
 - . Coloured blocks
- iii) Concrete slabs (450 x 450mm) including a 20mm river sand bedding layer, jointing mortar.
- iv) Brick paving including a 20mm river sand bedding layer, jointing sand (plaster sand) and mortar infill between edge restraint and bricks.
- v) Unreinforced concrete ≤ 75mm thick (15MPa)
- vi) Reinforced (395 mesh) concrete ≤ 75mm thick (15MPa)
- vii) Grassing
- viii) Concrete channeling, including formwork, leveling and compacting 300 x 125mm cast in situ concrete of 15MPa.
- ix) Kerbing, including a 50mm bedding (cement and river sand), jointing mortar and 15MPa concrete haunching at all joints..... (Unit: m)
 - 1) Figure 1
 - 2) Figure 7
 - 3) Figure 8
 - 4) Figure 12
- x) Dump rock/Stone pitching
- xi) Steel palisade
- xii) Concrete palisade
- xiii) All other fences
- xiv) 115mm brick boundary wall including plastering
- xv) 230mm brick boundary wall including plastering

PSC 8.2.13 Reinstatement of existing masonry walls and steel palisade fences

The rate shall cover the cost of reinstating existing masonry walls, plastered or unplastered, and steel palisade fences (including any gates) including plant, labour, material, on-loading, transporting, off-loading and cleaning for the following: Unit: m²

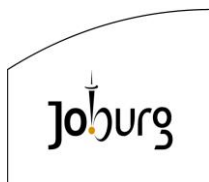
- a) Face brick
 - i) 110mm wall
 - ii) 220mm wall
 - iii) 330mm wall
- b) Plastered
 - . 110mm wall
 - . 220mm wall
 - . 330mm wall
- c) Steel palisade fences (height = 2.1m)

ADD THE FOLLOWING ITEMS:

PSC 8.2.14 Protection of trees

The rate shall cover the cost related to the protection of trees.....Unit: No

Employer:		Contractor	
Witness:		Witness:	



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PSD EARTHWORKS

PSD 2 INTERPRETATIONS

PSD 2.1 SUPPORTING SPECIFICATIONS

REPLACE SUBCLAUSE 2.1.2 WITH THE FOLLOWING:

“PSD 2.1.2: Any of the other SANS 1200 Specifications may form part of the Contract Documents.”

PSD 2.3 DEFINITIONS

REPLACE THE WORD AND THE DEFINITION FOR “Borrow” WITH THE FOLLOWING:

“Borrow material: Material, other than material obtained from excavations required for the Works, obtained from sources such as borrow pits or the authorised widening of excavations. “Borrow” shall have a corresponding meaning.”

REPLACE THE DEFINITION FOR “Specified density” WITH THE FOLLOWING:

“Specified density: The specified dry density expressed as a percentage of modified AASHTO dry density.”

REPLACE THE DEFINITION FOR “Stockpile” WITH THE FOLLOWING:

“Stockpile (verb): The process of selecting and, when necessary, loading, transporting and off-loading material in a designated area for later use for a specific purpose.”

ADD THE FOLLOWING DEFINITIONS:

“Commercial source: A source of material provided by the Contractor, not the Employer, and including any borrow pit, provided by the Contractor.

Fill: An embankment or terrace constructed of material obtained from excavations or borrow pits. In roads it includes the earthworks up to the underside of the selected subgrade level.

Fill (material): Material used for the construction of an embankment or terrace.

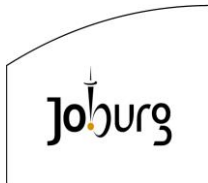
Roadbed: The natural in situ material on which the fill, or in the absence of fill, the pavement layers, are constructed.”

PSD 3 MATERIALS

PSD 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

PSD 3.1.1 Method of classifying

Employer:		Contractor	
Witness:		Witness:	



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ADD THE FOLLOWING:

“The classification of material other than ‘soft excavation’ shall be agreed upon before excavation may commence.

The Contractor shall immediately inform the Employer’s Agent if and when the nature of the material being excavated changes to such an extent that a new classification is warranted for further excavation. Failure on the part of the Contractor to advise the Employer’s Agent in good time shall entitle the Employer’s Agent to reclassify, at his discretion, such excavated material.”

ADD THE FOLLOWING NEW SUB CLAUSES:

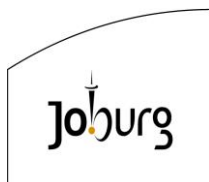
PSD 3.1.3 CLASSIFICATION FOR HAND EXCAVATION

Classification of material for various types of hand excavation will be based on the results of a dynamic cone penetrometer. The category of material shall be determined by testing the material at regular intervals and at various depths along the centre line of the trench. A minimum of 5 tests shall be done at each location and the average number of blows of the tests shall be used to determine the category of material.

The interval between test locations shall be determined by the variation of material type but shall not exceed 50m. The depth of testing shall be determined by the variation of material type and can increase or decrease in hardness with increasing depth of excavation. Table PSD 3.1.3 indicates the categories:

TABLE PSD 3.1.3: Classification for Hand Excavation

Category of Material		Consistency		DCP Blows to Penetrate 100mm	
		Granular	Cohesive	Granular	Cohesive
<u>Soft</u> Soft excavation shall be excavation in material that can be efficiently removed from the trench using a pick and shovel but not requiring prior breaking using mechanical equipment such as pavement breakers		Up to medium dense	Firm to stiff	0-6	1-5
<u>Intermediate</u> Intermediate excavation shall be excavation in material that require loosening with a hand spike (gwala) before being removed from the trench		Dense	Stiff to very stiff	7-15	6-8
<u>Hard</u> Hard excavation shall be excavation in material that				16-50	9-15
Employer:		Contractor			
Witness:		Witness:			



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requires prior breaking using mechanical equipment, such as pavement breakers with clay spades, before being removed from the trench.	Very dense			
<u>Rock</u> Rock excavation shall be excavation in material other than described above which by nature of the material requires prior breaking using mechanical equipment, such as pavement breakers with moil points, before being removed from the trench	-	-	>50	>15

PSD 3.2.3 Material suitable for backfill or fill against structures

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

“Material used for backfilling behind structures shall generally be the material excavated, subject to the following conditions:

- (a) The material shall not contain an excessive number of stones retained on a 50 mm sieve.
- (b) The material shall not contain large clay lumps that do not break up under the action of the compaction equipment.
- (c) The liquid limit of the material shall not exceed 40, neither shall the Pi exceed 18.”

PSD 3.3 SELECTION

ADD THE FOLLOWING SUBCLAUSE:

PSD 3.3.3 Selection in borrow pits and excavations

Approval of a borrow area for a certain purpose does not necessarily mean that all the material in that area is suitable for the specified purpose. What it does mean is that the borrow area contains some suitable material. The onus shall rest on the Contractor to ensure that only material that is indeed suitable is removed and used for the specified purpose.

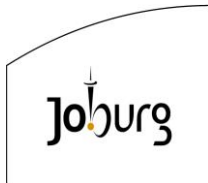
When the Contractor has to select excavated material for a specific purpose, the above provisions relating to borrow areas shall apply *mutatis mutandis* to excavations.

The Contractor shall not waste or contaminate material that has been selected for a specific purpose.”

PSD 5 CONSTRUCTION

PSD 5.1 PRECAUTIONS

Employer:		Contractor	
Witness:		Witness:	



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PSD 5.1.1 Safety

PSD 5.1.1.1 Barricading and lighting

REPLACE “Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)” *WITH* “Occupational Health and Safety Act, 1993 (Act 85 of 1993).”

REPLACE SUB-PARAGRAPH (a) AND (b) WITH THE FOLLOWING AND ADD SUB-PARAGRAPH c):

- a) 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
- b) provided with notice boards marked “CLOSED – GESLUIT” at each end of closed or partially closed roads; and
- c) provided with flashing orange lights, placed at 15m intervals along the barricading at night.

ADD THE FOLLOWING TO THIS SUBCLAUSE:

Should the Contractor fail to provide adequate lighting, signing and barricading, access to properties, or leave the site in a dangerous condition, the Employer’s Agent shall be entitled to suspend all work under the Contractor until in the Employer’s Agent’s opinion the Contractor’s obligation in these respects have been fulfilled and/or arrange for any emergency work to be carried out by some other agency and to deduct the cost of this work from any monies due to the Contractor.

PSD 5.1.1.2 Safeguarding of excavations

REPLACE “Machinery and Occupational Safety Act” *IN SUB-PARAGRAPH (a) WITH* “Occupational Health and Safety Act, 1993 (Act 85 of 1993).”

ADD THE FOLLOWING TO SUB PARAGRAPH (d):

Loose ground, materials, tools and appliances shall be kept clear of the edge of the excavations and a pathway at least 0,30 m shall be left clear along the edge of the excavation.

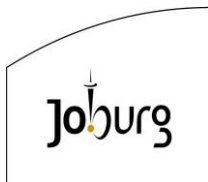
PSD 5.1.1.3 Explosives

REPLACE THE CONTENTS OF THIS SUBCLAUSE AS FOLLOWS:

Where blasting is resorted to, it shall be carried out strictly according to Explosives Act and Regulations 1956 (Act No. 26 of 1956, as amended). However, in no case will blasting be allowed if a reasonable possibility exists of injury to any foundation, wall, pipe, cable or any structure, complete or partly complete. Where the Employer’s Agent considers blasting to be dangerous, the same shall not be permitted and his decision shall be final and binding.

Wherever blasting is permitted and resorted to in the vicinity or within the limits of existing townships, roads, etc., it shall only be executed under the cover of sufficient earth backfill, heavy wire mesh screens or rubber matting of adequate weight and area to prevent the

Employer:		Contractor	
Witness:		Witness:	



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blasted material from being ejected from the trench. If any damage should occur, the Contractor shall carry out remedial work arising from such damage and will be held to have allowed therefore in his price.

The Contractor shall undertake such blasting so that the Peak Particle Velocity (PPV) as measured at the closest point to the existing outfall sewer and or building structure shall not exceed 25mm/s. Each blast shall be monitored and the findings recorded by an appropriately qualified explosives expert using a suitably calibrated apparatus. The Contractor shall also timeously inform the relevant inspectorate and obtain the required blasting permit from the South African Police Services, Division of Explosives before proceeding with any blasting on site. If in the opinion of the Employer's Agent, the Contractor makes careless use of explosives, he may forbid the Contractor the use of explosives.

It is a condition that should blasting result in the disturbing of material outside the trench, the Employer's Agent will require the Contractor to remove the disturbed material and backfill it to a compaction standard of the natural in-situ material. All this work for correcting areas of disturbed material will be done at the Contractor's cost.

The schedule rate for hard rock excavation shall cover all costs incurred in connection with supply, transportation, storage and handling of explosives, the related blasting costs and any remedial work should this be required.

PSD 5.1.1.4 Hard rock excavation without using explosives

ADD THE FOLLOWING TO THIS CLAUSE:

It is a condition that should blasting result in the disturbing of structures outside the trench; the Employer's Agent will require the Contractor to remove the rock material by means of pneumatic or hydraulic breakers, e.g. jackhammers or wood-peckers.

The schedule rate for hard rock excavation without using explosives shall cover all costs incurred in connection with supply of specialist equipment, the transportation to and from the site as well as the removal and disposal of the hard material should this be required.

PSD 5.1.2 Existing services

PSD 5.1.2.2 Detection, location and exposure

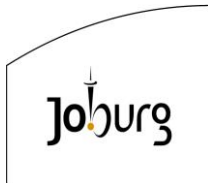
REPLACE THE CONTENTS OF SUBCLAUSE 5.1.2.2 WITH THE FOLLOWING:

"The exposure by the Contractor of underground services, as required in terms of subclause 5.4 of SANS 1200 A (as amended) shall be carried out by careful hand excavation at such positions and to such dimensions as are agreed to by the Employer's Agent.

Unless otherwise instructed or agreed by the Employer's Agent, no service shall be left exposed after its exact position has been determined and all excavations carried out for the purposes of exposing underground services shall be promptly backfilled and compacted to the following densities:

- (a) In roadways: 93% Mod AASHTO density; and

Employer:		Contractor	
Witness:		Witness:	



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(b) In all other areas: 90% Mod AASHTO density.

Where hand excavations to expose underground services have to be carried out in roadways, the Contractor shall reinstate the road layerworks in accordance with the provisions of subclause 5.9 of SANS 1200 DB.

Payment in respect of exposing the services by means of hand excavation as described above, will be made in accordance with subclause PSA 8.8.4

Payment in respect of reinstating layer works in roadways will be made in accordance with subclause 8.3.6.1 of SANS 1200 DB."

PSD 5.1.2.3 Protection of cables

REPLACE SUBCLAUSE 5.1.2.3 WITH THE FOLLOWING:

PSD 5.1.2.3 Protection during construction

Further to the requirements of subclause 5.4.2 of SANS 1200 A (as amended), major excavating equipment and other plant shall not be operated dangerously close to known services. Where necessary, excavation in close proximity to known services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Should any service not being a known service be discovered or encountered during the course of the Contract, the Contractor shall, in addition to complying with the requirements of subclause 5.4.2 of SANS 1200 A (as amended), immediately notify the Employer's Agent thereof and implement such measures as will prevent damage of such service or, if it was damaged in the course of discovery, will prevent and minimize the occurrence of any further damage occurring."

PSD 5.1.2.4 Negligence

DELETE SUB-CLAUSE 5.1.2.4

PSD 5.1.3 Stormwater and Groundwater

ADD THE FOLLOWING TO THE SUB-CLAUSE:

"The Contractor shall, where applicable and at the earliest practicable opportunity, install the permanent drainage specified or shown on the drawings and shall at his own cost provide the temporary drainage required to protect the Works."

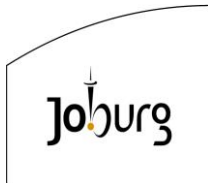
PSD 5.1.4 Nuisance

PSD 5.1.4.3 Excavated material not to endanger or interfere

AMEND THE CLAUSE AS FOLLOWS:

"A safe, clear path shall be kept open at all times for pedestrians. Equipment, materials and waste shall be stored, stockpiled or removed in such a manner that pedestrians are not endangered, and that the nuisance level is kept to a minimum. If construction activities

Employer:		Contractor	
Witness:		Witness:	



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occupy the whole footway and verge area so that pedestrians are forced to walk in the traffic lane, adequate protection from traffic shall be provided.

Where instructed by the Employer's Agent or where the Works impose a danger to traffic or pedestrians, the Contractor shall at his own cost remove off Site excavated material to temporary stockpiles (approved by the Employer's Agent) and the return to Site, excavated material for use as backfill or bedding."

ADD THE FOLLOWING NEW SUBCLAUSE:

PSD 5.1.4.4 Open Trenches

Unless otherwise permitted and where relevant, not more than the 100 m of trench in one place shall be opened ahead of the completed and backfilled pipeline."

PSD 5.1.5 Reinstatement and Maintenance of Roads

ADD THE FOLLOWING TO THE SUB-CLAUSE:

"Where crossings have been made, the roads shall be reinstated in accordance with the details specified in subclause 5.9 of SANS 1200 DB."

PSD 5.1.6 Road Traffic Control

DELETE THE SECOND SENTENCE OF SUBCLAUSE 5.1.6

PSD 5.2 METHODS AND PROCEDURES

PSD 5.2.2 Excavation

PSD 5.2.2.1 Excavation for general earthworks and for structures

ADD THE FOLLOWING TO PARAGRAPH (b):

"When the nature of the material precludes the above procedure, additional excavations shall be carried out to provide working space for the erection of formwork. The rate tendered for item 8.3.5 will be deemed to include the cost of a working width of 600 mm, but the Contractor may excavate a greater working width at no additional cost to the Employer."

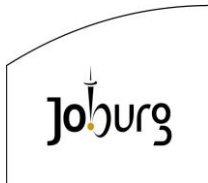
REPLACE THE CONTENT OF PARAGRAPH (e) WITH THE FOLLOWING:

"Where excavations have been carried below the authorised levels, the Contractor shall backfill such excavations to the correct level with approved gravel compacted to 90% of modified AASHTO density or to the density of the surrounding material.

Where excavations have been carried out in hard material, the Employer's Agent may direct the over-excavation to be backfilled with weak concrete if there is a danger of settlement or differential settlement of the foundations.

Where the sides of excavations against which concrete is to be cast have been over-excavated or have collapsed partially, the Contractor shall retrim the excavations if

Employer:		Contractor	
Witness:		Witness:	



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necessary and, unless other remedial measures are agreed to by the Employer's Agent, shall cast the concrete for the structure, including the additional concrete that may be required as a result of the over-excavation or partial collapse. The cost of the additional concrete or remedial measures shall be for the Contractor's account."

PSD 5.2.2.3 Disposal

REPLACE THE SECOND SENTENCE WITH THE FOLLOWING:

"The Contractor shall provide all necessary spoil sites for the spoiling of all surplus and unsuitable materials and shall make the necessary arrangements with the owner of the site where the material is disposed of and pay all charges and levies as may be applicable for the use of such spoil sites.

Every spoil site provided by the Contractor shall be approved by the local authority in whose area it is located, and the spoiling shall comply with the applicable statutory and municipal regulations as well as the requirements of the owner of the spoil site.

Payment to the Contractor in respect of locating and making arrangements for suitable spoil sites and spoiling material at such sites will be made in accordance with the provisions of subclause PSD 8.3.14."

ADD THE FOLLOWING SUBCLAUSE IN SUBCLAUSE 5.2.2:

PSD 5.2.2.4 Selection and stockpiling

Approval or designation of the material in a particular borrow pit or excavation for a particular purpose does not imply that all the material in the borrow pit or excavation is suitable for the particular purpose to which the said approval or designation relates, nor that all material in the borrow pit or source should be used for the particular purpose. The Contractor shall select suitable material from that borrow pit or source, discard unsuitable material and reserve material for other purposes as necessary.

The Contractor shall organize and carry out his operations in such a manner as will prevent the contamination of suitable embankment and backfill material with unsuitable materials. Any excavated material which becomes, in the Employer's Agent's opinion, unsuitable for use in embankments or backfill as a result of contamination, shall be disposed of in a manner acceptable to the Employer's Agent and shall be replaced by the Contractor with materials acceptable to the Employer's Agent, all at the Contractor's cost."

PSD 5.2.5 Transport for earthworks

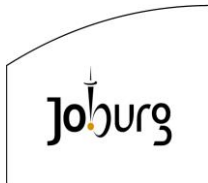
REPLACE THE CONTENT OF SUBCLAUSE WITH THE FOLLOWING:

"The transport of all excavated materials, irrespective of the distance and source, shall be deemed to be free haul, the cost of which is included in the Contractor's tendered rates and prices for the excavation of the materials. No separate compensation shall apply for the transportation of excavated materials."

PSD 7 TESTING

PSD 7.2 TAKING AND TESTING OF SAMPLES

Employer:		Contractor	
Witness:		Witness:	



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REPLACE THE CONTENT OF THIS SUBCLAUSE WITH THE FOLLOWING:

“The Contractor shall arrange with the approved independent laboratory by the Contractor to carry out sufficient tests on a regular basis as agreed between him and the Employer’s Agent to determine whether the degree of compaction, and, where applicable, the quality of materials used, comply with the specifications and shall submit the results of these tests to the Employer’s Agent in a form approved by him.

The compaction requirements for fills shall be deemed complied with when at least 75% of the dry-density tests on any lot show values equal to or above the specified density and when no single value is more than five percentage points below the specified value.”

PSD 8 MEASUREMENT AND PAYMENT

PSD 8.3 SCHEDULED ITEMS

PSD 8.3.1 Site preparation

REPLACE SUBCLAUSES 8. 3.1.1 AND 8.3.1.2 WITH THE FOLLOWING:

“Where site preparation such as clearing, grubbing, the removal of large trees or the removal and stockpiling of topsoil is required, the provisions and scheduled items of SANS 1200 C shall apply.”

PSDB EARTHWORKS (PIPE TRENCHES)

PSDB 3 MATERIALS

PSDB 3.5 BACKFILL MATERIALS

ADD THE FOLLOWING PARAGRAPHS TO SUBCLAUSE:

“(c) Cement-stabilised backfilling

Backfilling shall, where directed by the Employer’s Agent, be stabilized with 5% cement. The aggregate shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

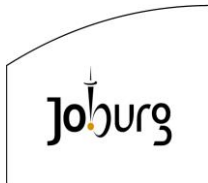
The soil or gravel shall be mixed with 5% cement and shall be compacted in layers of 100 mm thick to 90% of modified AASHTO density.

(d) Soil-crete backfilling

The aggregate for soil-crete shall be mixed with 5% cement and shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed in a concrete mixer with the cement and enough water to acquire a consistency that allows the mixture to be placed with vibrators to fill all voids between the pipe and the sides of the trench. Shuttering shall be used where necessary.”

Employer:		Contractor	
Witness:		Witness:	



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PSDB 3.7 SELECTION

REPLACE THE WORDS “If he so wishes” IN THE FIRST LINE OF THE SECOND PARAGRAPH WITH THE WORDS “at his own cost.”

PSDB 5 CONSTRUCTION

PSDB 5.1 PRECAUTIONS

PSDB 5.1.2 Stormwater, Seepage and Dewatering of Excavation

PSDB 5.1.2.3 Sloping ground

ADD THE FOLLOWING SENTENCE AT THE END OF THE PARAGRAPH:

“All trench excavations on sloping embankments shall be backfilled in accordance with 5.6.2 over the full extent of the actual trench excavation and to the original embankment ground level.”

PSDB 5.1.3 Accommodation of traffic and access to properties

REPLACE THE SEMICOLON AND THE WORD “and” AT THE END OF THE SUBCLAUSE 5.1.3 (a) WITH A FULL STOP AND REPLACE ITEM (b) WITH THE FOLLOWING:

“(b) Where necessary to achieve compliance by the Contractor with his obligations to provide and maintain pedestrian and vehicular access to properties affected by the works, the contractor shall construct and maintain to the satisfaction of the Employer’s Agent, such temporary access roads around, and/or steel or timber bridges over excavations in roads, pavements, entrances or accesses to properties.

The Contractor shall make available on site at all times a sufficient number of steel plates at least 2.0m x 2.0m x 8mm thick to be laid across open trenches to provide access to private properties. The cost of providing, placing and removing the steel plates shall be included in the rates for trench excavation.

On completion of the work, the Contractor shall dismantle and remove all such temporary constructions and reinstate these areas to their former condition.

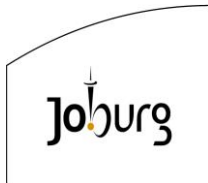
Except only where the Employer’s Agent has included in the Schedule of Quantities, particular payment items specifically therefore, the Contractor will not be paid directly for the construction and maintenance of temporary access roads and/or the provision and maintenance of bridges as aforementioned, and the costs thereof shall be deemed included in the Contractor’s tendered rates for excavation.”

ADD THE FOLLOWING NEW SUBCLAUSE TO SUBCLAUSE 5.1:

PSDB 5.1.5 Removal of existing pipelines

Where existing pipes have to be removed, they shall be carefully opened up by machine excavation to 300 mm above the pipes after which the whole pipe shall be fully exposed by means of hand excavation. The excavation width shall comply with subclause 8.2.3.

Employer:		Contractor	
Witness:		Witness:	



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The pipes shall be removed from the trench in a manner approved by the Employer's Agent and brought to the surface for inspection by the Employer's Agent.

Pipes that are declared suitable for reuse and pipes declared unfit for reuse shall be dealt with in an applicable manner described in the specifications, or on the Drawings or on the Employer's Agent's instructions, as relevant."

PSDB 5.2 MINIMUM BASE WIDTHS

ADD THE FOLLOWING SUB PARAGRAPH TO:

- c) Should the excavated trench width exceed the specified side allowance on each side of the pipe of 300mm by a value greater than 300mm, remedial measures shall be as directed and shall be provided at the Contractor's cost unless it can be shown that such excess width is due to factors beyond the Contractor's control.

Trench widths should be as near vertical as possible in order to minimize the quantity of selected fill material to be provided."

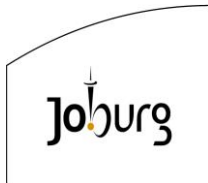
PSDB 5.4 EXCAVATION

ADD THE FOLLOWING SUB CLAUSES:

PSDB 5.4.1 Principles

- "a) The cost of trimming excavations by hand or machine shall not be paid for separately but shall be included in the rates tendered for excavation.
- b) All excavated material shall be kept within defined limits and shall, wherever possible, be deposited alongside the trench. The material shall be deposited so as to leave a clear strip of at least one metre between the edge of the trench and the excavated material and shall not cause undue inconvenience to traffic and property owners. The material shall be placed and kept well clear of all manholes covers, culvert in- and outlets, fire hydrants, benchmarks, stand pegs, fences, etc.
- c) To prevent vertical trench walls from collapsing, excavated material shall, wherever possible, not be stacked on the side of any underlying strata sloping down towards the trench and in this regard, attention is specifically drawn to the shales sloping south to north in the Pretoria area.
- d) Excavations more than 1,5 m deep shall be adequately shored or braced to support the overhanging material and other loads which may occur. If the Contractor is of the opinion that shoring or bracing for an excavation of depth of more than 1,5 m is not necessary, he shall notify the Employer's Agent accordingly in writing, including a report from a Professional Engineer or a Professional Technologist competent in excavations. The report shall include the relevant laboratory tests.
- e) The Contractor shall provide all the open and close timbering, strutting and shoring required for the safety of the excavations and structures adjacent to the trenches and shall be solely and wholly responsible for ensuring the adequacy of these measures for this purpose.

Employer:		Contractor	
Witness:		Witness:	



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Without in any way affecting or detracting from the Contractor's responsibility, the Employer's Agent shall have the right to instruct the Contractor to provide additional or improved timbering, shoring or strutting where he considers this to be necessary. The Contractor shall have no claim for additional payment on this account.

The shoring method adopted shall be compatible with the soil type and the excavating, backfilling and pipe-laying methods adopted and shall not place any undue restrictions on the laying of the pipes.

Timbering and shoring shall be left in position until the Employer's Agent has authorised their removal.

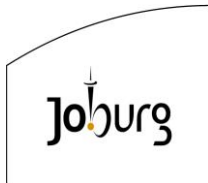
- f) Shoring and bracing may not be necessary where the Contractor elects to slope the sides of the excavation to at least the maximum angle of repose measured relative to the horizontal plane, as determined by laboratory tests. Sloping of the sides could be combined with steps. The Contractor will submit the proposed excavation profile to the Employer's Agent for approval.
- g) The cost for shoring, bracing and sloping of the sides will be included in the rates tendered for excavation. The cost for the services of a Professional Engineer or a Professional Technologist, including the relevant laboratory costs, shall be included in the tendered rates.
- h) The Safety Officer, or another competent person appointed by the Contractor in writing, shall inspect every excavation, including bracing and shoring:
 - (i) daily, prior to each shift.
 - (ii) after every blasting operation.
 - (iii) after an unexpected fall of ground.
 - (iv) after substantial damage to supports; and
 - (v) after rain,
in order to pronounce the safety of the excavation to ensure the safety of persons, and those results are to be recorded in a register kept on site and made available to an inspector, the Employer, Employer's Agent, Contractor or employee upon request.
- i) Each excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, shall be
 - (i) adequately protected by a barrier or fence of at least one metre in height and as close to the excavation as is practicable; and
 - (ii) provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor."

PSDB 5.4.2 Hand Excavations

PSDB 5.4.3 Excavation of Asphalt Surfaces

The existing asphalt road surfacing shall be saw-cut prior to excavation commencing for the full width of the trench as specified on the construction drawings so as to ensure a neat finish to the reinstated surfacing.

Employer:		Contractor	
Witness:		Witness:	



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PSDB 5.6 BACKFILLING

PSDB 5.6.3 Disposal of Soft Excavation Material

DELETE THE EXISTING CLAUSE AND REPLACE WITH:

“The Contractor shall locate and negotiate for tipping sites for the disposal of surplus material and bear all costs in connection therewith. Arrangements for the consent of the owner of a property to deposit spoil and or temporary spoil thereon shall be confirmed in writing. Such arrangements shall be approved before being implemented. All spoil sites shall be neatly finished off and compacted to 90% of MOD.AASHTO density.”

PSDB 5.6.6 Completion of Backfilling

ADD THE FOLLOWING:

Backfilling should not lag more than 50m behind the laying operation.

PSDB 5.7 COMPACTION

ADD THE FOLLOWING:

“Where pipelines cross existing gravel roads, backfilling shall be carried out as specified in Subclause 5.7.2 and payment therefore will be made under sub item 8.3.3.3.”

PSDB 5.9 REINSTATEMENT OF SURFACES

ADD THE FOLLOWING TO THIS SUB CLAUSE:

PSDB 5.9.2 Private Property and Commonage

The ground and paved surface of servitudes, parks, driveways, roadways and sidewalks shall be reinstated to at least the standard and conditions as existed previously.

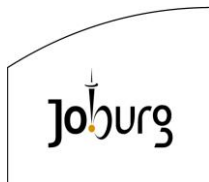
Grass sods shall be cut out from the grassed areas to be excavated and shall be set aside, preserved and kept damp until used for reinstatement. All other material to be used for reinstatement shall be suitably stored for such purpose.

The rate for reinstatement of block paved surfacing shall include all costs for the supplying and laying of the surfacing. The rate shall also cover for taking brick paving out carefully, stockpiling and replacement with new if bricks are broken or damaged. The rate must furthermore provide for all plant, labour and material costs associated with the work.

The rate for reinstatement of asphalt or concrete paved surfacing shall include all costs for the saw cutting, supplying and laying of the surfacing. The rate shall also cover for removal and spoiling of the material. The rate must furthermore provide for all plant, labour and material costs associated with the work.

The width of any trench through an area paved with bricks or precast concrete units shall be the minimum practicable width that, in the opinion of the Employer's Agent, can be removed without cutting bricks or precast units.

Employer:		Contractor	
Witness:		Witness:	



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PSDB 5.9.4 Bitumen roads: Sub-base and Base

DELETE THIS SUB CLAUSE AND REPLACE WITH THE FOLLOWING:

Johannesburg Roads Agency will reinstate all asphalt surfaces. Refer to PS 6.7.

ADD THE FOLLOWING NEW SUB CLAUSES:

PSDB 5.9.7 Construction of Layers for Footways

The reinstatement of the paving blocks shall be the responsibility of the Contractor. The reinstatement and backfilling of pavement layers shall be done in accordance with PS 6.7

ADD THE FOLLOWING NEW SUB CLAUSES:

PSDB 5.9.8 Existing Kerbs and Channels

“Where excavations have to cross existing kerbs and channels, then:

- a) In the case of a precast kerb and channel the kerbs, segmented paving blocks and channel shall be carefully removed and stored so as to avoid any damage to or theft of the kerb and channel and replaced after the excavation has been backfilled. Any damage to or theft of the kerb and channel shall be made good by the Contractor at his expense.
- b) In the case of cast insitu or extruded insitu kerb and channel the kerb and channel shall be cut with a diamond tipped saw and carefully removed so as to avoid any damage to the remaining kerbs and channels. After the excavation has been backfilled the portion of kerb and channel removed shall be replaced with a cast insitu kerb and channel of the same profile as the existing kerb and channel.”

ADD THE FOLLOWING NEW SUB-CLAUSE:

PSDB 5.11 LOCATION OF EXISTING SERVICES

Positions and details of known existing services as received from the various Departments are indicated on the Construction Drawings. Exact positions cannot be guaranteed by The Employer who will not be held responsible for any damages to any services. The Contractor shall excavate by hand to locate any such services and ensure that care is taken not to damage these services.

ADD THE FOLLOWING NEW SUB-CLAUSE:

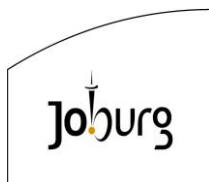
PSDB 5.12 DEALING AND PROTECTING EXISTING SERVICES

All existing services, underground as well as above ground level, shall be protected by the Contractor in an appropriate manner, for the duration of the construction or as deemed necessary by the Employer's Agent, such that no damage to or interruption of the services shall occur.

ADD THE FOLLOWING NEW SUB-CLAUSE:

PSDB 5.13 GAS MAIN, ELECTRICITY AND TELECOMMUNICATION POLES

Employer:		Contractor	
Witness:		Witness:	



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Gas mains, electricity and telecommunication poles along the pipe route are to be stabilized and protected prior to excavation and for the duration of construction.

ADD THE FOLLOWING NEW CLAUSE:

PSDB 5.14 TREES IN CONSTRUCTION PATH

Whenever possible any trees that lie within the construction path, shall not be removed and care shall be exercised to avoid damaging them. If the Contractor considers the removal of any tree unavoidable, he/she shall obtain in writing the approval of the Employer's Agent and the Environmental Consultant prior to removal of any trees. Rates to cover removal and replacement where practical are provided in the schedule of quantities. A penalty of R2, 000.00 will be applied for any unauthorized or unnecessary damage to any tree which in the opinion of the Employer's Agent could have been avoided.

ADD THE FOLLOWING NEW SUBCLAUSE 5:

PSDB 7 TESTING

ADD THE FOLLOWING NEW SUBCLAUSE:

PSDB 7.2 Inspection at Intermediate Stages of Construction

The Contractor shall call the Employer's Agent, giving him reasonable notice, to inspect the works at the following intermediate stages of construction:

- a) After completion of the trench excavation and preparation of the trench bottom and before any pipe is laid.
- b) After the selected backfill, material has been placed around the pipe and before the remainder of the trench is backfilled.
- c) Before placing of premix on roads or any final surfacing on constructed footways. Work shall not progress through the specified stages without the approval of the Employer's Agent or his representative on site.

Failure to comply with the provision of this clause shall result in the suspension of the backfilling work until the testing has been approved by the Employer's Agent."

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.1 BASIC PRINCIPLES

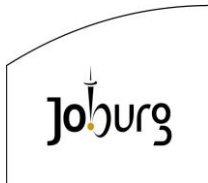
ADD THE FOLLOWING PRARGRAPH:

"The basic principle of measurement and payment for earthworks for a pipe trench is that the rates tendered for excavation shall also cover the cost of trimming, handling and shoring or bracing as specified in clause PSDB 5.4".

PSDB 8.3 SCHEDULED ITEMS

PSDB 8.3.2 Excavation

Employer:		Contractor	
Witness:		Witness:	



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- a) Excavate in all materials, for trenches, backfill compact and dispose of surplus material

ADD THE FOLLOWING SUB-ITEM:

The rate shall also cover the cost of excavating for trenches using labour intensive construction methods. The rate shall exclude the cost of removal of grass sods but shall include for the disposal of surplus/unsuitable material. The rate shall, in addition, cover the costs for compliance with the requirements of PSDB 5.4.1.

- i) Over 0,0m and up to 1,5m
 - ii) Over 1,5m and up to 2,5m
 - iii) Over 2,5m
- b) Extra over item (a) above for:

ADD THE FOLLOWING AT THE END OF THE EXISTING SUB-ITEM 2:

“No payments will be made under sub items (1) and (2) in respect of any materials measured and paid for under sub item 3 below.”

- a) Intermediate excavation.
- b) Hard excavation.
- d) Rock excavation

AND ADD THE FOLLOWING NEW SUBITEMS IN 8.3.2(b):

(3) Excavate by hand in all material for tie-ins, house connections, backfill and compact including disposal of surplus unsuitable material for depth:

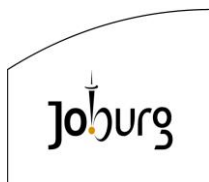
- a) Over 0,0m and up to 1,0m
- b) Over 1,0m and up to 1,5m
- c) Over 1,5m

The unit of measurement shall be the cubic metre of material, measured in place according to the authorized dimensions, which was excavated by the hand on the specific prior written instructions of the Employer's Agent; provided always that the Employer's Agent's said instruction shall have stated that measurement and payment for such hand excavation will be in accordance with this item.

The tendered rate shall include full compensation for the additional cost, effort and time resulting from excavating in the respective materials using hand methods only.

The Employer's Agent shall not be obliged to authorize payment under this item in respect of any hand excavation carried out (whether ordered in writing or

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Witness:		Witness:	



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otherwise), which hand excavation was in any case necessary to achieve compliance by the Contractor with his obligations under the Contract to

- (i) utilize construction appropriate to the nature of the specific parts of the works; and/or
- (ii) protect existing structures and/or services; and/or
- (iii) comply with all prevailing legislation and regulations.

(4) Cutting of premix and concrete surfaces.....Unit: m²

The cutting of premix and concrete surfaces shall be measured per square metre of cut as scheduled. Cutting of premix and concrete surfaces shall be done with a diamond tipped saw or by some other approved method. The depth of the cut shall be such that the adjoining premix and concrete surfaces are not disturbed when excavation takes place. The cutting of surfaces shall be done 100mm on either side of the trench.

PSDB 8.3.3 Excavation ancillaries

PSDB 8.3.3.3 Compaction in road reserves

REPLACE THE HEADING OF THIS SUBITEM WITH THE FOLLOWING:

“PSDB 8.3.3.3 Additional compaction to 95% mod AASHTO density in road crossings”

REPLACE THE SENTENCE, “The volume will be measured as specified in 8.2.2, 8.2.3 and 8.3.3.1”, WITH THE FOLLOWING:

“To determine the volume in the case of gravel roads, the depth will be measured from the underside of the gravel wearing course to the top of the fill blanket, and in the case of bitumen roads, from the underside of the subbase to the top of the fill blanket.

The rest of the trench shall be backfilled as specified in clauses 5.9.3, 5.9.4 and 5.9.5, as applicable, and payment will be made under item 8.3.6.1.”

PSDB 8.3.3.4 Overhaul

REPLACE THE CONTENTS OF THIS ITEM WITH THE FOLLOWING:

“Measurement and payment shall be in accordance with subclause PSD 5.2.5.”

PSDB 8.3.4 Particular items

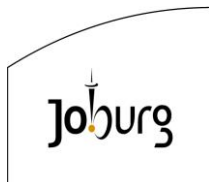
PSDB 8.3.4(a) Shore trench opposite structure or service

REPLACE THE HEADING OF THIS SUBITEM WITH THE FOLLOWING:

PSDB 8.3.4(a) Shore trench opposite structure or service for depths:”

ADD THE FOLLOWING AFTER THE LAST SENTENCE:

Employer:		Contractor	
Witness:		Witness:	



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"Separate items will be measured for depths of trenches in increments of 1 m. The rate for each stated category shall cover the cost of shoring from ground level up to the full depth of the stated category. Payment for this item will only be made if written instructions were issued by the Employer's Agent over and above the Standard Specifications for safety of excavations as specified in SANS 1200 DB, subclause 5.1."

PSDB 8.3.4 Accommodation of existing flows for temporary or permanent connections or construction of new structures or pipe trenches:

- 1) (Description of item stated) Unit: Sum
- 2) Etc for other structures

The tendered sums shall include full compensation for any inconvenience suffered, for normal and exceptional risks, for unforeseen eventualities and for maintaining the accommodated flow as long as necessary and shall include for the design and construction of all necessary temporary measures such as additional clearing, grubbing, earthworks, culverts, structures, pipework, pumping, cleaning up and any other associated work that may be required as specified in Clause PS1.5. Where a temporary structure for the accommodation of an existing flow has been designed by the Employer's Agent and is to be constructed by the Contractor, payment for such structure shall, unless otherwise stated in the scheduled item, be made under the applicable sub items in this payment item."

PSDB 8.3.5 Existing services that Intersect or Adjoin a Pipe Trench

PSDB 8.3.5 a) Services that intersect a trench

ADD TO THE FIRST SENTENCE OF THIS SUB CLAUSE AS FOLLOWS:

After "Except where water pipes are to be recovered" add "*and water leads for erf connections need to be renewed*"

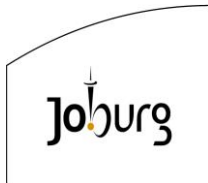
Services that intersect a trench.....Unit: No

- i) Water house connections.
- ii) Sewer pipes up to 300mm Dia.
- iii) Cables.
- iv) Stormwater pipes up to 1050mm dia.
- v) Kerbs and Channels
- vi) Water pipes of any diameter
- vii) Irrigation pipes

PSDB 8.3.5 b) Services that adjoin a trench

ADD TO THE FIRST SENTENCE OF THIS SUB CLAUSE AS FOLLOWS:

Employer:		Contractor	
Witness:		Witness:	



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After "Except where water pipes are to be recovered" add "*and water leads for erf connections need to be renewed*"

Services that adjoin a trench.....Unit: m

- i) Water house connections
- ii) Sewer pipes up to 600mm Dia.
- iii) Cables.
- iv) Stormwater pipes up to 1050mm dia.
- v) Kerbs and Channels
- vi) Water pipes of any diameter
- i) Irrigation pipes

ADD THD NEW SUBCLAUSE PSDB 8.3.5 c) TO CLAUSE 8.3.5 AS FOLLOWS

PSDB 8.3.5 c) Services that require special care

- 1) Description of service.....Unit: No

The Unit of measurement shall be the number of each service described. Electricity, telecommunication poles and water mains along the pipe route are to be stabilised and protected prior to excavation and for the duration of construction. The rate shall cover the temporary stabilization and protection of electricity and telecommunication poles.

ADD THD NEW SUBCLAUSE PSDB 8.3.6.2 TO CLAUSE 8.3.6 AS FOLLOWS:

PSDB 8.3.6 Trimming of tree roots

The rate to cover the trimming of tree roots along the pipeline route within the pipe trenches where pipes are to be installed. The item will be measured as number of trees.

Trimming of tree roots.....Unit: No

PSLB BEDDING (PIPES)

PSLB 3 MATERIALS

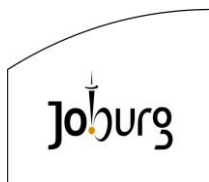
PSLB 3.1 SELECTED GRANULAR MATERIAL

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Selected granular material shall have a PI not exceeding 10 and shall be free from sharp-ended particles or particles exceeding 19 mm in size."

"Selected fill material shall have a PI not exceeding 15 and shall be free from sharp-ended particles or particles exceeding 19 mm in size."

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Witness:		Witness:	



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PSLB 3.3 BEDDING

ADD THE FOLLOWING:

“uPVC and HDPE pipes are deemed to be flexible pipes for the purposes of this subclause.”

PSLB 3.4 SELECTION

PSLB 3.4.1 Suitable material available from trench excavation

REPLACE THE WORDS “(but is not required)” IN THE FIFTH LINE WITH THE WORDS “(at his own cost)”.

PSLB 7 TESTING

PSLB 7.1 DENSITY

REPLACE THE SECOND SENTENCE IN THE FIRST PARAGRAPH WITH “The test will be carried out using the Troxler method.”

ADD THE FOLLOWING SUB-CLAUSE

PSLB 7.1.1 Submission of bedding compaction test results

The Contractor will be required to submit to the Employer’s Agent four (4) compaction test results of bedding for every 100metres. Bedding compaction to be 90% MOD AASTHO density. The compaction tests to be performed by the Troxler method.

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 PRINCIPLES

ADD THE FOLLOWING TO THIS SUB-CLAUSE

PSLB 8.1.3 Volume of bedding materials

The volume of bedding material shall be measured net i.e. the volume of the pipe is to be deducted.

PSLB 8.1.5 Disposal of displaced material

DELETE THIS SUB-CLAUSE AND REFER TO CLAUSE PSDB 5.6.3:

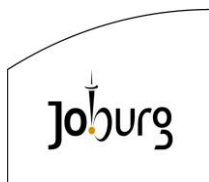
PSLB 8.1.6 Free-haul

DELETE THE WORDS “of 0,5 km” IN THE FIRST LINE OF THIS SUBCLAUSE.

PSLB 8.2 SCHEDULED ITEMS

PSLB 8.2.1 Provision of bedding from trench excavations

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Witness:		Witness:	



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DELETE THIS SUB-CLAUSE AND REPLACE WITH THE FOLLOWING:

Without the need for screening or other treatments:

a) Selected granular material.....Unit: m³

b) Selected fill material.....Unit: m³

c) Extra over item 4.1(a) and (b) for sieving where ordered by Engineer

The rates shall cover the cost of acquiring, from any point along the trench excavation as be Selected by the Employer's Agent within 5,0 km, 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, and of disposing of displaced material within a free haul distance 5,0 km.

Including for screening and/or other treatment:

a) Selected granular material.....Unit: m³

b) Selected fill material.....Unit: m³

The rates shall cover the cost of screening by means of mesh sieves or otherwise treating excavated material, at any point along the trench excavation as may be selected by the Employer's Agent, in order to produce bedding that complies with the relevant specification, delivering it to points along the trench, within 5,0 km, 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 within a free haul distance of 5,0 km.

PSLB 8.2.1.1 Sieving where ordered by Engineer.....Unit: m³

Where ordered by the Engineer, the contractor will be required to sieve material for backfill material. The Material containing more than 10% by mass of rock or hard fragments that are retained on a sieve of nominal aperture size 50 mm, and material containing large clay lumps that do not break up under the action of the compaction equipment being used, will be regarded as unsuitable for use in backfilling.

PSLB 8.2.2 Supply only of bedding by importation

PSLB 8.2.2.3 From commercial sources (Provisional)

ADD THE FOLLOWING SUB-SUBITEM TO THIS CLAUSE:

“(c) Special bedding material

1) Description of material..... Unit: m²
or m³

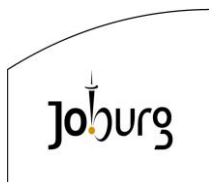
a) Selected granular material

b) Selected fill material

c) 19mm Crushed stones bedding

2) Etc for other items

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Witness:		Witness:	



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The unit of measurement shall be the square metre or cubic metre of material as specified.

The rate shall cover the cost as specified for (a) and (b).” The rate shall include the cost of acquiring from commercial sources, transporting regardless of distance, off-loading and placing in the trench bottom clean where ordered by the Employer's Agent.

PSLB 8.2.3 Concrete Thrust Blocks

Concrete thrust block as per provided details.....Unit: m³

Rate to include all required formwork and concrete strength tests

PSL MEDIUM-PRESSURE PIPELINES

PSL 2 INTERPRETATIONS

PSL 2.4 ABREVIATIONS

ADD THE FOLLOWING:

HDPE: High density polyethylene

mPVC: Modified Polyvinyl chloride

PSL 3 MATERIALS

PSL 3.1 GENERAL

ADD THE FOLLOWING TO CLAUSE:

The contract specifications for materials and construction activities will conform to SANS 1200, SANS 1914-5 and Johannesburg Water requirements. The project specifications will include specific items to ensure proper implementation, control reporting on labour based construction and methods as included in the specifications.

Materials for this contract should preferably be obtained from manufacturers who operate an effective quality management system such as that described in SANS 0157 or ISO 9000.

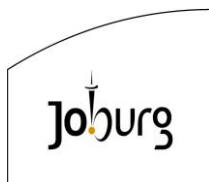
PSL 3.4 STEEL PIPES, FITTINGS, AND SPECIALS

PSL 3.4.3 Pipes of nominal bore over 150mm

OMIT PARAGRAPH (C) AND INSERT THE FOLLOWING:

“Steel pipes and fittings shall be manufactured in accordance with SANS 719 and SANS 1476 for a minimum Grade x 421 300WA dual certified (yield strength of 289MPa). The wall thickness of the pipes and fittings shall be 8 mm. All pipes and specials shall be supplied complete with couplings and jointing material.

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Witness:		Witness:	



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Straight joints and bends to be fillet welded on site.

Pipes and fitting to be externally coated with fusion bonded medium density polyethylene (sintakote) or polyclad 777 and lined internally with solvent-free epoxy lining or similar approved. Thickness of lining shall not be less than 250 micron and test certificates of the lining thickness must be furnished to the Employer's Agent for his approval. E128 external corrosion protection at joints.

Cathodic protection design will be done by a specialist and will be procured separately, and construction will be as directed by the specialist.

The pipe manufacturer shall submit to the Employer's Agent the steel maker's certificates covering all steel used. These certificates shall indicate the process of manufacture, the chemical analysis and the physical properties of the steel except that, at the option of the pipe manufacturer, the physical properties of the steel may be determined from specimens taken from finished pipe."

PSL 3.7 OTHER TYPES OF PIPES

PSL 3.7.1 PVC Pipes

ADD THE FOLLOWING TO THE SUB CLAUSE

"uPVC Pipe's systems shall conform to SANS 966-1998Part1/ SANS 966-1998Part2 or II as applicable and have integral pipe end sockets of the rubber ring joint type. All uPVC - pipes shall be in 6m lengths. Fittings and specials for PVC pipes shall be manufactured in Grade 14 cast iron, rated to at least 1600kPa working pressure. Unless otherwise specified fittings and specials shall be bitumen dipped.

PSL 3.7.2 Polyethylene Pipes

REPLACE THE SUBCLASE WITH THE FOLLOWING

"HDPE pipes of diameter up to and including 63 mm shall conform with SANS 4427 Part 2 for Type IV pipes. HDPE pipes greater than 63 mm shall conform with SANS 4427 Part 3 for Type V pipes. Unless otherwise specified, pipes shall be Class 16 and plain ended for butt welding".

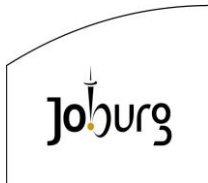
ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 3.7.3 PVC Pipes

Class 16 uPVC/mPVC high impact pipes shall conform to SANS 1283 (alternatively ISO 4422) shall be used unless otherwise indicated. Jointing shall be effected by means of approved "press-on" shouldered ends and cast iron and steel victaulic clamps. Unless otherwise specified, pipes shall be Class 16.

Where the cutting of any pipe is necessary, shouldered ends shall be fixed to the pipe by means of an approved machine capable of clamping the pipe without causing any damage to the pipe and pressing on the shouldered end by means of a hydraulic operated jack applying a uniform axial force to locate the shouldered end truly in position. The use

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Witness:		Witness:	



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of impact force to either the pipe or shouldered end will not be permitted. No on-site fixing of shouldered ends shall be permitted."

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 3.7.4 mPVC Pipes

High impact mPVC Class 16 and shall conform to SANS 1283 for diameter up to and including 315mm with a fully end load restraint coupling system approved by Johannesburg Water.

PSL 3.8 JOINTING MATERIAL

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 3.8.2 Flexible couplings

OMIT THE EXISTING CLAUSE AND INSERT THE FOLLOWING:

"All flexible couplings shall be "Viking Johnson" couplings without centre register or approved similar.

Rubber rings shall be of the wedge-type and shall be manufactured from natural or synthetic rubber only. Reclaimed rubber shall not be used in the manufacture of the rubber rings."

PSL 3.8.3 Flanges and accessories

ADD THE FOLLOWING TO THE EXISTING CLAUSE:

"The dimensions and drilling of standard flanges shall comply with the requirements of SANS 1123 and SANS 1476 for a working pressure of 2500 kPa. Flanges shall be machined flat, i.e. without a raised joint face. Puddle flanges shall have the same dimensions as standard flanges but shall be undrilled. Flanges to be drilled according to Table 16.

Faces of flanges which will be in contact with jointing gaskets shall receive a protective coating of such thickness and consistence as will not impair the air/gas/water tightness of the joint."

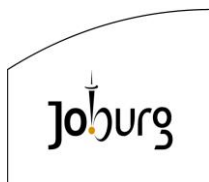
ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 3.8.8 Victaulic joints

Joints for PVC and medium steel pipelines shall conform to SANS 815: Standard specifications for shouldered end pipes, fittings and couplings.

ADD THE FOLLOWING NEW SUBCLAUSE:

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Witness:		Witness:	



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PSL 3.8.9 HDPE Pipe joints

Joints for HDPE pipe shall be by means of welding, welded flanges or approved external compression type fittings (Plasson or similar approved)."

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 3.8.10 HDPE Pipe Welding

Only SAPPMA or ISO approved welders shall be used for welding HDPE pipes.

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 3.9 CORROSION PROTECTION

PSL 3.9.2 Steel pipe

ADD THE FOLLOWING TO THE EXISTING CLAUSE:

"All coating and linings shall be completed strictly to the publication "Corrosion Protection for Civil, Mechanical and Electrical Employer's Agent 2000 Edition.

Pipes and fitting shall be externally coated with fusion bonded medium density polyethylene (sintakote) or polyclad 777 and internally with liquid epoxy lining or similar approved.

The thickness of the lining material shall not be less than 250 micron and test certificates of the lining thickness must be furnished to the Employer's Agent for his approval."

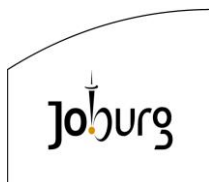
PSL 3.9.2.3 Repairs to epoxy coatings

ADD THE FOLLOWING TO THE EXISTING CLAUSE:

PSL 3.9.2.3.1 General

- (a) Where the damage is extensive the remedial procedures shall be agreed in writing with the Employer's Agent.
- (b) All repairs shall comply with the requirements of the repair-product manufacturer's data sheet. The Employer's Agent may at his discretion request that repaired coating areas undergo adhesion tests.
- (c) The Contractor shall repair any damage occurring during transport, on site during handling, assembly, storage, and erection.
- (d) The repaired area shall be tested in accordance with Sub-Clauses 8.4 and 8.12 of SANS 1217 for compliance with the relevant requirements for thickness and electrical insulation defects respectively.
- (e) Any item showing electrical insulation defects exceeding an average of five per square metre (a cluster of pinholes within a radius of 25 mm being regarded as

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a single defective area), or flaking or other signs of loss of adhesion, shall not be repaired. The item shall be blast cleaned and re-coated in accordance with the relevant requirements of the Clause PSL 3.9.2.3.3.

PSL 3.9.2.3.2 Repair Methods for Minor Defects

The repair of areas showing electrical insulation defects or low film thickness shall, if approved by the Employer's Agent, be carried out as follows:

- (a) Degrease in accordance with Clause PSL 3.9.2.3.4.
- (b) Thoroughly abrade the damaged area, including an adjacent surrounding area of at least 25 mm wide, with a medium grade 220 abrasive paper.
- (c) Vacuum-clean the surface to remove dust and debris in accordance with SANS 5769.
- (d) Wipe the abraded paint surface with methyl ethyl ketone and allow to dry, and
- (e) Apply as many coats of the following repair material as necessary to achieve the specified thickness and finish.
 - (i) Solvent free epoxy; or
 - (ii) Fusion-bonded epoxy powder repair kit.

NOTE: Apply a final topcoat over the repaired area to achieve a pleasing, uniform finish of the item.

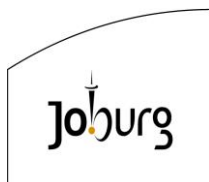
PSL 3.9.2.3.3 Repair Methods for Major Defects

The total un-coated areas for renovation by the applicator shall not exceed 0.5% of the total surface area of a component. Each un-coated area for renovation shall not exceed 2 500 mm². If damaged areas are larger, the items containing such areas shall be re-coated.

The repair of areas showing damage down to the steel surface shall, if approved by the Employer's Agent, be carried out as follows:

- (a) Degrease in accordance with Clause PSL 3.9.2.3.4
- (b) Blast-clean all damaged areas to Sa 3 (ISO 8501-1).
- (c) Feather the surrounding paint for a distance of 25 mm beyond the damaged areas with a medium grade 220 abrasive paper.
- (d) Vacuum-clean the surface to remove dust and debris in accordance with SANS 5769.
- (e) Wipe only the abraded paint surface with methyl ethyl ketone and allow drying.
- (f) Apply as many coats of the following repair material as necessary to achieve the specified thickness and finish.
 - . Solvent free epoxy or
 - . Fusion-bonded epoxy powder repair kit.

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NOTE: Apply a final topcoat over the repaired area to achieve a pleasing, uniform finish of the item.

PSL 3.9.2.3.4 Degreasing

- (a) All surfaces to be coated shall be tested for oil and grease contamination by the water break free test.
- (b) Oil and grease contamination shall be removed by:
 - Steam-cleaning.
 - An emulsifiable or aqueous detergent applied in accordance with SANS 1344; and
 - An alkaline cleaning solution.
- (b) Allow to react, and then rinse off with clean, potable water to remove all residues prior to surface preparation, all in accordance with Clauses 3.3 and 3.4 of SANS 10064.
- (c) The surfaces shall be tested after degreasing and show no oil, grease and chemical contamination after degreasing.
- (d) Care shall be taken to avoid entrapment of cleaning agents in recesses or other retention areas.

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 3.9.2.4 REPAIR OF DAMAGED SINTAKOTE

PSL 3.9.2.4.1 General

Damaged Sintakote or similar approved shall be repaired in accordance with the procedures detailed in the Tyco or similar approved Handling and Installation Manual for steel pipeline systems for the repair of Sintakote or in accordance with clause 3.2 or clause 3.3.

PSL 3.9.2.4.2 REPAIR OF SMALL PINHOLE TYPE DEFECTS

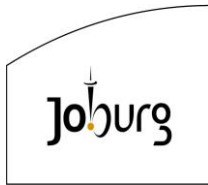
PSL 3.9.2.4.2.1 Surface Preparation

- Clean and dry the area to be repaired including the removal of dirt, dust and other contaminants. Slightly roughen the area around the repair for a minimum distance of 50 millimetres using a coarse file or abrasive paper.
- Wipe the surface with a clean dry rag.

PSL 3.9.2.4.2.2 Priming

- Stir the primer to ensure complete mixing prior to application. Apply a thin even coat of Densopol Primer D or similar approved around the area of repair using a paint brush or roller
- Allow the primer to tack dry (approximately 10 to 20 minutes)

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Witness:		Witness:	



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PSL 3.9.2.4.2.3 Tape Wrapping

- Apply Deponsole 60 or similar approved tape to the repair area ensuring a minimum of 50 mm overlap onto sound coating around the defect area.
- Apply Denso MP/HD P.V.C self-adhesive or similar approved over wrap tape around the full pipe circumference to completely cover the repaired patch.

PSL 3.9.2.4.3 REPAIR OF LARGE AREA OF DAMAGE WHERE STEEL IS EXPOSED

PSL 3.9.2.4.3.1 Surface preparation

Cut out the area of Sinkakote or similar approved and clean the steel surface in accordance with AS1627.2. Clean and dry the area to be repaired. Slightly roughen the area around the repaired using a coarse file or abrasive paper. Wipe the surface clean with a dry clean rag.

PSL 3.9.2.4.3.2 Priming

- Stir the primer to ensure complete mixing prior to application. Apply a thin, even coat of Densopol Primer D or similar approved onto the steel surface and around the periphery of the Sintakote or similar approved.
- Allow the primer to track dry (Approximately 10 to 20 minutes)

PSL 3.9.2.4.3.3 Filling/Priming

- Cut out a piece of Bitumen Mastic Strip to fit into the bare steel area prior to applying the primer.
- Insert the cut out piece of Bitumen Mastic Strip into the repair area.
- Re-apply a thin even coat of Densopol Primer D or similar approved over the patch and adjacent area of Sintakote or similar approved.
- Allow the primer to track dry (Approximately 10 to 20 minutes)

PSL 3.9.2.4.3.4 Tape Wrapping

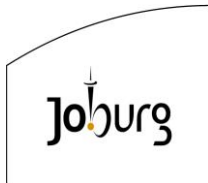
- Apply Densopol 60 or similar approved tape to the repair area ensuring a 50mm overlap over the fitted patch.
- Apply Denso MP/HD P.V.C self-adhesive or similar approved over wrap tape around the full pipe circumference to completely cover the repaired patch.

PSL 3.9.2.4.4 SURFACE PREPARATION

All joints shall be fully welded and sealed and all sharp edges and corners ground off to a radius of not less than 1.5 mm. All weld spatter and irregularities shall be removed. Any unsound or damaged edges of sintakote or similar approved shall be cut back into the sound coating and the edges chamfered.

The surface shall be cleaned by means of power tools to achieve a minimum surface preparation in accordance with AS1627.2 TO CLASS St. 2. All dust, dirt, moisture and grease shall be removed. Slightly roughen the sintakote or similar approved 100 millimeters both sides of the joint, using a coarse file or abrasive paper. Wipe the surface clean with a dry rag.

Employer:		Contractor	
Witness:		Witness:	



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PSL 3.9.2.4.5 PRIMING

- Stir the primer to ensure complete mixing prior to application, apply a thin even coat of Densopol Primer D or similar approved to the steel and roughened sintakote or similar approved surfaces using a paintbrush or roller.
- Allow the primer to touch dry (approximately 10 to 20 minutes)

PSL 3.9.2.4.6 MASTIC FILLING

To improve the contours for wrapping the tape, fillet welds, sharp edges of sintakote or similar approved, test plugs or welding lid holes shall be filled and profiled with Bitumen Mastic Strip. The mastic filling shall be molded such that the Densopol 60 or similar approved tape can be applied with no sharp edges protruding or air entrapment.

PSL 3.9.2.4.7 TAPE WRAPPING

Commencing at least 100 milliliters back onto the primed sintakote or similar approved one complete turn of 150 milliliter wide Densopol 60 or similar approved tapes shall be applied. Release film shall be removed before application. While holding the tape under tension, the pipe shall be spirally wrapped using a 55 percent overlap and finished 100 mm onto the primed sintakote or similar approved with one complete circumferential wrap around the pipe. The tape shall be cut off in the downward direction of wrapping. New roles of tape shall have the ends overlapped at least 75 mm.

During wrapping the tape shall be smoothed out by hand to exclude any air bubbles or wrinkles and to seal overlaps.

Care shall be taken to prevent any folds or misplacement of the tape, especially under the pipe, and to prevent the tape becoming contaminated during wrapping.

The butt-welds in segmental (lobster bends) are to have the tape applied partial layer by partial layer with a 55 percent overlap until a full spiral wrap can be made (refer sketch in appendix A) continue wrapping onto the primed sintakote or similar approved for at least 100mm with one complete circumferential wrap around the pipe.

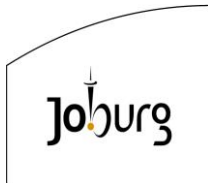
Straight steel pipes shall also be wrapped with Densopol 60 or similar approved with a 55 percent overlap in accordance with the above clauses.

PSL 3.9.2.4.8 STEEL FITTINGS AND FLANGES

PSL 3.9.2.4.8.1 GENERAL

Procedures for the protection of steel fittings applies to both main pipeline fittings and branch pipe work. Fittings manufactured and coated by Tyco shall be factory coated with Sintakote or similar approved. Difficult fittings such as valves may be protected using a more conformable petrolatum system in accordance with TS29 only with the approval of an SA Water representative.

Employer:		Contractor	
Witness:		Witness:	



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PSL 3.9.2.4.8.2 SURFACE PREPARATION

Still surfaces shall be prepared in accordance with clause 4.1.

PSL 3.9.2.4.8.3 TAPE WRAPPING

Prepare and wrap all straight sections leading up to the fitting and flange in accordance with section 4.

PSL 3.9.2.4.8.4 PRIMING

- Stir the primer to ensure complete mixing prior to application. Apply a thin even coat of Densopol Primer D to the prepared steel surfaces and a minimum of 50mm onto the Densopol 60 wrapped areas using a paint brush.
- Allow the primer to touch dry (approximately 10 to 20 minutes).

PSL 3.9.2.4.8.5 MASTIC WRAPPING

Unavoidable sharp edges such as bolts, nuts and collars shall have mastic strip molded over the positions or edges. Strip with a 55 percent overlap onto itself and minimum 50mm overlap onto the Densopol 60 or Sintatoke or similar approved coated pipe work. Press the Bitumen Mastic Strip firmly into place ensuring no air voids are beneath the Bitumen Mastic Strip.

Note: The Bitumen Mastic Strip provides corrosion protection to the steel work and is similar in composition to Densopol 60 or similar approved, but it does not have a woven carrier.

PSL 3.9.2.8.6 OVER WRAPPING

150 or 100mm wide Denso MP/HD tape (self-adhesive PVC) shall be spirally wrapped over the Bitumen Mastic Strip with a 55percent overlap. While wrapping, the Denso MP/HD tape shall be pulled firmly and the lapse properly sealed.

PSL 3.9.2.8.7 TESTING

All repairs and wrapping shall be tested using a high voltage “spark” tester in accordance with AS3894.1 at an operating voltage of 15 KV.

PSL 3.9.3 Protection against electrolytic corrosion

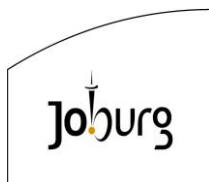
OMIT THE EXISTING CLAUSE AND INSERT THE FOLLOWING:

“All joints and fittings shall be fully wrapped with approved protective tapes. Protective tape shall comply with either Specification A or Specification B as ordered by the Employer’s Agent.

Specification A

This tape shall be made up of pre-bonded components to form a composite single wrap tape. The adhesive inner protective tape must provide complete protection to steel piping against electrolytic corrosion. It shall be impermeable to water, chemically inert

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Witness:		Witness:	



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and physically stable and must provide a perfect seal at the overlap on a spiral-winding pattern.

The adhesive outer protective tapes shall be tough and impact resistant, providing suitable protection of the inner protective tape against mechanical damage. It shall be stable and not crack or deteriorate when buried. The tapes shall be chemically resistant to all common acids and alkalis normally encountered in the soils at the construction site.

The tapes shall be suitable for both machine and hand application.

The Combination electrical characteristics of the inner and outer wrap together must exceed:

Dielectric strength = 25kV/mm
Insulation = 10 Ohm metre

The following minimum criteria shall be satisfied:

	Inner Tape	Outer Wrap
Thickness (mm)	0,3	0,3
Tensile strength (kg/cm width)	3,3	5,0
Elongation at break (%)	200%	50%
Adhesion to primed steel (gm/cm width)	220	220

Specification B

This tape shall be made up of a non-woven synthetic fibre carrier impregnated and coated on both sides with a compound incorporating high melting point bitumen (Densotherm or similar approval). During application the tape shall be correctly heated, and laps adequately sealed all in accordance with the instructions and recommendations of the supplier.

Before the application of any protective material, the surface of the pipe shall be thoroughly cleaned and all loose or damaged pipe coating removed. All ridges, depressions and steps in the surface shall be filled with an approved filler so as to present a smooth uniform surface. After the filler has hardened, the entire surface to be wrapped shall be primed with a primer or otherwise treated as recommended by the supplier of the tape.

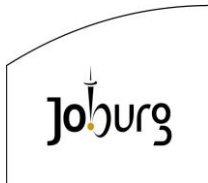
The protective tape shall be applied as a spiral wrap with not less than 50% overlap. The width of the tape shall be appropriate for the section to be wrapped."

PSL 3.9.5 Joints, nuts, bolts and washers

DELETE AND REPLACE WITH THE FOLLOWING:

"All bolts and nuts shall comply with the requirements of the relevant sections of SANS 1700 and shall be of Grade 4.6 steel. Washers shall be provided at each nut and shall be of the same material (or coating where applicable to match the bolt and nut. Nuts

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Witness:		Witness:	



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and bolts subject to vibration shall be machined finished fitted with plain washers and treated with "Loctite" or equivalent.

Bolts other than jacking bolts shall project not less than 3mm and not more than 10mm from the heads of the nuts after tightening.

All bolts to be built into concrete work as well as bolts to be installed above ground level (outside buildings), directly above and under water shall all be of stainless steel grade 304. Bolts for flexible couplings and flanges for underground installation shall be hot dip galvanized. Bolts to be installed inside buildings shall be hot dip galvanized. Galvanizing shall be in accordance with the Standard Corrosion Protection Specification (Heavy coating).

Suitable plastic sleeves and/or washers shall be used for protection against corrosion by bi-metallic action".

PSL 3.9.6 Corrosive soil

ADD THE FOLLOWING TO THE EXISTING CLAUSE:

"Steel pipes, pipe fittings and steel flanges in contact with soil shall over and above the protection as described above be protected as specified in Clause 3.9.3 with "DENSO" tape and/or mastic or approved similar. Application shall be strictly in accordance with the manufacturer's instructions. A polyethylene tape of 300 microns minimum shall be spirally wrapped over the petrolatum tape and fixed to the clean pipe ends with pressure sensitive tape."

PSL 5 CONSTRUCTION

PSL 5.1 LAYING

PSL 5.1.4 Depth and Cover

PSL 5.1.4.2 Cover

ADD THE FOLLOWING TO THIS SUBCLAUSE:

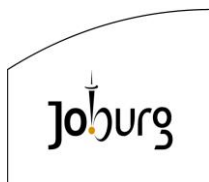
"The minimum cover to finished surface over water mains shall be at least 1000 mm in trafficked areas and at least 800 mm elsewhere. At valves the depth of the pipeline shall be increased if necessary to ensure a minimum cover of 100mm over the valve cap. The cover shall be maintained as close as possible to the minimum without local sags or humps and shall not be increased above the minimum by more than 200mm without the approval of the Employer's Agent."

PSL 5.2 JOINTING METHODS

PSL 5.2.3 Welding

DELETE THE EXISTING CLAUSE AND REPLACE WITH THE FOLLOWING:

Employer:		Contractor	
Witness:		Witness:	



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a) General

“Field welding of pipes which have been lined will be permitted only for pipes of DN600 and larger where a man is able to enter the pipe to make good the lining after welding and testing in accordance with Clause 7.2 of SANS 1200L has been completed. Pipes of lesser diameter may be field welded where concrete linings will be made after the pipeline has been laid and all welds have been tested and approved.

At the discretion of the Employer’s Agent, roll welding will be permitted, provided pipe alignment is maintained by use of skids or of structural framework to accommodate two or more lengths of pipe with an adequate number of roller dollies to prevent sag in the pipe. The entire root bead, however, shall be made with the pipe in a stationary position.

All pipes welded in the trench shall be properly laid and aligned before welding commences. Bell holes shall be excavated at all field welds. The Contractor shall not lift the pipe to provide adequate access for the welders to enable them to stovepipe weld the joint.

The alignment of abutting ends shall be such that the offset will not exceed 1.7 mm. Line up clamps shall be used for joint “fit ups”. The use of “bridges and wedges” or any method that may induce unnecessary stresses is forbidden.

Both ends of coated and lined pipes shall be wrapped for a distance of at least 800 mm on either side of the weld by means of an asbestos mat or other approved material to ensure that weld spatter or other damage is not caused to the coating and lining during the welding process. The pipe trench shall be kept free of all dirt and water in the vicinity of the weld until after all corrosion protection measures have been completed and approved. “

b) Welding procedure and qualification of welders

Steel Pipes

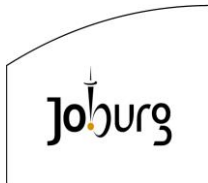
Welding shall be done by only qualified welders who satisfy the requirements of API 1104, Clause 3.0. Before any welding of pipeline materials commences, the qualification of welders shall have been approved, all detailed welding procedure specifications with weld diagrams required for their completion shall have been submitted for approval in a neat form and the welding procedure qualification tests shall have been successfully concluded all in accordance with the relevant standard specifications. Each welder shall mark the pipe adjacent to the weld with the figure assigned to him.

Sufficient records shall be kept by the Contractor to ensure that all field welds can be subsequently identified with the welder concerned.

As far as practicable all out of trench welding shall preferably be done by an automatic submerged process and the Contractor shall provide all necessary plant to carry out this process. MSEAP welding may be used where in-trench welding is done.

Heat treatment for welding shall be in accordance with API 1104 if required by same and the Contractor shall provide an approved shield to protect the pipe joint from wind and weather during heat treatment and welding.

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Witness:		Witness:	



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c) Line up

Pipes shall be lined up in such a manner as to prevent damage thereto. If the pipe to be used has a longitudinal seam, these seams shall be staggered by not less than twenty degrees and welded sections, or single lengths, shall be assembled in such a manner that this seam shall remain in the top quadrant of the pipe during coating operations and after lowering into the trench.

d) Cleaning of pipe ends Before welding; all foreign matter shall be removed from the beveled ends. If any of the ends of the pipe joints are damaged to the extent that satisfactory welding contact cannot be obtained, the damaged pipe ends shall be cut and beveled with an approved beveling machine. These field bevels of pipe ends shall be made to the satisfaction of the Employer's Agent. Should laminations, split ends, or other defects in the pipe be discovered, the joints of pipes containing such defects shall be cropped, repaired, or removed from the line as designated by the Employer's Agent.

e) Inclement Weather

No welding shall be carried out during rain or high wind unless the welder and joint are adequately protected and sheltered, to ensure that the welding is not impaired.

f) Protection of coatings and linings

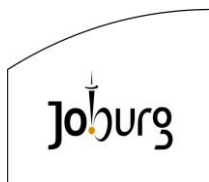
Before welding commences, a suitable apron at least 800 mm wide shall be wrapped around both sides of the area to be welded to ensure that weld spatter does not damage the coating and lining.

g) Butt-welding

Pipes and specials to be joined by field welding shall be supplied with ends beveled for welding. All welding of joints shall comply with API 1104 and only approved type welding rods shall be used. If backing rings are permitted, they shall be placed in position and wedged up or adjusted so that the pipe ends are completely circular and properly mated. The space between abutting pipe ends, when aligned for welding, shall be such as to ensure complete penetration without burn-through. For pipes having the same dimensions, the spacing shall be approximately 1.5 mm. The alignment of the abutting pipe ends shall be such as to minimize the offset between pipe surfaces. For pipes of the same nominal wall thickness, the offset shall not exceed 1.5 mm. Internal line-up clamps shall be used wherever practicable and may be removed after the root bead is 50% completed, provided that the completed part of the root bead is in segments of approximately equal lengths, spaced about the circumference of the pipe. If conditions make it difficult to prevent movement of the pipe, or if the weld will be unduly stressed, the root bead shall be completed before releasing clamp tension.

External line-up clamps shall be used where it is impracticable to use internal line-up clamps. Partial root beads made when using external clamps shall be uniformly spaced about the circumference of the pipe and shall have an accumulative length of not less than 50% of the pipe circumference before the clamps are removed.

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Witness:		Witness:	



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Tack welding shall be carried out to maintain the root gap and position of the pipe ends during the welding proper. The number of tack-welds shall be kept to a minimum but shall not be less than four around the circumference of the pipe.

After proper preparation and tack welding, the root bead shall be carried out followed by successive filler passes, and capper pass in accordance with the approved welding procedure.

The filler and finish beads shall be deposited by an acceptable method and each filler bead shall be approximately 3 mm in thickness. Completed welds shall have a reinforcing of not less than 0.8 mm and not more than 1.5 mm above the pipe surface around the entire perimeter of the weld, and the width of the finish or cover shall be not more than 3 mm greater than the original groove. The number of beads required shall be governed by the wall thickness of the pipe, so that the completed weld will have the reinforcement previously specified; provided, however, that each weld shall consist of at least three beads. No two beads shall be started at the same point. No mitre welds will be permitted, and all welds are to be at ninety degrees ($\pm 5^\circ$) to the axis of the pipe. All slag and scale shall be removed from each bead for visual inspection immediately after each bead is run.

In all field butt-welds where it is possible to work inside the pipe, the inside weld shall be done first.

The chemical composition of weld metal and parent metal shall be similar, and the inner weld metal or reinforcement shall not extend more than 1 mm above the inside metal surface of a pipe or special, and any excess shall be removed by grinding.

Defects caused by stray welding arc flashes shall be removed by grinding, provided that the pipe wall thickness is not reduced to less than the specified minimum thickness, otherwise the portion shall be cut out and repaired.

h) Fillet welding

Welding shall be as for butt-welding as applicable. All pipes of 600 mm ND and over shall be welded on both the outside and the inside.

i) Repair of welds

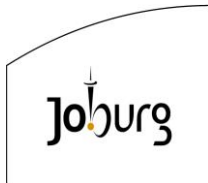
Rectification of defective welds shall be in accordance with API 1104 and to the satisfaction of the Employer's Agent. All costs related to the repair of defective welds shall be borne by the Contractor. Defective welds shall be repaired immediately they are found to be so. The Employer's Agent has the right to stop the Contractor proceeding with further pipe laying in the event of the Contractor delaying the rectification of defective welds. Furthermore, no consideration will be given to any claims arising from delays in construction resulting from such action.

All welded joints which have been repaired shall be 100% radiographed or otherwise tested to the Employer's Agent's satisfaction at the Contractor's own expense.

PSL 5.8

BRICKWORK IN CHAMBERS AND MANHOLES

Employer:		Contractor	
Witness:		Witness:	



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ADD THE FOLLOWING TO THIS SUBCLAUSE:

"The joints of exposed faces shall be flush-trowelled, hard and smooth and shall be rubbed for the full width of the joint as the work proceeds to give a hard polished finish."

ADD THE FOLLOWING NEW SUBCLAUSE

PSL 5.11 WORK ON EXISTING MAINS

Where connections are to be made to existing mains, the Contractor shall excavate back along the existing main only as far as is necessary to complete the connection satisfactorily and shall ensure that the existing mains are disturbed as little as possible. Backfilling shall be carefully placed and properly compacted beneath existing and new work to ensure that the mains, specials, etc. are properly bedded.

Work on existing mains and components of the reticulation system shall be carefully planned in consultation with the Employer's Agent. The work shall be carried out expeditiously to ensure that the disruption of services and inconvenience to the local residents is kept to a minimum. All tie-ins shall be completed within a maximum of 10 hours.

The Contractor under strict supervision by the Employer's Agent or The Employer will do all these connections.

Hand excavation must be used to expose the existing mains and erf connections where required. While every effort has been made to ensure that the information relating to these connections is correct the Employer's Agent or The Employer takes no responsibility for the accuracy, or for the completeness of the information."

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 5.12 CONNECTION TO THE EXISTING MAINS

The Contractor shall supply all necessary fittings / materials for under pressure connections suitable for all pipe sizes.

The Contractor shall confirm all measurement on site prior to ordering any pipe fittings."

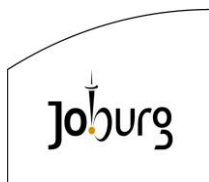
ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 5.13 PIPELINE RENEWAL WORK

All material recovered as a result of the repairs or replacement of the components shall be returned to the Contractors store where they shall be cleaned, sorted and listed. A list of the recovered material shall be handed to the Employer's Agent on a monthly basis. All recovered material shall be delivered to the relevant Depot on a regular basis or at the end of the Contract.

ADD THE FOLLOWING NEW CLAUSE:

Employer:		Contractor	
Witness:		Witness:	



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PSL 5.14 STERILISING OF WATER MAINS

All new water mains shall be sterilised at 10mg/l free chlorine for 12 hours and will then be thoroughly flushed.

PSL 7 TESTING

PSL 7.2 INITIAL TESTS ON WELDED STEEL PIPES

PSL 7.2.2 Radiographic Examination

Fifteen percent of all welded joints, or when ordered by the Employer's Agent, shall be examined radiographically.

ADD THE FOLLOWING NEW CLAUSE:

PSL 7.2.3 Hydrostatic Test

- (a) All pipes and fittings shall be subject to an approved hydrostatic test and to a test pressure determined as follows:

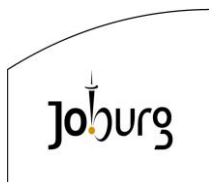
$$P = \frac{2000 \text{ t f}}{D}$$

Where

- P = test pressure in kPa
- F = 85 percent of the guaranteed minimum yield strength in MPa for steel plate
- D = outside diameter of the pipe in mm
- T = wall thickness in mm.

- (b) Hydrostatic testing shall not be carried out until all aspects of fabrication have been completed.
- (c) The pressure shall be applied steadily by approved means and maintained without variation sufficiently long for proof and inspection.
- (d) Should water sweat or ooze from any part or any defects of any nature be discovered the pipe shall be emptied and the defects made good. The pipe shall then be tested again. Should a pipe, after repair, fail to pass the second hydraulic test the Employer's Agent may order its rejection.
- (e) The fact that any pipe may have passed the hydraulic test at the works shall not exempt the Contractor from his liability under Clause 7 of the General Conditions of Contract 2015.
- (f) If a pipe fails to pass any of the above tests in Clauses PSL 7.2.1, PSL 7.2.2 or PSL 7.2.3, it shall be rejected, but the Employer's Agent may permit repairs or alterations to be made to enable the pipe to pass the test.

Employer:		Contractor	
Witness:		Witness:	



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- (g) The Employer's Agent may require one or more pipes to be tested to destruction. If practicable the Employer's Agent may require the Contractor to repair the pipes and retest them. The cost of repairs will be paid by the Employer as an extra to the Contract."

ADD THE FOLLOWING NEW CLAUSE:

PSL 7.2.4 Testing of HDPE pipes

Sample of the welded joints shall be taken, and the following test shall be carried out by an approved laboratory selected by the Employer:

1. Tensile strength on seam weld
2. Elongation at break
3. OIT (Oxidation Induction Time)
4. MFR (Melt Flow Rate)
5. Carbon black content
6. Carbon black dispersion

PSL 8 MEASUREMENT AND PAYMENT

PSL 8.2 SCHEDULED ITEMS

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 8.2.1 Pressure testing of existing pipes Unit: m

On instruction from the Engineer, the contractor will be required to conduct pressure testing on existing pipelines. The test to be conducted in accordance with PSL 7.2.3. The rate to include locating of the water pipelines, the supply of water for testing, testing equipment and end caps where necessary to isolate a pipeline testing section. The pipe diameters range between 110mm to 250mm diameter in size.

PSL 8.2.2 Commissioning of existing water pipes Unit: m

On instruction from the Engineer, the contractor will be required to commission existing water pipelines after conducting pressure testing. The rate to include locating, disinfecting, and commissioning of existing water pipes for diameters ranging between 110mm to 250mm.

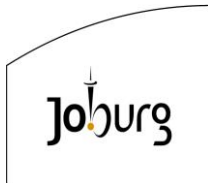
PSL 8.2.3 Decommissioning existing pipelines..... Unit: Prov. Sum

On instruction from the Engineer, the contractor will be required to decommission existing pipelines that are located on the road reserve and in the midblock.

PSL 8.2.4 River Crossings..... Unit: Prov. Sum

On instruction from the Engineer, the contractor will be required to complete pipe river crossing. The contractor will be required to provide a methodology for the pipe crossing over the river or stream for approval.

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Witness:		Witness:	



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PSL 8.2.16 c) Demolish Structure

- a) Description of connection, types and diameters involved.....Unit:
No
- b) Etc for the other items

The unit of measurement shall be sum for various types of connection into existing line mains

The rate shall cover the cost of excavation, plant and labour required, demolishing the existing chambers, safeguarding the existing valves and specials from damage and safely disposing of the rubble material.

ADD THE FOLLOWING NEW SUBCLAUSE:

PSL 8.2.17 Connect to Existing Mains

- a) Description of connection, types and diameters involved.....Unit:
No
- b) Etc for the other items

The rate shall cover the cost of isolating, cutting, excavation (up to 4 m deep), bedding, dewatering and exposing the existing main at the connection point, supply necessary fittings for under pressure connections for the section of the mains as required, temporary support, safety precaution backfilling and the removal of surplus and unsuitable material.

ADD THE FOLLOWING NEW SUBCLAUSES:

PSL 8.2.18 Recover valves, fittings, specials, etc

- a) Description
item.....Unit: No. of
- b) Etc for other items

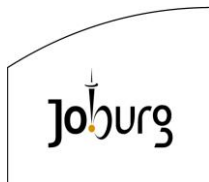
The unit of measurement shall be number of described item to be recovered

The rate for the recovery of the above shall cover the cost of the excavation, breaking out existing brick or precast concrete, and removal of the valves, fittings and specials removal of debris and spoil to Contractor's dump site and importing suitable backfill material, the plugging with concrete of the open ends of the abandoned water mains, the removal of the surface boxes, backfilling to required density, the handling and transporting of the recovered materials to the Relevant Depot, the listing of the salvaged materials and the backfilling and compaction of the chambers and reinstatement of surface covering.

PSL 8.2.19 Supply and install Valves.....Unit: No

- a) Gate Valves

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Witness:		Witness:	



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All gate valves shall be flanged wedge type isolation valves to SABS 664, Class 16, anticlockwise closing. All valves 400 mm and bigger are to be supplied with an approved **open gear box assembly** as follows:

1. For the 600mm Valve:

Multi-Stage Spur gearing with 6:1 minimum ratio, having operating spindles on the input spindle and at a stage where the valve can be stroked without exceeding the maximum input torque of 275Nm if no differential pressure is applied to the valve.

1.1 For the 450mm Valve:

Single-Stage spur gearing with 4:1 ratio having one spindle to operate with a 1:1 ratio and a second spindle to operate with a 4:1 ratio. A maximum input torque of 240Nm is recommended.

2. The gears shall be robust, and machine cut, and their mounting shall be of substantial design.

3. Each pinion gear spindle shall be supported between two bearings or alternatively one bearing of sufficient depth to prevent misalignment of the opinion gear and spindle. The bearings shall be fitted with bronze bushes and shall be provided with grease nipple lubricating points and shall be lubricated prior to delivery. All points to be lubricated shall be fitted with 1/8-inch BSP straight nipples for grease-gun lubrication. Adequate lubrication shall be provided for all gear and indicator bushes.

4. All valves shall open by anticlockwise rotation of the main spindle and gearboxes shall be fitted with an intermediate idler where necessary.

5. In the case of Type A and Type B gearing a shear pin or other safety device shall be incorporated between the high and low gears to prevent damage to the valve if excessive force is applied. Two spare pins shall be attached to each valve.

6. Shear pins shall be easily replaced in the field. Hard-driven pins will not be accepted as shear pins.

b) Air Valves

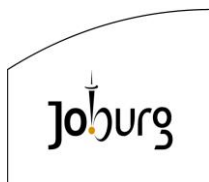
Air valves must be double acting air valves of compact single chamber design with both small and large air release orifices inside the chamber. The valve must also act as a vacuum breaker, with intake capacities of 60 % of discharge rates given.

The unit measurement for valves shall be number of each described assembly.

The rate shall include supply installation and testing including for all corrosion protection, bolts, gaskets, and any other contingency work.

a) Valve Boxes for Valve not exceeding 350mm.

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Witness:		Witness:	



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Sterling Concrete CC or similar approved precast concrete valve (hydrant) box stacked segments shall be used. A Type 5 standard Polymer cover shall be used with Johannesburg Water inscription on it.

PSL 8.2.19.1 Supply and install Fire Hydrants.....Unit: No

Supply, fixing and bedding of above ground fire hydrants with fittings and galvanised pipe for connection to the main line as per detail provided. Rate to include all fittings required to connect to main line e.g. tees, bends, distance piece, approved coating on the fire hydrant etc.

PSL 8.2.20 Cathodic Protection.....Unit: Sum

The rate shall include investigation, design, supply and commission system as per specified and/ or instructed by the Employer's Agent (Provisional Sum)

PSL 8.2.21 Supply and install fittings assembly.....Unit: No

The unit of measurement shall be number of a described item to be installed. The applicable particular specification contained herein on various clauses will apply to the various pieces, for example **PSL 8.2.19** will be applicable to any valve and air valve in the assembly.

The rate shall include supply installation and testing including for all corrosion protection, bolts, gaskets, and any other contingency work to enable the proper operation of the fittings assembly.

PSL 8.2.22 Laboratory testing of HDPE joins.....Unit: Prov Sum

The Employer's Agent shall set aside an amount as Provisional Sum for laboratory testing of HDPE welding joins. The amount shall cover the cutting, transportation and laboratory test of the sample joins.

PSL 8.2.23 Removal of damaged pipes.....Unit: m

All pipes that have been removed from the excavations are spoiled within 48 hours of excavation failing which the Employer's Agent shall be entitled to suspend work under the Contract.

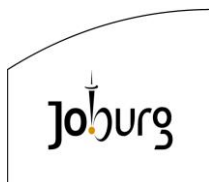
The rate shall include the complete (labour, plant and equipment) cost for the removal of such material.

PSL 8.2.24 Trenchless technology

PSL 8.2.24.1 Supply and Installation of pipe through pipe cracking Unit: m

The rate shall include the complete (labour, qualified operators, material, plant and equipment) cost for the successful pipe cracking of the pipe, installation and supply of pipes of various diameters, jointing of pipe, launching and reception pits. The rate shall also Include the provision and operation of all equipment and accessories, provision and

Employer:		Contractor	
Witness:		Witness:	



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application of all materials, safety equipment (including that required for the Employer's Agent or his duly authorized representative's sole use), traffic accommodation and testing and reporting.

PSL 8.2.24.2 Supply and Installation of pipe through Horizontal Direction Drilling (HDD) Unit: m

The rate shall include the complete (labour, qualified operators, material, plant and equipment) cost for the successful drilling of the pipe, installation and supply of pipes of various diameters, jointing of pipe, launching and reception pits. The rate shall also include the provision and operation of all equipment and accessories, provision and application of all materials, safety equipment (including that required for the Employer's Agent or his duly authorized representative's sole use), traffic accommodation and testing and reporting.

SANS1200 LF: ERF CONNECTIONS (WATER) (1983)

The following variations and additions to the standardised specifications

PSLF 2 INTERPRETATION
PSLF 2.3 DEFINITIONS

ADD THE FOLLOWING:

The following definitions to be read in conjunction to the project specification.

Pre-pay Consumer Meter, device used for the measurement of flow over a period of time, commonly installed on residential properties.

PSLF 3 MATERIALS

PSLF 3.2 STOP TAPS AND METERS

REPLACE SUB CLAUSES 3.2.1 WITH THE FOLLOWING:

PSLF 3.2.1 Stop Tap

PSLF 3.2.1.1 Stop Tap Type-1

"15mm up to 25mm Stop Tap shall be closed by means of a plastic ball valve and shall be SANS 16135 approved and listed as an JASWIC approved valve.

PSLF 3.2.2 Meter

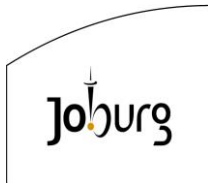
PSLF 3.2.2.2 Contractor to source meter

"15mm diameter STS Pre-payment water meter as per the JW Metering Guidelines"

Meter Supplier to be approved by JW prior to sourcing of meters and Supplier meters to be tested by JW prior to installation.

PSLF 3.5 VALVE AND METER CHAMBER

Employer:		Contractor	
Witness:		Witness:	



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DELETE SUB CLAUSES 3.5.1 to 3.5.3 AND REPLACE WITH THE FOLLOWING:

PSLF 3.5.1 Meter Chamber

“Contractor to source STS Pre-pay water domestic water meters.”

PSLF 3.5.2 Stop Tap Chamber

“Stop Tap Chamber shall be installed below ground with the lid level with the natural ground leve and UV Stable classified.

Stop Tap chamber characteristics:

Body : Black Polypropylene (PP)
Lid : Blue Polypropylene (PP)
Size : 150mmDN, Height ±160mm

PSLF 5 CONSTRUCTION

PSLF 5.5 INSTALLATION OF METER AND STOP TAPS

REPLACE SUB CLAUSES 5.5.1 WITH THE FOLLOWING:

PSLF 5.5.1 “Pre-pay consumer meter and installation”

The Contractor shall supply pre-pay water meter, which shall include meter box and cover, meter and all couplings to connect to yard and/or erf connections all preassembled and shall be deemed as free issue.

Water meter boxes shall be collected from an approved meter Supplier and tested prior to installation.

All new meter details such type, size, serial number and coordinated location shall be noted and presented to the Engineer in a single report.”

PSLF 5.5.2 Stop Taps

REPLACE SUB CLAUSES 5.5.2 WITH THE FOLLOWING:

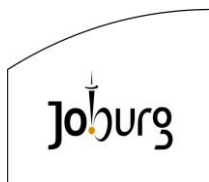
“Provision and installation of stop tap on existing and new yard connections. The Contractor shall provide and install consumer valve boxes, complete with stop tap and couplings. The stop tap shall be provided in a box to be installed below ground with lid level with the natural ground level and no more than 500 mm on the outside next to the property boundary, unless otherwise instructed by the Engineer.”

ADD THE FOLLOWING SUB-CLAUSE:

PSLF5.8 “LABOUR-INTENSIVE CONSTRUCTION METHODS

Where any portion of works is to be executed by means of labour-intensive construction methods, the Contractor shall not utilise any mechanical equipment, plant or vehicles.

Employer:		Contractor	
Witness:		Witness:	



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Only hand-held or hand-powered equipment such as picks, shovels, crowbars, wheelbarrows, tampers and the like shall be utilised in all excavation, compaction and transport operations. Where intermediate material is encountered during the excavation process, this shall be removed using hand-held and hand operated pneumatic drilling and breaking equipment.

PSLF 7 TESTING

PSLF 7.3 METER TESTING

PSLF 7.3.2 Site Testing

REPLACE SUB CLAUSES 7.3.2 WITH THE FOLLOWING:

PSLF 7.3.2.1 “Pre-pay Consumer Meter Testing

The Contractor to test the pre-payment consumer meter unit after installation and provide a signed customer “Happy Letter” after testing and commissioning of the meter.

PSLF 8 MEASUREMENT AND PAYMENT

PSLF8.2 SCHEDULED ITEMS

ADD THE FOLLOWING NEW SUBCLAUSE:

PSLF 8.2.9 Illegal erf connection locating & removal Unit: No

Rate to include all costs associated with the locating and disconnecting of illegal erf connections. This includes the material required to disconnect the illegal erf connection

PSLF 8.2.10 Erf Connection provision & Installation.....Unit: No

Rate to include the costs of supplying and installing erf connections as per description provided. The material for the erf connections to be HDPE PE 100.

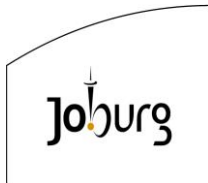
All erf connections HDPE

- a) Single short erf connections
- b) Double short erf connections
- c) Single long erf connections
- d) Double long erf connections

PSLF 8.2.11 Horizontal Drilling Long Erf Connections.....Unit: m

The rate shall include the complete (labour, qualified operators, material, plant and equipment) cost for the successful drilling of the long erf connections, installation and supply of pipes of various diameters, jointing of pipe, launching and reception pits. The rate shall also include the provision and operation of all equipment and accessories, provision and application of all materials, safety equipment (including that required for the Employer’s Agent or his duly authorized representative’s sole use), traffic accommodation and testing and reporting.

Employer:		Contractor	
Witness:		Witness:	



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Supply and installation of pipe through horizontal drilling

- a) 20 mm diameter HDPE pipes
- b) 25 mm diameter HDPE pipes
- c) 32 mm diameter HDPE pipes
- d) 40 mm diameter HDPE pipes

PSLF 8.2.12 Ball Valves.....Unit: No

- . Provision and installation of ball valves on existing and new erf connections less than 500mm deep.

The rate shall cover the supply and installation of ball valves to fit HDPE PE100 pipes for depths not greater than 500mm.

- . Provision and installation of ball valves on existing and new erf connections more than 500mm.

The rate shall cover the supply and installation of ball valves to fit HDPE PE100 pipes for depths greater than 500mm.

PORTION 3: PARTICULAR SPECIFICATIONS

- PA : SMALL DIAMETER PIPEWORK WITHIN ERVEN
- PD : EMPLOYMENT AND TRAINING OF LABOUR
- PO : EXTRA OVER FOR OCCUPATIONAL HEALTH & SAFETY
- PF : JOHANNESBURG WATER METER SPECIFICATIONS AND METER TECHNICAL SUPPORT

PORTION 3: PARTICULAR SPECIFICATIONS

PA SMALL DIAMETER PIPEWORK AND ANCILLARY WORK WITHIN ERVEN

PA 1 SCOPE

This specification covers the installation of small diameter pipework and plumbing fittings from the boundary of an erf to and includes ancillary work associated with the retrofitting within.

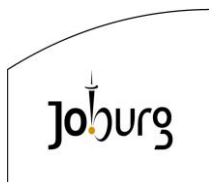
PA 2 INTERPRETATIONS

PA 2.1 DEFINITIONS AND ABBREVIATIONS

PA 2.1.1 Fitting: A special or any item which connects two or more pipes and/or specials together and which may perform some other function.

PA 2.1.2 Special: Any pipe other than a straight pipe including all sizes and types of specials such as bends, tees and reducers.

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Witness:		Witness:	



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- PA 2.1.3 Meter unit or meter box: A pre-assembled unit comprising a water meter (or an allowance therefor) and a stop tap on the inlet side with inlet and outlet connections to fit HDPE piping, all contained in a plastic surface box.
- PA 2.1.4 Holderbat: A nylon or polypropylene pipe support clip with a fixing plug and screw complete with closure hood or a malleable cast iron pipe support with a metallic strap screwed to the pipe support.
- PA 2.1.5 Compression pipe fitting: A pipe fitting which may be jointed to pipes by the compression of a ring or sleeve on the wall of a pipe, with or without additional elements.
- PA 2.1.6 Push Fit fitting: A pipe fitting which may be jointed to pipes by simply pushing the pipe into the fitting.
- PA 2.1.8 Pipe joint assembly: Compression, threaded or socked welded fittings or a combination thereof jointed to each other and/or to segments of pipes.

PA 3 MATERIALS

PA 3.1 PIPES, FITTINGS AND TAPS

All Materials, pipes, fittings, components and fixtures used in the replacement must meet SANS (when applicable the supplier must be able to provide proof that the component complies to the relevant SANS standard) and must be listed on the JASWIC acceptance list.

PA 3.1.1 PIPE MATERIAL FITTINGS

- PA 3.1.1.1 Malleable Cast Iron Pipe and Fittings
Malleable cast iron pipes and fittings threaded and shall comply with the relevant requirements SANS 62 and SANS 14

PA 4 CONSTRUCTION

PA 4.1 Pipe Laying for Yard Connections

All Trenches for yard connections shall have a nominal width of 300 mm and shall be 450 mm deep.

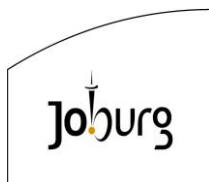
Backfill material shall be selected so that the bedding material and the backfill material to 100 mm above the pipe is free of stone particles larger than 20 mm in size.

All compactions shall be undertaken with hand stampers. The backfill material shall be watered and well rammed to the approval of the Engineer. Portions of the trench containing pipe fittings may not be backfilled before the pipe installation is tested and approved by the Engineer.

PA 4.1.1 Pipe laying in trenches

Pipes in trenches shall be laid to straight lines and as far as possible. HDPE piping may deviate in direction to suite site conditions, no pipe shall be bent / flexed more than 30deg.

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Witness:		Witness:	



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HDPE pipes shall be cut square only with an approved pair of pipe cutters. Care must be taken to ensure that no sand, sediment or foreign matter enters the pipe whilst it is being installed.

In order to minimise pipe wastage, any off cuts longer than 5,0 m may be reused on appropriate sections.

The Contractor shall at all times minimise the need to join several sections of pipe, this is to minimize the risk of future leaks on joints.

PA 4.1.2 Pipes above ground

Pipes supplied from straight lengths (as opposed to coils) shall be laid to straight horizontal and vertical lines and securely fixed to walls by means of holderbats located at the positions shown on the drawings or as directed.

PA 4.1.3 Shutting off water to erven

The Contractor will be permitted to shut off water to erven only between 08:30 and 16:00 on weekdays and shall give the owner, or occupier, a minimum of 48 hours' notice of his intention to temporarily disconnect the water supply. The Contractor shall use a printed notice approved by the Engineer for this purpose.

PA 4.2 Re-instatement of Paved Areas and Gardens

PA 4.2.1 General

Where paved areas are affected by pipe laying operations, the affected paving must be removed and, after the trenches have been backfilled, reinstated. The Contractor shall remove paving with care so as to preserve the materials for re-use. In the case of tarmac paving, the edges shall be neatly cut and trimmed to straight lines.

PA 4.2.2 Concrete paving

Where pipes are to be laid beneath cast in-situ concrete paving, the Engineer shall examine the paving together with the Contractor and determine whether the concrete is to be cut by hand or by machine.

If the concrete is to be cut by machine, the Contractor shall make neat saw cuts in the concrete, not less than 75 mm deep. Generally, two parallel saw cuts, 300 mm apart and centred on the pipe route will be required. Near structures, only one saw cut, approximately 300 mm from the structure, may be provided. The Contractor shall carefully break out the concrete, without damaging the edges of the remaining concrete.

Where the concrete is to be cut by hand, the edges shall be neatly cut and trimmed to straight lines.

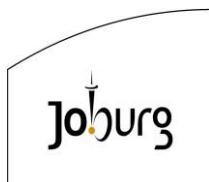
PA 4.2.3 Gardens

If for reasons as agreed by the Engineer, damage to gardens (lawns and vegetation) is unavoidable, the Contractor shall make good for damages caused. The lawn shall be replaced with instant lawn patches and shrubs shall be replaced with the same type that has been removed.

If a resident request that a certain TOOLS & EQUIPMENT be preserved, then the Contractor shall remove and reinstated as soon as possible.

PA 4.3 Installation of Valves and Taps

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Witness:		Witness:	



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Valves shall be installed with the arrow on the body of the tap or valve pointing in the direction of flow. A new tap will be installed only if the existing tap is unrepairable.

PA 4.4 Installation of Holderbats

Holderbats shall be either set and screwed into close tolerance holes drilled into the bricks with an approved masonry bit or caulked with a sand/cement mixture in oversized holes, as appropriate. Holes in masonry bed joints will not be permitted.

PA 4.5 Threaded Pipes and Fittings

Male threads of threaded pipes and fittings shall be covered with an approved PTFE jointing tape.

PA 4.6 Connection of Water Supply to Erven Plumbing

PA 4.6.1 General

The pipework between the existing pipes serving the erven from the road reserve shall be executed in accordance with the drawings.

PA 4.6.2 Connection at house or outbuilding

After closing off the supply, the galvanised steel piping below the ground where the connection is to be made shall be cut and removed. Thereafter, HDPE piping and compression fittings shall be installed as detailed on the drawings or as directed by the Engineer.

PA 4.6.3 Connection at tap

After closing off the supply, the above-ground galvanised steel piping leading to the tap shall be removed. HDPE piping and compression fittings shall be installed underground as detailed on the drawings or as directed by the Engineer. HDPE shall not be used above ground. Thereafter the pipework leading to the tap which was removed shall be installed.

PA 4.6.4 Commissioning of plumbing

After the abovementioned connections have been completed to the satisfaction of the Engineer, the Contractor may prepare to turn the road reserve supply on. He shall open the taps on the erf to bleed the system of air and thereafter turn the new supply on permanently.

PA 4.6.5 Illegal erf/yard connections and/or bypasses locating and removal

The Contractor shall while executing the Works, identify and indicate to the Engineer all illegal erf/yard connections. Only on instruction from the Engineer the Contractor shall disconnect and plug or repair all the identified illegal yard connections.

PA 4.6.6 Yard connection provision and installation

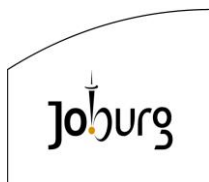
Yard connection shall be defined as the section of pipe from the erf boundary to the first on-property draw-off connection or building, whichever is the shortest. Yard connections will be defined by pre-set length increments for the provision and installation of 20, 25 and 32mm diameter HDPE yard connections for:

- a) 0 – 10 m,
- b) 0 – 20 m, and
- c) exceeding 20 m.

PA 4.7 Locating and Exposing of Meter Bypass on Existing Yard Connections

The Contractor shall locate, expose and assess all the bypassing of meters on existing yard connections if any. Replacement, and thus payment, shall only be executed with the prior approval of the Engineer. Where no such approval was obtained the Contractor shall

Employer:		Contractor	
Witness:		Witness:	



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not be reimbursed by the Employer nor allowed to remove such connection and shall re-instate such site to its original status at the cost.

PA 4.8 Locating and Assessment of Existing Yard Connections

The Contractor shall locate, expose and assess the condition of all existing yard connections. Depending on the extent of the damage or deterioration, connections shall either be repaired or completely replaced. Replacement, and thus payment, shall only be executed with the prior approval of the Engineer. Where no such approval was obtained the Contractor shall not be reimbursed by the Employer nor allowed to remove such connection and shall re-instate such site to its original status at the cost.

PA 4.9 Locating and Disconnecting of Existing Water Supply

The Contractor shall in some circumstances be required, on instruction of the Engineer, to disconnect existing customers by locating and securely disconnecting the joint between the erf and yard connection within the road reserve. Such activity shall be required for pipes of various materials and for diameters up to and including 25mm.

PA 4.10 Locating and Re-Instatement of Existing Yard Connection Where Disconnected

The Contractor shall in some circumstances be required, on instruction of the Engineer, reinstate existing customers by locating and connecting the joint between the erf and yard connection within the road reserve. Such activity shall be required for pipes of various materials and for diameters up to and including 25 mm.

PA 4.11 Leak Free Test

Leakage detection tests shall be performed for a minimum duration of 5 minutes, utilizing the best suited or combination of approved methods available, by the Contractor

PA 3.1.1.2 High Density Polyethylene Pipes

HDPE pipes shall be SANS ISO 4427 Class PN16, PE100 SD11 and fittings shall comply be compression fittings as per SANS 14236

PA 3.1.1.3 Plain-Ended Solid Drawn Copper Tubes for potable water

Pipes shall comply with SANS 460 and be Class 1B and fittings shall comply SANS 1067-1

PA 4.12 SUPPLY OF TOOLS & EQUIPMENT

PA 4.12.1 GENERAL

The Contractor shall provide all tools and equipment required to install pipework in accordance with this specification. The Contractor shall only use tools that are approved by the Engineer. Any materials that are damaged by the use of non-approved implements or tools will be rejected and the replacement cost shall be borne by the Contractor.

PA 4.12.2 Compaction equipment

All compactions shall be carried out with hand stampers.

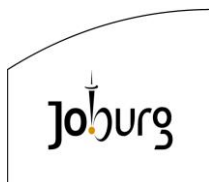
PA 4.12.3 Specialised tools and equipment

The Contractor shall supply all specialised tools and equipment which, in the opinion of the Engineer, are required to machine cut concrete and reinstate paved areas.

PA8 MEASUREMENT AND PAYMENT

PA8.2 Scheduled items

Employer:		Contractor	
Witness:		Witness:	



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PA8.2.1 *Yard Connection excavation and rehabilitation as per SABS 1200PSLF*

PA8.2.2 **Pipework**

Pipe work between the house and the meter will be dealt with as described below.

Intervention criteria:

- a) Damaged or corroded pipework that does not facilitate the connection of plumbing fittings and could result in water wastage, shall be replaced. No wrapping shall be required for underground installations (unless otherwise directed by the Engineer).
- b) Pipes shall be fixed to masonry walls with suitable brackets (dissimilar metals shall not be in contact with each other).
- c) At joints white tape shall be used with all fittings.

Specification

The Contractor shall cut or remove and dispose of defective section of pipe as per above replacement criteria and provide, install and test new pipe sections for diameters up to 25 mm of various materials.

Measurement and payment..... Unit: m.

The rate shall include the cost to supply, transport, handle, removal of existing (if any) and disposal, installation and testing of pipe up to and including 25mm diameter and cleaning of work area for:

- a) High Density Polyethylene Pipes SANS ISO 4427 Class PN16, PE100,SD11) HDPE, and

PA8.2.3 **Extra-over items 8.2.2 for specials and fittings Unit: No**

Additional fittings required not scheduled for use prior to conducting the work with the approval of the engineer.

PA8.2.4 **Installation of Downstream Gate Valve**

The rate shall cover the cost for supply and installation of a 15mm gate valve after the meter..... **Unit No.**

PA8.2.7 **Make good and replacing all types all of tiles and removing.....Unit: m²**

The rates shall cover the cost of replacing all types of tiles to the satisfaction of the Engineer.

PA8.2.8 **Make good and replacing for breaking up and removing all types of brickwork and plaster Unit: m²**

The rates shall cover the cost of replacing all types of brickwork including plaster to the satisfaction of the Engineer.

PA8.2.9 **Provision and installation of a standpipe (LOS2) complete as per applicable drawing.....Unit: Prime Cost**

Rates will be requested to cover provision and installation of standpipes.

PA8.2.10 **Installation of standpipe (LOS2) from temporary storage complete.....Unit: Prime Cost**

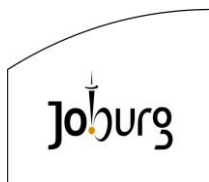
Rates will be requested to cover provision of standpipes from temporary storage.

PA8.2.11 **Standpipe (LOS2) removal and storage.....Unit: Prime Cost**

Rates will be requested for removal of standpipes and storage.

PA 8.2.12 **Illegal erf/yard connections and/or bypasses locating and removal. Unit: No**

Employer:		Contractor	
Witness:		Witness:	



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The rate shall include the cost for locating, exposing, disconnecting, plugging of illegal connections, including excavation in all materials, cutting into pipes of all material and size (up to 25 mm diameter), backfilling and compaction.

PA 8.2.14 Locating and expose meter bypass on existing yard connections. Unit: m
The rate shall include the cost for locating, exposing through excavation in all materials, assessing the condition of the pipe by visual inspection, backfilling, compaction to 90 % Mod AASHTO density and reporting on findings to the Engineer.

PA 8.2.15 Locating and assessment of existing yard connections. Unit: No
The Contractor shall locate, expose and assess the condition of all existing yard connections. Depending on the extent of the damage or deterioration, connections shall either be repaired or completely replaced as per the scope of works. Replacement, and thus payment, shall only be executed with the prior approval of the Engineer. Where no such approval was obtained the Contractor shall not be reimbursed by the Employer nor allowed to remove such connection and shall re-instate such site to its original status at the cost.

The rate shall include the cost for locating, exposing through excavation in all materials, assessing the condition of the pipe by visual inspection, backfilling, compaction to 90 % Mod AASHTO density and reporting on findings to the Engineer.

PA 8.2.16 Locating and disconnecting of existing water supply. Unit: No
The Contractor shall in some circumstances be required, on instruction of the Engineer, to disconnect existing customers by locating and securely disconnecting the joint between the erf and yard connection within the road reserve. Such activity shall be required for pipes of various materials and for diameters up to and including 25mm.

The rate shall include the cost for all resources and materials, preparation work (locating and excavation) and the execution of the activity as described above and the re-instatement of the excavation through backfilling, compaction, levelling and cleaning.

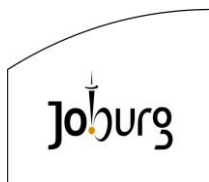
PA 8.2.17 Provision and installation of Yard Connections. Unit: Prov Sum
The Contractor shall in some circumstances be required, on instruction of the Engineer, reinstate existing customers by locating and connecting the joint between the erf and yard connection within the road reserve. Such activity shall be required for pipes of various materials and for diameters up to and including 25 mm.

The rate shall include the cost for all resources and materials, preparation work (locating and excavation) and the execution of the activity as described above and the re-instatement of the excavation through backfilling, compaction, levelling and cleaning.

PA 8.2.19 Leak free test. Unit: No
Leakage detection tests shall be performed for a minimum duration of 5 minutes, utilizing the best suited or combination of approved methods available, by the Contractor.
The rate shall include the cost for all resources and materials, preparation work (locating and excavation) and the execution of the activity as described above and the re-instatement of the excavation through backfilling, compaction, levelling and cleaning.

PA 8.2.20 Preparation and delivery of notice to owner. Unit: No
The Contractor shall prepare and deliver notices to property owners and residents.

Employer:		Contractor	
Witness:		Witness:	



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PA 8.2.21 100% pre-intervention survey on customer properties Unit: No
The Contractor shall carry out a pre-intervention survey on customer properties and the results shall be presented to the Engineer before any work is carried out on property plumbing. A list of all items to be fixed on each property shall be presented.

PA 8.2.22 Provision and installation of on-property plumbing retrofitting Unit: Prov Sum
The Contractor will be required to subcontract Local SMMEs to carry out all the retrofitting work.

PD EMPLOYMENT AND TRAINING OF LABOUR

PD 1 SCOPE

This specification covers the requirements for the employment and training of workers on the Contract.

PD 2 COMMUNITY LIAISON OFFICER (CLO)

The Project Steering Committee will identify a Community Liaison Officer (CLO) to facilitate liaison between the Contractor and the community and amongst other things to ensure that the employment of local labour proceeds smoothly.

All decisions regarding identification and hiring of labour, relieving labour of their duties, local problems and any other matter of local importance related to the Contract, will be made in consultation with the CLO.

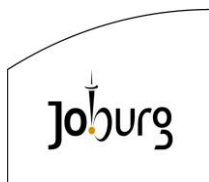
PD 2.1 APPOINTMENT, OFFICE AND REPLACEMENT OF CLO

- The CLO will be appointed for the duration of the construction phase of this Contract.
- The CLO will occupy his own office in the Contractor's camp from where he will fulfil his duties to identify, screen and nominate labour from the community in accordance with the Contractor's requirements.
- The CLO will communicate with the Contractor daily regarding labour requirements.
- Should it become apparent that the appointed CLO fails to meet his duties, he may be relieved from his duties and replaced by a new CLO in consultation and approval with the Project Steering Committee.
- One CLO will be appointed per ward from the time that work starts in that ward until all work in that ward has been completed.

PD 2.2 DUTIES OF THE CLO

- He/she will attend all meetings of the committee pertaining to this Contract.
- He/she will be available on site daily between the hours of 07:30 and 18:30, and at other times as the need arises.
- He/she will consult with the Contractor and the Engineer daily to determine the labour requirements regarding amount and skills, to identify possible labour disputes, and to inform local labourers timeously when they will be relieved.
- He/she is responsible to screen candidates, to inform them of their conditions of temporary employment and to ensure their timeously availability.
- He/she will ensure that all workers who are involved in activities where productivity rates have been agreed, are fully informed regarding the expected level of productivity for the given tasks to be assigned as part of this Contract.
- He/she will attend disciplinary proceedings to ascertain that hearings are fair and reasonable.

Employer:		Contractor	
Witness:		Witness:	



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- In consultation with the Contractor, he/she will determine the needs of the local labour for relevant technical training. Again he/she will be responsible for the identification of suitable trainees. He/she will also be required to attend some of the training sessions.
- He will keep a daily written record of his interviews and community liaison.
- He/she will attend the first part of the monthly Contractual site meetings to report about the local community labour involvement as well as any other relevant problem that needs attention.
- He/she will liaise regularly with the Project Steering Committee to ensure that their co-operation is obtained, and their decisions accommodated. He/she will thus act as a liaison officer between the Contractors on site and the local community through the project committee.
- He/she will be involved in all SMME related matters (Contracts, terminations etc)

PD 2.3 SUMS STATED PROVISIONALLY

The sum shall be guided by PSA 8.5 Sums Stated Provisionally by Employer's Agent.

PO 1 EXTRA OVER FOR OCCUPATIONAL HEALTH & SAFETY

PO 1.1 SUPPLY OF ALL ITEMS OF PERSONAL PROTECTIVE CLOTHING/EQUIPMENT & ENSURE USE THEREOF FOR FULL COMPLIANCE

This item shall cover only the items pertaining to the provision of the following items for local SMME staff only:

a) Steel toe capped safety boots.....	Unit: No
b) Appropriate protective clothing.....	Unit: No
c) Safety Gloves.....	Unit: No
d) Colour coded hardhats.....	Unit: No
e) Induction tags /cards.....	Unit: No
f) Luminous high visibility safety vests.....	Unit: No
g) Additional items: Contractor to specify.....	Unit: No

(To be approved by the Engineer)

BARRICADING

Supply & install Proper Safety Nets, including removal upon completion to ensure full compliance to legislation

Rigid type barricading

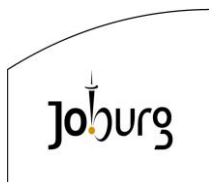
Additional items: As specified by the Engineer

The rate to include the total costs of supply, delivery and handling of the protective clothing and equipment. Compliance with the OHS Act and the JW OHS approved specification to be ensured in the procurement of the above-mentioned items.

PF: JOHANNESBURG WATER PREPAID METER SPECIFICATIONS AND TECHNICAL SUPPORT

PF 1 METROLOGY ACT

Employer:		Contractor	
Witness:		Witness:	



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All prepayment water meters manufactures/suppliers must comply with SANS 1529 (various parts) and must be approved in terms of Section 18 of the Legal Metrology Act No. 9 of 2014 and Regulation 80 of Part II of the Trade Metrology Regulations, unless exempted.

PF 2 METER SUPPLIER CERTIFICATES

The contractor to submit the following certification from their selected Meter Supplier to JW 's Employer's Agent for approval prior to supply of meters for installation:

- National Regulation for Compulsory Specifications (NCRS) Type Approval certificate
- South African National Accreditation System (SANAS) accreditation certification, schedule of accreditation with SANS 1529-9
- NRCS certificate of Designation for Manufacturers Laboratory
- NRCS certification for Laboratory Officer(s)

PF 3 Scope

This section covers specifications for the STS prepayment water meter, Meter communication, Training, meter demonstration and required meter Technical Support during project implementation.

The contractor is required to source and supply meters from an approved supplier by JW. Only one meter type (supplier) will be used for the Contract. The Supplier's meters must conform to the specifications and requirements below.

PF 4 INTERPRETATION

PF 4.1 DEFINITION AND ABBREVIATIONS

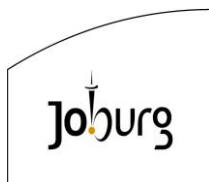
CIU	: Customer Interface Unit
IOT	: Internet of Things
FBW	: Free Basic Water
ESP	: Expanded Social Package
KPI	: Key Performance Indicators
MBU	: Meter Box Unit
AMI	: Advanced Metering Infrastructure

PF 4.2 METER SPECIFICATIONS

Water meters must comply with SANS 1529 (various parts) and must be approved in terms of Section 18 of the Legal Metrology Act No. 9 of 2014 and Regulation 80 of Part II of the Trade Metrology Regulations, unless exempted.

- a) All meters must be tested in a SANAS accredited laboratory in compliance with the SANS 10378. This test laboratory must be owned by the manufacturer and be situated within the borders of South Africa.
- b) Operate in varying modes that include prepayment, open and dispense modes
- c) The meter must be fitted with Non return valve, Shut off Valve and strainer.

Employer:		Contractor	
Witness:		Witness:	

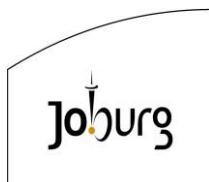


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- d) All water meters offered and accepted must be accompanied by a calibration or verification certificate as applicable when delivered. The calibrations or verification certificates must show at least the following relevant details
- Date and validity of calibration or verification
 - Test procedure number
 - Accrediting authority and accreditation number
 - Meter make & model
 - Meter number
 - Meter nominal bore and permanent flow rate
 - Pressure test
 - Test results in the case of calibrations
 - Traceability
 - Uncertainty of measurement.
- e) Each water meter shall be clearly and indelibly marked with the following information
- Manufactures name or trade name or registered trademark and model of the meter
 - Permanent flow rate, in cubic meters per hour
 - Unique serial number
 - Direction of flow, applied to the body of the meter and indicated for example by an arrow
 - An indication of the orientation of mounting (horizontal or otherwise)
 - Metrological class C
 - Nominal working pressure in kPa
 - Pressure loss (either the group, or in kilopascals)
 - Nominal bore of the meter in mm
- The hinged cover of the water meter dial shall not be used for this purpose, nor shall these markings be on any material that can degrade with time and cannot withstand harsh environmental conditions.
- The meter serial number should be readable from the same position as the dial.
- Additionally, all meters that shall become part of the JW meter stock must have a “JW” mark on the meter which shall be clear and indelible.
- f) the meter can either be of a volumetric type or ultrasonic type in nature fitted with non-return valve a, shut off valve and strainer.
- g) SANS standards SANS1529-9:2008 tested and approved
- h) Automatic disconnection of flow when a temper event is recorded
- i) The meter must be STS approved and certified
- j) Meter minimum battery life span of 5 years life expectancy and minimum of 2 years warranty by the Supplier.

Employer:		Contractor	
Witness:		Witness:	



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- k) CIUs and/or the STS meter that communicates through the internet of things (IOT) network
- l) Meter to have a remote communication functionality through AMI system, please see PF24 below.
- m) Housing options: Pillar box, above ground unit as well as a wall mount box all with the necessary plumbing for easy replacement of existing meters.
- n) Prepayment tokens to use numeric tokens compatible to IEC 62055-41, IEC 62055-51
- o) Meters must be STS edition 2 ready as per STS Association TID roll over.
- p) The meter must have the ability to switch remotely by JW from conventional mode to prepayment mode.
- q) Meter must have a Bar Code that can be scanned to read the meter serial number, and the Contractor will be required to supply the Scanners.
- r) The meter must have Internet of Things (IOT) Capability
- s) The meters should be programmed to KRN2.

PF4.2.1

FUNCTIONALITY

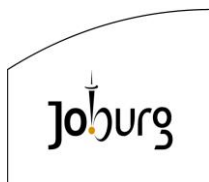
- Operate in prepayment, open and dispense modes
- Capability to switch to prepayment mode remotely
- Two –way communication between the meter and vending platform
- Full calendar clock
- Remote reading of all meter alarms including battery and tamper alarm
- It must be able to alert if there is a possible by-pass
- Tamper alarm shall be time stamped
- Consumption and available credit readings
- CIU control and keyboard input

PF4.2.2

CONSTRUCTION

- Robust construction
- Preferably no brass should be used
- Physical tamper protection
- Magnetic tamper proof
- Entry pipe 15-25mm
- Environmentally sealed
- Field replaceable battery with at 5 years lifespan

Employer:		Contractor	
Witness:		Witness:	



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PF4.2.3

DATA STORAGE/COLLECTION

- Consumption registers
- Hourly consumption profile
- Tamper log (time tagged)
- Prepayment token log
- Alarms e.g. battery, leaks detected
- Used water dispensed
- Remaining water

PF 4.3

CIU (CUSTOMER / USER INTERFACE UNIT)

Every supply point shall be equipped with a customer interface unit as a communication device. This unit shall be mounted in the customer residence and shall have the following capabilities:

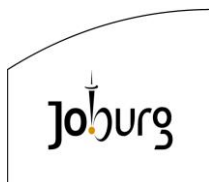
- Display consumption volumes in KL for the relevant customer's meter
- Display remaining water credit
- Keypad to enter numeric credit token
- have a waterproof and dustproof keypad.
- be user friendly with simple uncomplicated start up and shut down procedures
- have a built in battery with charge level indicators
- be rechargeable not less than 3.0V, using the supplied adapter
- once fully charged, have a battery life of minimum 24 hours on continuous operation
- Tamper Icon
- Meter Totalizer
- Battery low icon
- Valve open or closed icon
- Free Water available in KL
- Free Water Used in KL
- Meter Lock (close valve)
- Messages from the utility
- Water leak indicator

PF 4.4

SHUT OFF VALVE

- A shut off valve will be fitted on every meter.
- Remote control from meter or concentrator

Employer:		Contractor	
Witness:		Witness:	



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- Cleanable filter element
- Valve should be protected against tampering.
- Valve should shut off in tampering, remote shutoff, as well as prepayment credit depleted cases.

PF 5 GENERAL CONDITIONS AND APPLICABLE STANDARDS
PF 5.1 GENERAL CONDITIONS

The “Special Condition of Contract” to be read in conjunction with the “General Conditions for Construction Works 2015 Third Edition (GCC 2015).

PF 5.1.1 Applicable National and International Standards

- a) SANS 1529-1: Water meters for cold potable water Part 1: Metrological characteristics of mechanical water meters of nominal bore not exceeding 100mm. Of particular importance to note:
 - 1) The meters and associated equipment shall be manufactured in accordance with such requirements.
 - 2) Meter accuracy shall be preferred to be in compliance with a Class C meter, but approved (in accordance with SANS approvals) Class B meters shall not be accepted.
- b) SANS 1529-9: Water meters for cold potable water Part 9: Requirements for electronic indicators used with mechanical water meters, electronic water meters and electronic prepayment water measuring systems.
- c) IEC 62055-41 and IEC 62055-51 in terms of prepayment tokens

PF 6 SPECIFIC REQUIREMENTS
PF 6.1 FREE BASIC WATER

The meter shall accommodate a daily (example: 200 litres/day) and a monthly (example: 6,000 litres/month) free basic water dispensing option. National Legislation governs this free basic water, and the meter shall accommodate the likely event of changes to the amount of free basic daily or monthly.

PF 6.2 INDIGENT WATER/EXPANDED SOCIAL PACKAGE (ESP)

The STS meter shall accommodate the:

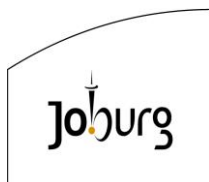
- a) dispensement of a variable Indigent Water (example: 1,000 litres), in terms of the CoJ By-laws.
- b) allocation of a specific expiry date; and
- c) likely event of changes to the amount or volume allocated.

PF 6.3 METER KPI

The Meter shall have a KPI monitoring capability that allows for tracking of:

- a) software issues (tampering, information transfer time);
- b) operational issues (including wrong CIU, inlet blocked, no credit, retrofitting problem, did not roll-over and type error);
- c) pipe work issues (isolation valve leaks, possible user plumbing leaks, and compression fittings); and

Employer:		Contractor	
Witness:		Witness:	



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- d) meter issues (not opening, not closing, flat battery, choking, not displaying, liquid crystal display defect, chattering, pick-up, CIU contact, and leak).

KPI tracking and reporting shall commence within 1 month from date of installation of first Contract supplied meter and shall be updated on a monthly basis until the end of the Contract Period of Performance.

PF 6.4 TRANSGRESSOR IDENTIFICATION

The meter shall have the intrinsic ability to indicate a potential transgressor, based on a percentage deviation from previous record data, such as consumption and purchase profile. The administrator shall be able to adjust such percentage (degree of deviation) as-and-when required.

PF 6.5 ENVIRONMENTAL SPECIFICATIONS

- Operating temperature range: minus 20 and plus 55°C.
- IP 67 compliant

PF 7 METER AND METER BOX UNIT (MBU)

PF 7.1 METER BOX UNIT

The MBU shall include plumbing fittings (including all pipe sections and an isolation valve, etc), connectors, the meter and the meter box.

NB: THIS MUST INCLUDE ALL PIPING AND BRACING REQUIRED FOR WALL MOUNTED INSTALLATIONS.

PF 7.1.1 Meter drawings

The Contractor's Supplier shall provide detailed drawing(s) of the MBU inclusive of any special drainage requirement. The designed and approved meter installation position shall be clearly indicated on such drawing. Drawing(s) shall:

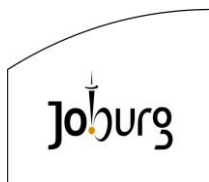
- a) have a scale and be drawn to such scale.
- b) clearly indicate all the components of the MBU supplied by the Supplier.
- c) be provided for above ground installation. The Supplier shall specify the minimum or maximum height above ground, if critical.
- d) be provided for a wall mounted installation, combined MBU and display or separate display and MBU. The Supplier shall specify the minimum and maximum:
 - 1) mounting height above ground, in addition to the fixing or securing detail, if critical.
 - 2) distance that the display unit and the MBU can be apart where such is separate, if critical.

PF 7.1.2 Fittings and Connections

The Contractor's Supplier shall ensure that:

- a) the meter shall be complete with push-fit type inlet and outlet fittings for 15-25mm HDPE pipes for domestic connections.
- b) all fittings and connections inside and outside the MBU are free from leaks, pressure tested and passed to a minimum of 20Bar.
- c) a SABS approved strainer, and a ball type isolation valve are included in the fittings. The valve shall be:
 - 1) ergonomically and accessible; and
 - 2) robust yet easy to open or close.

Employer:		Contractor	
Witness:		Witness:	



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Should the valve be found not to comply with these requirements the Employer shall have the right to request the immediate replacement of the valve at the complete cost (labour, transport and material) of the Supplier. The replacement process shall not inconvenience the Employer's customers, and the Supplier shall reimburse any income lost as a result of the non-complying valve, including the replacement process.

- d) all push-fit connectors, valve and strainer shall be supplied preassembled with the meter in the MBU.

PF 7.1.3

Meter Unit Encasing

The Contractor's Supplier shall ensure that:

- a) the meter box design, fittings and connections are suitable to accommodate the meter design. There shall be no movement of meter on the horizontal and vertical planes outside a tolerance 1.5mm. Where movement in excess of the maximum is found the Employer shall require the immediate replacement of such MBUs at the expense of the Supplier. The replacement process shall not inconvenience the Employer's customers, and the Supplier shall reimburse any income lost as a result of the non-compliance, including the replacement process.
- b) the meter box lid shall:
- . be lockable by means of customer individual lock.
 - . be securely attached to the rest of the meter box at the hinges. Meter box lids shall be deemed defective where the lid is easily separated from the rest of the meter box, in the opinion of the Employer, and the complete unit shall be returned to the Supplier for rectification at his cost.
 - . allow for easy removal of the meter by the operational and maintenance staff of the Employer.
 - . be either completely constructed of a reflective material or have a reflective feature which will facilitate locating the meter in the dark and poor lighting conditions.
- c) the meter box material is robust when considering strength requirements, in light of the potential of vandalism.
- d) drainage of meter box is appropriately accommodated in accordance with the IP rating of the associated meter
- e) he shall fully disclose where the design, manufacturer and assembly of the meter box, fittings and connectors be sub-contracted by the Supplier. The Employer reserves the right to inspect such sub-Suppliers/'s facilities. The Supplier shall remain fully responsible for any quality assurance issues or delays that may arise from such sub-supplier/s.

PF 7.2

METER

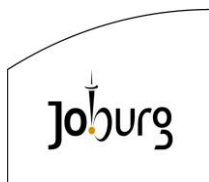
PF 7.2.1

General

The Employer requires a meter:

- 1) of a non-keypad-operated type, to ensure automatic two-way transfer of data.
- 2) housing designed and constructed to effectively and efficiently house and protect all electronic components.
- 3) electronic components shall be water resistant to minimum an IP67 rating.

Employer:		Contractor	
Witness:		Witness:	



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PF 7.2.2

Branding and Labelling

The Employer requires a meter labelling that is:

- 1) durable, for example by means of a meter serial number engraved onto an aluminium plate securely fixed onto the meter body. The Supplier shall further provide other important information as required by SANS 1529-9 to be provided on the label.
- 2) contains the Employer's logo. A sample must be submitted to the Employer for approval within 10 days after Contract commencement.

PF 7.2.3

Meter Battery

The Employer requires a meter:

- 1) with have a battery with a warranted life of **no less than 5 years** powering the meter.
- 2) that can incorporate alternative power sources, which are more environmentally friendly, as additional power supply.
- 3) that can actively monitor the battery voltage level.
- 4) with easy battery replacement, in particular without the need to break the verification seal.

PF 7.2.4

Meter Error Messages Display

The Employer requires meters that incorporate features that shall display signals through operational layout.

PF 7.2.4.1

Meter display (Liquid Crystal Display (LCD))

The Employer requires a meter with a LCD:

- 1) General:
 - i) The correct sequence of displayed information shall be decided in conjunction with the Employer.
 - ii) The information shall preferably be preceded by a short description.
- iii) A scroll-down cycle time of 70 seconds shall be provided, however, if this cannot be complied with then an incremental time of minimum 10 seconds shall be accepted. The final scroll-down cycle time shall be agreed with the Employer before the first batch of meters is delivered to the Employer.
- iv) ICONS are preferred instead of lengthy description.

PF 7.2.4.2

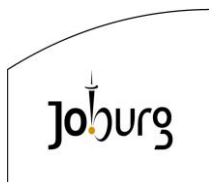
capable of presenting important values or text on the LCD that change in relation to consumption in flickering/flashing style.

PF 7.2.4.3

capable of displaying the following information, but not limited to and not necessarily in the same sequence, when the meter is activated:

- i). Poor CIU contact error messages, wrong CIU error message, and wrong operational area error message.
- ii). Low battery or flat battery error message.
- iii). The current and previous month-end meter reading.
- iv). Meter's locking status shall be displayed when the CIU is introduced to the meter.
- v). Total credit currently on meter in Rand and cents value.

Employer:		Contractor	
Witness:		Witness:	



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- vi). Rand and cent value of new (or fresh) credit transferred to the meter by the CIU.
- vii). Total Volume of purchased water available in litres for the equivalent Total Credit on the meter in Rand value relative to the applicable tariff level that the customer is on at a particular time of the month. This value shall change in relation to the transgression of consumption and progression on the tariff table.
- viii). The cost in Rand value per 1,000litre (or 1 Kilolitre) of water for a particular tariff step the customer may be at. (R/Kilolitre).
- ix). A possible or probable leak message displayed to the customer for minimum the last 6 months
- x). All meter errors or faults shall be displayed as descriptive messages and not error codes. The errors messages proposed by the Employer are included in the table below.

Table 1: Error Messages and ICONS

NO.	ERROR MESSAGE/WARNINGS ON DISPLAY	Description/Action/ICON
1	MEASURING TRANSDUCER	Transducer problem
2	LOW BATTERY	Low power battery warning
3	FLAT BATTERY	Flat battery warning
4	MAGNETIC TAMPER	Magnetic interference
5	PHYSICAL TAMPER	Meter penetrated
6	BAD CIU	Corrupt CIU
7	INCORRECT METER	Wrong CIU to meter
8	INCORRECT AREA	Wrong area CIU
11	POSSIBLE INTERNAL PROPERTY LEAK	Property Leak
12	PURCHASED CREDIT UTILISED	Credit Already Allocated
13	VALVE CLOSED	
14	SPECIAL CASE CUSTOMER IDENTIFIER	Indigent customer to be identified by the meter and at Point of Sale
15	MISTRANSACTION CODE	Any transactions not transferred to the meter
16	DEACTIVATED CIU	This is for a blacklisted CIU

PF 7.2.5

Defective Meter

If a defective meter is replaced for whatever reasons, the Employer shall require the following:

- a) The new meter be paired with the CIU
- b) The customer information be collected for uploading onto the vending platform

PF 7.2.6

Tampering

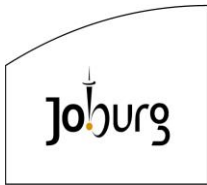
PF 7.2.6.1

Meter tampering

The Employer requires a meter unit with:

- a) hardware and software components that are completely protected or sealed to prevent any access or tampering to the meter.

Employer:		Contractor	
Witness:		Witness:	



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- b) anti-tamper features, which shall prevent the illegal removal of the meter cover (or housing) or meter unit, illegal bypassing or vandalism of the meter. Where screws or bolts are used, these shall not be able to be extracted using standard commonly available screwdrivers, allen-keys and spanners.
- c) software capable of indicating, whether such meter has been tampered.

PF 7.2.7

Special Anti-Tampering Features

have a bar coded The Employer further requires that the Supplier provides additional visual tampering features that will allow the Employer's staff to immediately determine whether the meter or MBU had been tampered. Such features shall:

- a) serial number.
- b) not be easily removed; and
- c) when removed not be able to be reinstated to its original and proper installation state.

PF 7.2.8

Meter Tampering Recording and Reporting

The Employer requires that tampering be recorded and reported in the following sequence:

- a) Meter:
 - 1) software and hardware shall be capable of sensing and recording (including the date, time, and the type of tampering) all tampering activities; and
 - 2) software and hardware shall be capable of transferring tampering recordings to the customer CIU/UIU each time such is introduced to the meter.
- b) customer CIU/UIU:
 - 1) software and hardware shall be capable of downloading and storing all tampering activities from the meter; and
 - 2) software and hardware shall be capable of transferring tampering recordings to the vending platform each time the customer CIU is use.

PF 7.3

WATER DISPENSING SEQUENCE

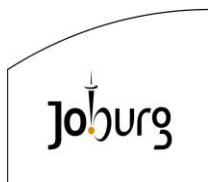
The Employer requires that water be dispensed to the customer as follows on a monthly basis:

PF 7.3.1

Indigent Water

- a) The amended CoJ by-laws require that certain customers with prepayment water meters be provided with an indigent status water allowance – that shall **ONLY** be pre-authorisable by the Employer, be a QTY that can be varied from time-to-time by the Employer and have an expiry date. Regarding the latter:
 - . If no expiry date is stated, such indigent status mode shall not be able to be transferred or activated on any meter.
 - . Immediately upon reaching the said expiry date the meter should revert to normal customer status, i.e. have all authorized water allowance with the exception of Indigent Water.
- b) Indigent Water shall not be automatically available, but only be dispensed once the customer has:
 - . applied for Indigent Water and his application therefore has been approved.
 - . been issued with an Indigent Water credit voucher or similar.
 - . obtained the special credits from **ONLY** CoJ or JW vendors; and
 - . downloaded the special credits onto his meter.
- c) Indigent Water shall be issued on the principal as purchased free basic water, and thus not be related to any monetary-allocated tariff step.
- d) The dispensing of the total allocated 'Indigent Water' per customer shall not be compromised in any way, by the:
 - . 'roll-over', re-initialisation of the monthly free-basic.

Employer:		Contractor	
Witness:		Witness:	



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.any inherent limitation of any component of the meter, e.g. Negative Credit shall not hinder access to Indigent Water.

All the meter component software shall accommodate the likely event of changes to the QTY value of Indigent Water.

PF 7.4 METER COMPATIBILITY

Meters shall be compatible to JW STS vending platform and the Supplier shall make available their unique encryption code (SGC) available to the vending platform developer to enable a two-way communication between the Supplier's device and the platform.

PF 8 STS METER USER GUIDE

The Contractor's Supplier shall provide a comprehensive meter user guide per component (limited to the vending platform, CIU and MBU) in the following three official languages: English, and two local languages (e.g. Zulu, Sesotho, Xhosa, Afrikaans, etc). Such guide shall be updated during the Contract Period of Performance, as the meter is changed, and a final version copy (in hard and soft (PDF) format) shall be made available to the Employer on issue of the Contract Completion Certificate.

The Contractor's Supplier, in consultation with the Employer, shall develop and present guides to the Employer for final acceptance within **20 days** from the Contract Commencement Date. The guides shall explain the installation, operating and maintenance requirement for each meter components in addition to any error messages and any associated customer action required.

PF 8.1 Information holders

The Contractor's Supplier shall provide professionally printed information holders to hold all manuals, guides and leaflets to be handed to customers, trainees and others. Such holder shall:

- a) be of a A4 plastic pocket type.
- b) be capable of holding at least 20 A4 pages, be of high quality and durable material.
- c) be transparent.
- d) contain on the:
 - 1) front the Employer's name and logo, JW & CoJ name and logo; and
 - 2) back Employer's customer centre contact details.

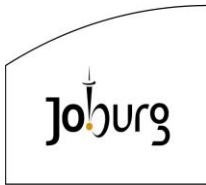
No details of the Supplier shall be provided on the holder, and the Employer shall approve the final layout of the holder.

PF 9 DELIVERY

The Contractor's Supplier must ensure that a minimum stock of 1,000 meters per day is kept. Thus, the Supplier shall be expected to adjust his resources accordingly and note that:

- a) Delivery of all goods shall be within the boundaries of the Employer's area of jurisdiction and in accordance with a phased schedule that shall be agreed between the Employer and the Supplier.
- b) No meters or MBUs that do not meet the National standards or the Employer's requirements shall be delivered to the Employer's designated Depot stores.
- c) Approved illustrative 'user manuals' shall be included in the packaging with each MBU or meter. The operating instructions are to be in English, and two local Contract Area languages (e.g. Zulu and Sesotho). Details and finalisation of such manuals shall be agreed with the Supplier; however, such finalisation of the content and layout shall be concluded, with the Employer, at least one week before the first meter is replaced under this Contract.

Employer:		Contractor	
Witness:		Witness:	



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- d) During deliveries, concise delivery records and/or notes shall be required so that batch differentiation is possible to assist in the location of all such components in case of faults/problems and the correct determination of penalty amounts. The delivery note from the Supplier shall include an electronic inventory list of all accompanying meters. This electronic file shall be:
- . compliant to a common standard prescribed by the Employer; and
 - . able to be imported into the vending platform and/or any software program used by the Employer to record his assets.
- e) He shall provide all labour and equipment for the off-loading of goods, as the Employer's staff shall not be responsible to assist the Supplier with this activity.
- f) Prior to the delivery of the goods, arrangements shall be made by the Supplier for Employer representative to be present to receive the relevant documentation that is necessary for invoicing purposes.
- g) Deliveries of goods shall be made by road transport to the relevant sites. It shall be the Supplier's responsibility to familiarize him with the Contract area to establish the suitability of his vehicles and travel routes.
- h) He shall be held responsible for any damage caused to the Employer's property i.e. roads, kerbs, gates, etc. during delivery goods. Any repairs to damaged property shall be carried out within seven days after notification by telephone or facsimile by the Employer.

PF 10
PF 10.1

METER REPAIRS

Locality of Meter Repairs

It is noted that for reasons of security, concealment and quality control **NO PHYSICAL REPAIRS ON THE METERS AND/OR MBUs SHALL BE EXECUTED AT THE EMPLOYER'S DESIGNATED STORES OR ON A CUSTOMER'S PREMISES WHERE MBUs ARE CURRENTLY ALREADY INSTALLED AND OPERATIONAL**, specifically where such IS deemed defective after installation/use, such a meter shall be returned to the Supplier warehouse and a defective meter replaced with an approved meter.

PF 11

METER QUALITY REPORT

The Contractor's Supplier shall provide a quality report for each meter with the deliver note provided in respect to this Contract. Should such report be omitted for any component, the Employer shall return such component at the expense of the Supplier.

The report shall contain 100% of meter delivered verification certificate upon delivery of every order placed, soft copies of the certificates shall be made available upon delivery to the Employer.

PF 12

FORMAT OF COMMUNICATIONS

All Contract communication shall be in English and in writing.

PF 12.1
PF 12.1.1

FORMS FOR CONTRACT ADMINISTRATION

Use of Reasonable Skill and Care

The Contractor's Supplier shall exercise reasonable skill and care in respect of the services required as per the Extent of Supplies section.

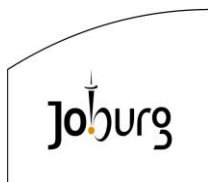
PF 10.1.1.1

Key Personnel

The Contractor's Supplier shall be required to allocate sufficiently experienced and dedicated personnel, including:

- f) Supervisor.
- g) Team leaders for management and coordination for meter or MBU supply, delivery and technical support.
- h) Meter support Technicians.

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Witness:		Witness:	



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- i) Training of designated JW project stake holders
- j) Meter demonstrations to customers

PF 13
PF 13.1

PLANNING AND PROGRAMMING

Planning

The Contractor's Supplier shall ensure that he:

- a) is well informed with regard to the Employer's overall implementation programme for the implementation of its prepayment programme and avail resources as required to efficiently complete this Contract; and
- b) delivers good and services timeously as not to unnecessarily delay the other Supplier, service providers and Implementation Agents.

PF 13.1.1

Programming

The Contractor's Supplier shall for the Contract Period of Performance provide and regularly (maximum monthly) update a Contract Programme per area of supply of goods and services. The programme shall at minimum contain:

- a) **Time Scale (minimum):**
 - 1) *Days*, where the period does not exceed three months. Weeks, where the project period exceeds three months.
 - 2) *Months*, where the period does not exceed one year.
 - 3) *Years*, where the project period exceeds one year.
- b) **Tasks:** Delivery of goods, presentations and demonstrations, training and support shall be presented per active area. 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.
- c) **Multiple Area Programming:** For multiple areas of supply of goods and service the Supplier shall provide a programme per area. However, where interdependency exists the programmes shall be integrated, but divided on the highest level per area followed subsequently by further divisions per phase or stage.
- d) **Start and Finish Dates:** All tasks shall have specific start and finish dates.
- e) **Critical Path:** All tasks forming the programme line that will establish any delays in the overall Contract Period of Performance shall be clearly indicated and an indication of their sensitivity characteristics shall be provided.
- f) **Progress Tracking:** The Supplier shall be required to periodically indicate progress per task graphically and on a percentage basis.
- g) **Non-working Time:** All South African public holidays, weekends and the local traditional annual builder's break shall be incorporated in the programme.

PF 13.1.2

Resource Management

The Contractor shall.

- a) ensure proper effective and efficient management and co-ordination of support, training, demonstrations and presentations; and
- b) provide a duty roster as an indication of co-coordinated meter on-site and off-site support, which shall be accompanied by the monthly meter intervention report in this regard as item below.

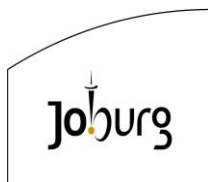
PF 14

REPORTING

The Contractor shall provide a meter installation report on a monthly basis including but not limited to the following listed below:

The report shall cover the following but is not limited:

Employer:		Contractor	
Witness:		Witness:	



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- The date and number of meters approved or rejected meters by JW Flow Lab
- Meter & CIU serial numbers per stand of meters installed per JW template
- List of stands where meter demonstration was conducted with the customer's signature
- Complaints handled for the month, template to be provided
- Attendance register of personnel trained

Failure to submit such report shall result in Employer's non-payment of the monthly invoice until all documentation has been provided.

PF 15

CONTINGENCY PLANNING

The Contractor's Supplier shall:

- a) within **14 days** after Contract commencement provide a detailed contingency plan to demonstrate contingency resources and procedures to troubleshoot during installations.
- b) be able to attend to all problems that may arise, but not limited to:
 - 1) no free basic and purchased water.
 - 2) measuring transducer failure.
 - 3) depleted power sources, i.e. depleted batteries or other.
 - 4) leaking meters or meter box fittings.
 - 5) non-recording of negative credit.
 - 6) solenoid valve malfunctioning; and
 - 7) Meter and CIU failures or non-recognition of meter installation capabilities.
- c) ensure that resources in terms of people, material and testing equipment are available on-site or at the Employer's Designated store in Orange Farm.

PF 16

CONTRACT RECORD

The Contractor shall maintain a file per area of meters supplied, which shall contain:

- a) a comprehensive list detailing all the problems and corrective actions per TPS component.
- b) training and demonstration executed.
- c) penalties imposed.
- d) claims lodged and outcome.
- e) disputes and resolutions.
- f) payments and variations.

At the end of the Contract Period of Performance the Supplier shall hand-over such file(s) in hard and electronic copy format to the Employer.

PF 17

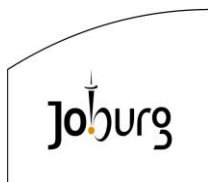
MEETINGS

The Contractor's Supplier shall.

- a) attend a once-off Contract orientation meeting with the Employer in order for introductions to other role players and reiteration of communication channels, deliverables, and the Contract environment.
- b) during the meter installation period attend progress and quality meetings, normally held fortnightly.
- c) compile the minutes of the meeting with the Employer and present such minutes to the Employer within maximum 2 days from date of meeting for review, comment and acceptance.

NOTA BENE: Senior management's non-attendance of such meetings, and substitution by junior management or representation, shall not be accepted as reasons for non-performance. The Employer shall assume that senior management is well versed on the Contract activities and apply penalties with such understanding.

Employer:		Contractor	
Witness:		Witness:	



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PF 18
PF 18.1

QUALITY PLANS AND CONTROL

Quality control

The Contractor shall ensure proper quality control of components of the meter in respect to this Contract, in the case of malfunctioning/returned meters.

PF 18.2

Record of Meter Replacements

As all repairs of meters shall only be executed at the Supplier's factory premises, this shall necessitate that the Contractor's Supplier keep an accurate and auditable record of meters and/or MBU collected from the Employer's stores and retrieved from the various customer installation sites, including:

- a) the date.
- b) the area and street name.
- c) customer stand number.
- d) whether only the meter or the complete MBU was collected or retrieved, and in instances where the complete MBU is retrieved from a customer installation the reason for such retrieval.
- e) details of technician that collected and/or retrieved the meter and/or MBU.
- f) the meter serial number; and
- g) the generation of meter, based on electronic hardware and software features, BUT approach must be consistently applied for the entire Contract.
- h) details of replacement meter and/or MBU, generation and serial number.
- i) confirmation that all customer data was successfully transferred from the current to the replacement meter, and where such was unsuccessful the reason for this, and the corrective actions taken.
- j) confirmation that the customer's CIU/UIUs operated with the replacement meter and where such was unsuccessful the reason for this, and the corrective actions taken; and
- k) confirmation that the replacement meter was demonstrated to the customer and a new information pack issued.

PF 18.3

Meter Quality Report

The Contractor's Supplier shall provide meter test report approval letter from JW Flow Lab from each order of meters provided (batch of meters tested) in respect to this Contract. Should such report be omitted, the Employer shall return such meters at the expense of the Supplier.

The report shall indicate all checks and tests performed on the component and the results of such tests.

PF 19
PF 19.1

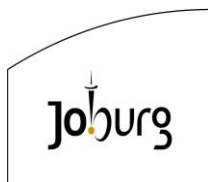
METER INSTALLATION TECHNICAL SUPPORT

On-site support

The Contractor's shall provide through their Supplier a minimum of 5-meter Technicians and one Supervisor to provide on-site support services to the Contractor and SMMEs installing STS meters and attend to all meter related queries during and after implementation of the project. Support to the construction team shall include the following but not limited:

- Managing meter errors
- Ensure that installed meters dispense water prior to hand over to the customer
- Pairing of meters to the CIU
- Support the Contractor to compile a report of all meters installed for submission to JW's Employer's Representative for uploading on the vending platform
- Link the meter to the stand number
- Conduct Advanced Meter Infrastructure (AMI) for meters installed
- Meter demonstration to the customer

Employer:		Contractor	
Witness:		Witness:	



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The support team must be empowered with transport, equipment, communication tools to attend to queries should be included on the rate.

This section of the specifications is to be read in conjunction with the Contract Health and Safety specifications, included as Volume 2. The following requirements shall be deemed minimum compliance requirements to ensure the health and safety of the public and workers during the execution of the Contract:

PF 19.2

After hours Support/Stand-by Support

The Contractor's Supplier shall allocate 2 technicians for stand-by to attend to meter related queries reported by customers after hours, weekends and public holidays for the duration of the Contract.

Support to the construction team shall include the following but not limited:

- Credit loading challenges
- Unlocking the meters LCD etc

PF 20

STAFF IDENTIFICATION

The Employer requires that all support staff, when on duty, at all times wear identification badges clearly identifying such staff members or as an employee of the Supplier and a contractor to the Employer.

PF 21

TRAINING

The Contractor's Supplier shall provide a well detailed and documented training course to JW project site team, the contractor, JW s Revenue and Operations departments. The training will cover the following listed below:

The course must cover the Supplier's STS meter functionality but not limited to the topics listed below:

- o Meter/ valve and CIU installation/ testing
- o Fault location and repair
- o Meter errors and rectification
- o Credit loading & checking and leakages

PF 22

MEASUREMENT AND PAYMENT

PF 22.1

Scheduled items

PF 22.1.1

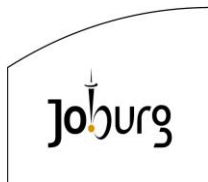
Technical Support by the Contractor's Supplier

PF 22.2

TRAINING

The rate shall include the complete cost for provision of training per session, including other requirements as per the Scope of Works section: preparation work, communications, travelling, training equipment, presentation documentation and record keeping and presentation of certificates of competence to the trainees. A single session shall allow for minimum 20 trainees. Should the trainees be less than 20, the rate will be prorated. The unit shall be number of sessions.

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Witness:		Witness:	



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PF 22.2.1 Training for Employer's staff (Site project Team, Facilitators, QCOs, QCF, CLOs)
.....**Unit No.**

PF 22.2.2 Training for Prepayment and Revenue Departments Employees.....**Unit No.**

PF 22.2.3 Meter demonstration per stand by the Supplier's technicians).....**Unit No.**

PF 22.3 TECHNICAL SUPPORT

PF 22.3.1 On- Site Support during construction

The rate shall include the complete cost for provision of Technicians and Supervisor to ensure meter functionality during installations of meters by SMMEs. The Supplier to provide a minimum of five (5) Technicians and one Supervisor for the Meter Supply Contract. Please refer to Clause PS 1.3 C for Technical persons qualifications.

The rate shall cover the cost of all technical persons provided Month

PF 22.3.2 After hours On- Site Support

PF 22.3.2.1 The rate shall include the complete cost for provision of two Technicians to attend to meter queries from customers after hours, weekends and public holidays. Please refer to Clause PS 1.3 C for Technical persons qualifications.

The rate shall be per meter attended to during this period.....No

PF 22.3.3 Switching of meters from Conventional to Prepaid Mode

PF 22.3.3.1 The rate shall include the complete cost for switching all installed meters from conventional mode to prepayment mode remotely or individual conversion..... Rate Only

PF 22.3.4 On- Site Support after Project Completion

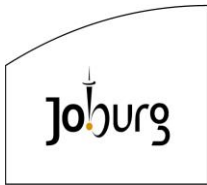
The rate shall include the complete cost for provision of Technicians and Supervisor to ensure meter functionality after project completion. The Supplier to provide a minimum of two (2) Technicians and one Supervisor for the Meter Supply Contract. Please refer to Clause P5.1.3 C for Technical persons qualifications.

Rate shall be per meter attended to during this period.....Unit: No

PF 22.4 Removal of existing meters

The rate shall include the complete cost for the removal of the existing water meters, handling and delivery to the respective JW Depot.

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Witness:		Witness:	



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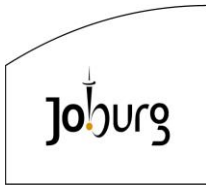
Removal of existing meters..... Unit: No

PF 22.5 Installation of bulk water meters

The rate shall cover the provision and installation of bulk Meinecke WPD meters complete with logging facilities, specials and fittings including the construction of chamber.

Rate shall cover the supply, installation and testing of the bulk water meter..... Unit: Prov Sum

Employer:		Contractor	
Witness:		Witness:	



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PF 22.6 Notice and warning to consumers Unit: No

The sum shall cover the full compensation and cost of supply and delivery of the notices to customers prior to meter installations.

PF 22.7 “Supply of Meter **complete with couplings supplied by Contractor (Meter-IOT) Unit: No**

The rate shall include the cost for the supply, transportation, handling of the 15mm diameter STS Pre-payment water meter as per JW Metering Guidelines complete inclusive of couplings and Meter Box Unit (MBU).

PF 22.8 “Installation of meter per stand **complete with couplings supplied by Contractor (Meter-IOT) Unit: No**

The rate shall include the cost for installation complete including minor excavations in all materials (no extra over item shall be allowed for intermediate, hard or rock materials), backfilling, compaction (minimum 90% Mod AASHTO density), cutting of existing pipe in two places, disposal of cut-off pipe, installation of water meter boxes, commissioning, listing and submitting a co-ordinated location and meter detail record to the Engineer.

The meter shall include the complete meter box unit (MBU), couplings: meter hardware, compression and/or plumbing fittings and meter box. The rate shall also include the complete cost for maintenance and operation of the meter and the CIU for the duration of not less than 2 years from date of installation.

PF 22.9 STS Customer Interface Unit (CIU)
STS Customer Interface Unit (CIU-IOT) (Supply and pairing of STS meter & Switching of meters from Conventional to Prepaid Mode).....Unit: No\

PF 22.10 ANNUAL DATA MANAGEMENT
Annual Data Management Fee IOT Network Hosting for 3 years after completion of the contract. (To cover cost for meter reading, meter performance audit and reporting) Please refer to Schedule A and B in the specifications.....Unit: No\

REPLACE SUB CLAUSES 8.2.6 WITH THE FOLLOWING:

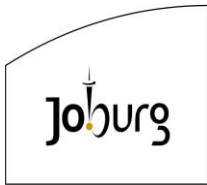
PF 22.11 “Supply and install Upstream Stop Tap complete with fittings on new or existing erf connection Unit: No

The rate shall include the cost for the provision, installation of stop tap type, surface removals, excavation in all materials, cutting into pipes of all material and sizes (up to 25 mm diameter), installation of the valve, backfilling, compaction and surface reinstatements.

The Contractor shall provide and install consumer valve boxes, complete with valves and couplings. At most properties the existing house connections are located close to the surface, therefore the ball valve shall be provided in a box to be installed at a depth less than 400 mm into the ground and no more than 500 mm on the outside next to the property boundary, unless otherwise instructed by the Engineer.

REPLACE SUB CLAUSES 8.2.7 WITH THE FOLLOWING

Employer:		Contractor	
Witness:		Witness:	



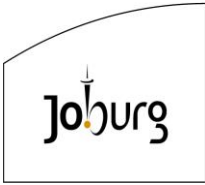
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PF 22.12 **“Supply and install Surface Boxes complete. Unit: No**

The rate shall include the cost for the provision and installation of surface box, complete as per the applicable detail drawing.

Employer:		Contractor	
Witness:		Witness:	

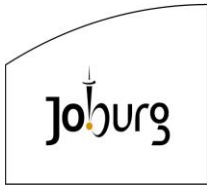


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PF 23: METERING DEVICE SOFTWARE

Employer:		Contractor	
Witness:		Witness:	



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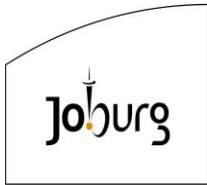


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ACRONYMS AND ABBREVIATIONS

3G	Third Generation
4G	Fourth Generation
5G	Fifth Generation
AMI	Advanced Metering Infrastructure
CSV	Comma Separated Values
FTP	File Transfer Protocol
GSM	Global System for Mobile Communications
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communications Technology
ILAC	International Laboratory Accreditation Cooperation
ISO	International Organisation for Standardisation
IT	Information Technology
JW	Johannesburg Water
LDAP	Lightweight Directory Access Protocol
MDMS	Meter Device Management System
NRCS	The National Regulator for Compulsory Specifications
ODBC	Open Database Connectivity
OEM	Original Equipment Manufacturer
PC	Personal Computer
SABS	The South African Bureau of Standards
SANAS	The South African National Accreditation System
SIM	Subscriber Identity Module
SQL	Structured Query Language
UV	Ultraviolet
XLS	Microsoft Excel file extension
XML	eXtensible Markup Language
PQT	Procedural Qualification Trial
QCP	Quality Control Plan
QAQC	Quality Assurance and Quality Control
VRE	Vandal Resistant Enclosure
FBE	Fusion Bonded Epoxy
DFT	Dry Film Thickne



Employer:		Contractor	
Witness:		Witness:	



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1. PROJECT SPECIFICATION - SOFTWARE

DESCRIPTION OF THE WORKS

1.1 Employer's Objectives

The Employer's objective, as the water and sanitation service provider for the CoJ, is to ensure the effective and efficient metering of water being supplied to customers within his area of jurisdiction.

In accordance with the Employer's metering policy, all water consumers non-domestic or domestic on a LOS 3 must be metered. Further, all consumer meters within the jurisdiction of the Employer must at all times be in operational condition to allow for accurate consumer consumption monitoring and billing. In conjunction, meter installation and maintenance allow the Employer to record water flow data and improve the quality of his water demand and conservation strategy.

1.2 Overview of the Works

To provide an Advanced Metering Infrastructure (AMI) Solution, which uses accurate battery powered electromagnetic flow (EMF) meters with built-in data logging and transmission functionality that seamlessly interfaces with a Metering Device Management System (MDMS) that transmits meter data at predefined transmission intervals and or when pre-set events occur in the field that require timeous reporting.

The AMI solution must also provide an option to use remote battery-operated data GSM loggers that can connect to Ultrasonic flow meter for size 40mm and smaller or Electromagnetic flow meters (EMF) for size 50mm and bigger using the same MDMS by way of the original equipment manufacturer (OEM) reed switch or flow optic sensor or converter pulse output.

1.3 Document Structure

Please note that this document consists of four key areas covered under section four namely,

Schedule A – Meter Device Management System (MDMS)

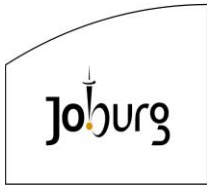
Schedule B – Supplementary Information

1.4 General Conditions

- 1.4.1 The MDMS offered must be to the specification of Johannesburg Water.
- 1.4.2 The Service Provider will be required to provide a live demonstration to the Johannesburg Water team.
- 1.4.3 The Service Provider is to provide reference letters from the equipment and software manufacturers, if they are not the Original Equipment Manufacturer themselves, that they are authorised to act as the principal supplier and or agent in South Africa.
- 1.4.4 The Original Equipment Manufacturer or the principal supplier / agent must confirm in writing that they have the experience and capacity for the supply and on-going support of such a project.



Employer:		Contractor	
Witness:		Witness:	



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- 1.4.5 The solution must run as a Software as a Service (SaaS) and be installed in a cloud platform in order to reduce the need for Johannesburg Water to procure and support additional hardware. Refer to Section C in the tender for further details on pricing structure, security, data storage and reporting requirements.
- 1.4.6 For security purposes and ownership of data, all raw data coming from flow meters and data loggers must be copied to an alternate cloud or local server as stipulated by Johannesburg Water (ICT Department). This data must not be encrypted, where the performance of the application will be compromised and be fully accessible to JW during and post the contract period. In the event, encryption does not affect the performance of the application, and then data must be encrypted. The supplier shall send daily incremental database updates to Johannesburg Water.
- 1.4.7 Any customer data that is collected and identified as personal data, must be secured and protected in compliance with the Protection of Personal Information Act (POPIA).

1.5 Location of the Works

The works are located within various suburbs within the boundaries of the CoJ, and within the Employer's supply and operational area. The exact locations of the works shall be included on the issued job cards.

1.6 Temporary Works

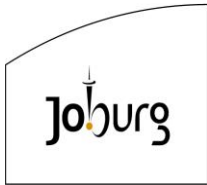
Temporary works shall:

- a) Include the works required to locate, verify and protect existing services within the works area.
- b) Be such to ensure no or limited interruption to vehicular and pedestrian traffic.

The Contractor shall further note that stockpiling of materials, plant, excavated material or any other construction related infrastructure shall NOT be allowed in locations that may interfere with the operations of the Employer and the public in general.



Employer:		Contractor	
Witness:		Witness:	



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GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORK



2. SCHEDULE A – METERING DEVICE MANAGEMENT SOLUTION

1 Meter Device Management System (MDMS)

#	Description
1	The solution must accommodate the following: • Meter device management • On demand and scheduled meter reading • Demand side management¹ • Tampering, event and log management • Full audit history and activity log (including for transactions and system configurations) • System interoperability interface (interface protocols) • Remote tariff programming • Remote firmware upgrading In the context of the solution, Demand Side Management speaks to having visibility of water utilisation across different areas and regions and differentiating between customers, e.g. residential, business
2	The solution must cater (minimum) for the following meter device data: • Location of meter (approximation using GSM network as and when required) • Battery status
	• Device brand and model • Device firmware version • Device volumetric flow rate logged at minimum, hourly. • Device leak detection (continuous flow over 24 hours period and customisable to specific customer) • Device fault reporting • Device diagnostics • Device real-time clock • Device tampering • Device reading NB: Leak detection, tampering and meter fault to have an immediate escalation protocol.



Employer:		Contractor	
Witness:		Witness:	



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VOLUME 2 CONTRACT PART 3: SCOPE OF WORKVOLUME 2

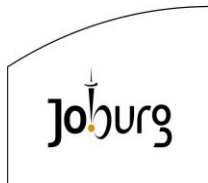


2 Software as a Service (SaaS)

Software as a Service is a software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted.

#	Description
1	The solution must be supplied and provisioned as Software as a Service and hosted by the service provider. The annual service must include: • Secure hosting facilities (e.g. access) • Data centre management (e.g. backup power) • Hardware maintenance • Disaster recovery • Software infrastructure and maintenance (e.g. operating system, database) • Application hosting (Meter Device and Data Management application) • Application access (remote access to the application) • Application maintenance (incl. application upgrades, patches/service packs).
2	The subscription model must be based on total number of active meter devices. (pilot estimate is 1500 but the solution must scalable)
3	The solution must accommodate the following estimated user base: • Administrators x2 • Approximately 25 application users (concurrent) and scalable to 100 users
4	Data Centre Facilities and Security • Secure access to data centre site and data centre room • Guaranteed application uptime of 99.999% • Emergency power • Alternate power supply • Emergency backup • Performance saleability: ability to scale-up and scale-out. • Network performance saleability
5	Upon termination of the contract, all data stored in the database, i.e. meter device, meter data, transactional data; must be transferred to Johannesburg Water. Data format.

Employer:		Contractor	
Witness:		Witness:	



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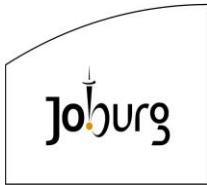
3 Automated Meter Network Infrastructure

#	Description
1	The Service Provider is responsible for the Automated Meter Network Infrastructure: hardware, equipment and connectivity, data concentrators, and head-end systems.
2	The Automated Meter Network Infrastructure must be fully compliant with the ICASA approved GSM carrier frequencies in South Africa.
3	The Automated Meter Network Infrastructure must support minimum 3G and future 4G/5G GSM carrier frequency bands.
4	The service provider will supply the Subscriber Identity Module (SIM) cards for the meter devices and administer the SIM cards, e.g. maintain a register of the SIM cards.
5	The service provider is responsible for all SIM card management and costs, e.g. subscription and data usage.
6	The GSM carrier must guarantee coverage across the City of Johannesburg Regions (Region A – Region G)

4 System Information Services and Reporting

#	Description
1	The solution has an embedded reporting engine for statistical and business reporting.
2	The solution includes a central Dashboard to access and run reports.
3	The solution includes reports on meter devices, e.g. number of meter devices, physical location, active meters, etc.
4	The solution includes reports on meter device operations, e.g. total consumption, active meters, events, etc.
5	External software can access the MDMS database to build custom reports, e.g. Microsoft SQL Reporting Services.
6	Customised reports, different views, fields, etc.

Employer:		Contractor	
Witness:		Witness:	



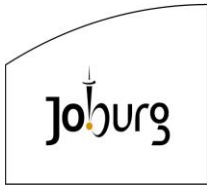
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VOLUME 2 CONTRACT PART 3: SCOPE OF WORKVOLUME 2**



MDMS System Administration

#	Description
1	The solution must support the ability to configure and assign user roles and profiles in the application, including the ability to create custom profiles.
2	The solution must have embedded an Administrator type role to configure and maintain the solution.
3	The solution must support the following Internet browsers: Google Chrome, Mozilla Firefox, Microsoft Edge
4	The solution must be able to export data from reports and support minimum the following file formats: XML, CSV and XLS.
5	The solution must fully support the Lightweight Directory Access (LDAP) protocol for Microsoft Active Directory Services. In addition, the service provider must interface to Johannesburg Water's Microsoft Active Directory for user access and authentication.
6	All meter device data and transactional data must be stored in a database.
7	The solution database must be Open Data Base Connectivity (ODBC) and Structured Query Language (SQL) compliant.

Employer:		Contractor	
Witness:		Witness:	



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INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 3: SCOPE OF WORKVOLUME 2

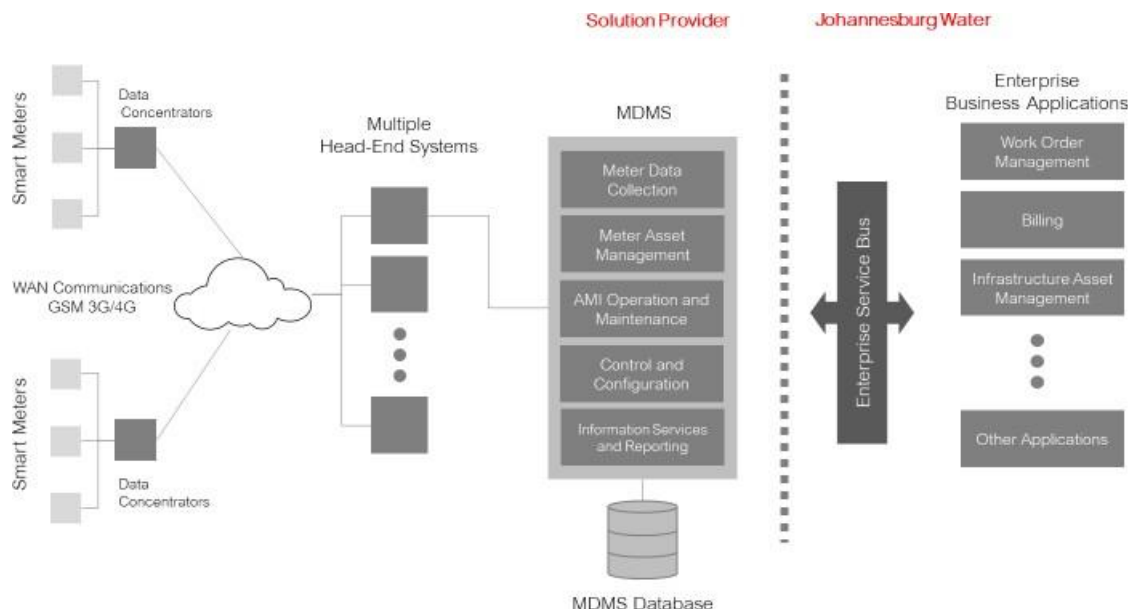


3. SCHEDULE B – SUPPLEMENTARY INFORMATION

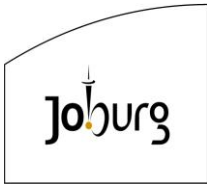
1 Solution Architecture

The entire system must operate under the SaaS agreement, except for the physical IoT flow smart devices (future).

DIAGRAM A:



Employer:		Contractor	
Witness:		Witness:	



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INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 4: SITE INFORMATION



Johannesburg Water (SOC) Ltd



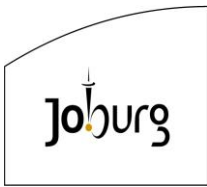
CONTRACT NO: JW14427D

GREATER ORANGE FARM PHASE 3D WATER INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT

VOLUME 2

CONTRACT PART 4: SITE INFORMATION

Employer:		Contractor	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE U PGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 4: SITE INFORMATION



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Employer:		Contractor	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 4: SITE INFORMATION



C4 SITE INFORMATION

C4.1 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.

C4.2 SITE LOCATION

Orange Farm Ext 2.

C4.3 ACCESS TO SITE AND RESTRICTIONS

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 shall provide temporary access to the works as may be required by him and to the approval of the Employer's Agent.

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

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

C4.4 EXISTING SERVICES, SERVITUDES AND WAYLEAVES

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.

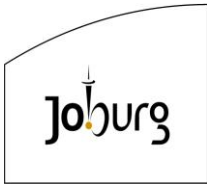
It is envisaged that wayleaves will be required.

For detailed specification the Contractor shall refer to clauses PS 1.5 (Temporary Works), PS 4.9 (Existing services), and PS 4.10 (Permits and wayleaves), Contract Part 3: Scope of Work.

C4.5 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.

Employer:		Contractor	
Witness:		Witness:	



CONTRACT JW14427D
GREATER ORANGE FARM PHASE 3D WATER
INFRASTRUCTURE UPGRADE AND RENEWAL PROJECT
VOLUME 2 CONTRACT PART 4: SITE INFORMATION



Refer to clause PS 18.1 (Security)

C4.6 NATURE OF GROUND AND SUBSOIL CONDITIONS

It shall be the Contractor's responsibility to acquaint himself with the conditions of the site. A geotechnical study has not been done.

C4.7 GEOTECHNICAL REPORT

A geotechnical study has not been done.

Employer:		Contractor	
Witness:		Witness:	

 Johannesburg Water	Reference No.: SOP – KPI Ref No. 07 Developed By: Sizwe Kunene & Joseph Mokoala Engineering Services Unit Programme Management Unit Stakeholder Relations and Communication Department Issue No: 1
PROCEDURE • Support of SMME Recruitment for Main Contractors	Review: Nov 2023 Effective Date: 01 December 2023

1. PURPOSE

To outline interim processes to be followed by CAPEX and Stakeholder Relations and Communication (SRC) Departments in the recruitment of SMME's within communities where projects are implemented. The objective is to ensure all **internal** project teams are consistent and adhere to the processes to promote transparency, fairness and compliance to special conditions of subcontracting in each SMME tender document.

2. RISK

The following are identified risks relating to non-compliance with the Standard Operating Procedure for SMMEs recruitment process and reporting:

- Work stoppages by communities when SMMEs Recruitment Process is not followed in a transparent and fair manner. This may result in service delivery delays, standing time costs incurred on various projects which may result in fruitless expenditure.
- Material irregularities if SMMEs who do not comply with the administrative SMME tender advert requirements are appointed.
- Material irregularities if the subcontracting opportunities created are not reported and achieved.
- Not meeting CAPEX's SMMEs Development Strategy targets

3. SCOPE

This step by step process flow focuses on activities, responsibilities and controls to be implemented by the project team at each step that will enhance transparency and fairness during the recruitment process of SMMEs within the communities where

projects are being implemented. It provides for the evaluation criteria, adjudication process, reviewing, validating of the SMMEs locality in relation to project location and approval of the process. In addition, the performance requirements for reporting, reviewing and validating of the information utilised to report the number of SMMEs opportunities as part of quality assurance is also discussed. The process outlined below also provides for the method to record, file and report information created during the verification process. This SOP includes only those activities performed by the project team in the recruitment process and reporting.

A: ADVERTISING SMME TENDER

No.	Task Description	When	Responsible Personnel	Process Reviewer	Task Approver	Deliverable	Indicative timelines (Task duration)
1.	Identification of SMMEs scope in line with the main contract requirements and creation of bills of quantity	A day after Contract Handover	Contracts Manager	Employers Agent	Project Manager	SMME BOQ	2 days
2.	Project brief to Stakeholder Relations Department for activation of all relevant stakeholder engagement outputs	After public participation is completed in affected areas, 2 days after CLO/s are appointed	Contracts Manager and Employer's Agent	Project Manager & Employer's Agent	Stakeholder Relations Specialist	Integrated stakeholder engagement plan	2 days
3.	SMME Tender advert(s) for SMMEs opportunities (SMME Tender advert to include tender box location for submission purposes. Tender box to be located at the site camp. Should the site camp be	After project brief to stakeholder relations department	Contracts Manager & Employer's Agent	Project Manager	Stakeholder Relations Specialist	Approved SMME Tender Advert	1 day

No.	Task Description	When	Responsible Personnel	Process Reviewer	Task Approver	Deliverable	Indicative timelines (Task duration)
	<i>not established at the time, tender box located at the RD's office.)</i>						
4.	Submission of SMME tender advert to the CLO & Region	A day after advert approval and after CLO appointment	CLO	Stakeholder Relations Specialist	Employers Agent	SMME Tender advert submission	1 day
5.	Posting of SMME tender adverts	A day after SMME tender advert submission	CLO Region &	Stakeholder Relations Specialist	Stakeholder Relations Manager	SMME Tender Advertisement	1 days
6.	SMME Tender advertisement duration	A day after posting SMME tender advert	Contracts Manager	Employer's Agent	Project Manager	N/A	7 days
7.	SMME Tender Briefing At the relevant/appropriate place by RD & J	Date indicated on advert	Contracts Manager, CLO, Project Manager, Employer's Agent & RD's Office Representative	Stakeholder Relations Specialist & RD's Office	Employers Agent	SMME Tender Briefing Attendance Register & minutes	1 day
8.	SMME Tender Closing (All responsible personnel are jointly to ensure that all processes are fairly adhered to)	Date indicated on the advert	Contracts Manager, CLO, Project Manager, Employer's Agent & RD's Office Representative	Employers Agent	Project Manager & Stakeholder Relations Specialist	SMME Tender Closing Register and all SMME tender submissions	1 day

B. EVALUATION & ADJUDICATION OF SMME TENDER

No.	Task Description	When	Responsible Personnel	Process Reviewer	Task Approver	Deliverable	Indicative timelines (Task duration)
9.	Gatekeeper: Confirmation of SMME's physical residence (including all JV Partners) <i>*take note of statement below under "Notes" for JV compliance.</i>	A day after SMME tender closing	RD's Office Representative	Stakeholder Relations Specialist	RD's Office Representative, CLO & Stakeholder Relations Manager	IEC list confirmation to be attached on the adjudication report. minutes signed by the CLO and the RD's Office	3 days
10.	Administrative & technical Evaluation of SMMEs (in terms of criteria stipulated on the SMME tender advert).	A day after confirmation of director's residence	Contracts Manager or Site Agent and CLO.	Stakeholder Relations Specialist – <i>only to physically observe-process</i>	Employer's Agent	Evaluation Report including evidence, reasons for elimination	3 day (dependant on number of responses)
11.	Administrative Compliance and experience	Valid CK registration or CIPC certificate, Director's SA ID documents, active status of CSD, CIDB status in line with the allocated work, Specific Goals (not disqualifying criteria), Tax Certificate with a valid pin number, COIDA, or any other applicable document/s required on the SMME tender advert					3 days (dependant on number of responses)
12.	Evaluation on price <i>where applicable</i>	SMMEs are to be evaluated on price and Specific Goals (In terms of Regulation 4(2) and 5(2) of the Preferential Procurement Regulations 2022) and the highest scoring SMME to be awarded based on 80/20 or 90/10 as applicable on each SMME tender.					1 day (dependant on number of responses)
13.	Compilation and submission of Adjudication report	A day after concluding item 9, 10, 11 and 12 above	Site Agent & CLO	Contracts Manager	Employer's Agent	Submission of adjudication Report	5 days
14.	Approval of adjudication report	A day after submission of adjudication report	Contracts Manager	Employer's Agent	Project Manager	Approved adjudication report	2 days
15.	Issuing of Appointment letter	A day after approval of	Contracts Manager or Site	Employer's Agent	Project Manager	Issuing of Appointment letters and	1 day

No.	Task Description	When	Responsible Personnel	Process Reviewer	Task Approver	Deliverable	Indicative timelines (Task duration)
	(appointment letter should be with condition "subjected to not receiving an appeal) to successful SMMEs and Notification of unsuccessful SMMEs	adjudication report	Agent & CLO			Notification Letters	
16.	Review and approval of SMME Contract Document (Annexure A – typical contract)	A day after SMME signs the Appointment letter	Contracts Manager to compile	Employer's Agent	Project Manager	Approved Draft Contract	2 days
17.	Submission of signed contract agreement to the Employers Agent	(within a week after signing of SMME appointment)	Contracts Manager	Employer's Agent	Project Manager	Approved signed SMME contract	1 day

Notes:

- Given that the Subcontracting is developmental in nature, it is discouraged for SMME's to form joint ventures, however in the event that they do, both parties of the joint venture should be represented at the briefing session, and they should satisfy the specific Region's locality requirements as outlined in no.8 above. Failure to attend the briefing session by both parties would result in disqualification and the submission will not be considered for evaluation.
- The timelines highlighted above are indicative and not cast in stone.
- Most of the 16 activities can be undertaken in parallel and it is highly recommended that the SMME appointment process be undertake in the 28 days where the contractor is preparing for contractual documents.
- The above SOP is a JW procedure to Support SMMEs Recruitment for Main Contractors that will be utilised in the interim until a City wide SMME recruitment policy document has been approved. It does not therefore override the current procurement regulations, however its objective is to provide reasonable transparent and fair SMMEs procurement process in an endeavour to support SMMEs through community upliftment projects.

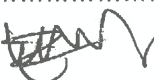
- The appointed SMME's will be enrolled onto the JW database for future reference through the facilitation of JW SCM.
- Programme Manager/s are to oversee the entire process stipulated on this SoP.
- If an addendum is issued, the SMME tender closing date is to be extended by 3 days
- All appointments are to be subjected to 14 days cooling period.
- Once SMMEs have been appointed, Supply Chain Management Unit (SCMU) must be notified by the Project Manager for SCMU to:
 - Enrol the appointed SMMEs onto the chain database for future reference.
 - To monitor compliance of the SMMEs for the duration of the project.

Limitations

Administrative compliance evaluation will be limited to the physical verification of documents provided by SMMEs as the Project Team and contractor personnel involved in the evaluation process do not have access to such tools as CSD or procure check.

SIGN – OFF

Reviewed by: Senior Manager:  Date: 14/11/2023
Engineering Services Unit.....

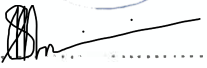
Reviewed by: Senior Manager:  Date: 15/11/2023
Project Management Unit.....

Reviewed by: General Manager :  Date: 16/11/2023
CAPEX.....

Reviewed by: Senior Manager:  Date: 16/11/2023
Supply Chain Management

Reviewed by: Manager:  Date: 16 Nov 23
Stakeholder Relations

Reviewed by: Executive Manager:  Date: 05/12/2023
Stakeholder Relations and Communications

Approved by: Chief Operations Officer:  Date: 07/12/2023



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City of Johannesburg

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SOP PROJECT AND RELATED COMMUNICATION PROTOCOLS JUNE 2025

Title	SOP Project Communication Process	Amendment no:	N/A
Reference:	PCP 01	Effective date:	
Procedure no:	1	Page no:	01
Developed by:	Manager: Stakeholder Relations		

1. BACKGROUND

The 2017 project communication process document required amendments due to the evolving nature of the social engineering and policy guidelines.

2. PURPOSE

The purpose of this document is to outline the communication process to be followed during the implementation of the various infrastructure upgrading and rehabilitation projects within the City of Johannesburg.

3. OBJECTIVE

The objective of this document is to enhance a smooth project communication process, enhance stakeholder engagement and facilitate external social engineering to ensure the successful implementation of each project. It also seeks to clarify the grey areas with regard to the responsibilities of the Stakeholder Relations Specialists in their Regions.

Directors:

Ms Dineo Majavu (Chairperson), Mr Ntshavheni Mukwevho (Managing Director and Executive Director),
Mr Kgaugelo Mahlaba (Chief Financial Officer and Executive Director), Mr Sipho Mthembu, Ms Zandile Meeleso, Mr Pholoso Matjele,
Mr Kgaile Mogoye, Mr Molate Mashifane, Ms Pamela Mabece, Mr Collen Sambo, Mr Makoko Makgonye, Ms Thabiso Kutumela,
Mr Kefiloe Mokoena

Ms Kethabile Mabe (Company Secretary),
Johannesburg Water SOC Ltd
Registration Number: 2000/029271/30

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Project communication entails communication process among the key internal stakeholders: CAPEX departments; Stakeholder Relations Department and Operations Department, as well as the key external stakeholders: The Regional Director; Ward Governance and the affected Ward Councillors.

4. RISKS

- Project stoppages;
- Lack of buy in from political/local leadership and structures;
- Lack of ownership by the beneficiary of the CAPEX project;
- Vandalism of infrastructure.

5. DELIVERABLES

- Management of project communication
- Management of stakeholder engagement
- Accurate project information shared with stakeholders
- Agile process flow for project communication both internally and externally
- Reputation management
- Reduction in the number of project stoppages as a result of poor communication.

6. THIS SOP IS APPLICABLE TO THE FOLLOWING DEPARTMENTS

- Stakeholder Relations and Communication
- CAPEX
- Operations

7. PROJECT PUBLIC PARTICIPATION PROCESS

CAPEX is required to send an invitation for the project initiation meeting to the Stakeholder Relations Manager. The relevant Stakeholder Relations Specialist will be required to introduce the project in the following stages:

- Introduction of the project to key external stakeholders, namely, Regional Director, Ward Governance and respective Ward Councillor.

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- Introduction of the project to the community in a public meeting coordinated through official protocols.

DESCRIPTION	RESPONSIBILITY
7.1. INTERNAL COMMUNICATION PROCESS WITH CAPEX This section outlines the process of internal communication to be followed in preparation of the implementation of any project. This preliminary internal process will involve the following activities: • Capex should introduce the contractor to the Stakeholder Relations Manager through the project handover meeting • Submit the project implementation plan to the Stakeholder Relations Manager for allocation to the regional Stakeholder Relations Specialist. • Submit the SMME briefing document. • Scope of work or nature of work to be done, project location, value, duration, estimated number of labourers to be employed, rate at which the labourers will be paid and the overarching benefits of the project. • Relevant information relating to the appointment of local sub-contractors and suppliers.	Stakeholder Relations Manager Stakeholder Relations Specialist CAPEX Project Lead
Upon receipt of the above-mentioned information, the Stakeholder Relations Department will verify the following information about the project: • The township, region, ward and Ward Councillor where the project is being implemented. • Facilitate the process for the appointment of the Community Liaison Officer (CLO). The public participation process lead by the Stakeholder Relations Specialist will be activate when all the above is completed.	Stakeholder Relations Manager Stakeholder Relations Specialist CAPEX Project Lead Regional Ward Governance Ward Councillor
7.2. PUBLIC PARTICIPATION PROCESS The project introduction meeting will be arranged with the Regional Director's office where the Ward Governance and the Ward Councillor should be in attendance. This is where the contractor will be introduced, therefore, their attendance is crucial,	Stakeholder Relations Manager Stakeholder Relations Specialist Regional Director Regional Ward Governance Ward Councillor

Directors:

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followed by a public meeting that will be organised by the Ward Councillor and chaired by the Councillor or officially delegated representative.	Main Contractor
7.3. INTERNAL COMMUNICATION WITH THE OPERATIONS DEPARTMENT The Operations department is required to communicate with the Stakeholder Relations Department about: - Planned and unplanned service disruptions. - Placement and location of stationary tankers in informal settlements. - Roaming tankers schedules and locations.	Stakeholder Relations Manager Communication and Marketing Manager Senior Manager: Networks
7.4. ROLE OF THE STAKEHOLDER RELATIONS DEPARTMENT The following are the key activities to be conducted by the Stakeholder Relations and Communication Department to ensure the successful implementation of Johannesburg Water's Infrastructure Upgrading and Rehabilitation Projects: Inform and communicate to key external stakeholders Introduce projects in public meetings as per ward governance internal processes Facilitate the employment of the Community Liaison Officer by: - Issuing of an advert to the contractor - Management of the interview process for the CLO - Conduct induction on roles and responsibilities of the CLO - Management of the CLO - Attend site meetings and other relevant meetings where possible - Provide social engineering support to the project team - Put together and manage a file for each project in relational to SRC's portfolio (attendance registers; agenda, minutes and resolutions tracker). Educate communities about proper use of stationary tankers in informal settlements Issue tanker schedules on all relevant media platforms as per communication protocols.	Stakeholder Relations Manager Communication and Marketing Manager

8. FORMS/RECORDS

- Project file (attendance registers; agenda, minutes and resolutions tracker).
- Media releases and related digital and social media report.

Directors:

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Registration Number: 2000/029271/30

DBX
mw

N.S. WC
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a world class African city



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ENVIRONMENTAL MANAGEMENT PLAN

JOHANNESBURG WATER SOC LTD

ENVIRONMENTAL MANAGEMENT PLAN

REVISION:05

Prepared By:
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LIST OF ACRONYMS Acronym Description

BA	Basic Assessment
BAR	Basic Assessment Report
CA	Competent Authority

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DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EO	Environmental Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme Report
GDARD	Gauteng Department of Agriculture and Rural Development
GN	Government Notice
I&AP	Interested and Affected Party
JW	Johannesburg Water
km	Kilometre
m	meter
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PHRAG	Provincial Heritage Resources Authority for Gauteng
RE	Resident Engineer
WUL	Water Use License
WULA	Water Use License Application
WWTW	Wastewater Treatment Works

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DEFINITIONS

Environment

The surroundings in which humans exist and which comprise of:

- Land, water and atmosphere of the earth.
- Micro-organisms, plant and animal life.
- Any part or combination of a) and b) and the interrelationships among and between them.
- The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.

Environmental Aspect

Those components of the company's activities, products and services that is likely to interact with the environment.

Environmental Authorisation

The written statement from the relevant environmental authority in terms of the National Environmental Management Act (Act 107 of 1998), with or without conditions, that records its approval of a planned activity and the implementation thereof and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Environmental Impact Assessment (EIA)

The decision making process of examining the environmental impacts of a development in terms of the NEMA (107 of 1998) and the EIA Regulations (Government Notice No. R982, R983, R984, R985 and R986) as amended.

Environmental Management Programme (EMPR)

An environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced.

Environmental Management System (EMS)

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A set of process and practices that enable an organization to reduce its environmental impacts and increase its operational efficiency. The EMS provides a framework that helps a company achieve its environmental goals through consistent control of its operations.

Auditing

A systematic and objective assessment of an organization's activities and services conducted and documented on a periodic basis internally and externally.

Environmental Objective

An overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantified where practicable.

Environmental Target

A detailed performance requirement quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.

Floodplain

A flat expanse of land bordering a river channel, formed through sediment deposition and other alluvial processes, and often characterized by frequent flooding as a result of bank overspill from the river channel.

Groundwater

Sub-surface water in the zone in which permeable rocks, and often the overlying soil, are saturated.

Hazardous waste

Waste that are proven to be toxic, corrosive, explosive, flammable, carcinogenic, radioactive, poisonous or classified as such in legal terms.

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Heritage Resource

Any place or object of cultural significance including buildings, structures, landscapes, graves and geological, archaeological artefacts and paleontological sites.

Landscape

Land modified for human use and occupation, embracing both the natural (wilderness) environment and the urban.

Management actions

Practical actions aimed at achieving management objectives and targets.

Management objectives

Desired outcome of management measures for mitigating negative impacts and enhancing the positive impacts related to project activities and aspects (i.e. risk sources).

Monitoring

A systematic and objective observation of an organization's activities and services conducted and reported on regularly.

Natural Vegetation

All existing vegetation species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.

Pollution

Any change in the environment caused by substances, radioactive or other waves, or noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such

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an effect in the future. Furthermore, pollution can also be regarded as an undesirable state of the natural environment being contaminated with harmful substances as a consequence of human activities.

Protected Plants

Plant species officially listed on the Protected Plants List (each province has one), and which may not be removed or transported without a permit to do so from the relevant provincial authority.

Reinstatement

Reinstatement is defined as the return of a disturbed area to a state, which approximates the state (where possible), which it was before disruption.

Riparian Habitat

The physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

Runoff

The total water yield from a catchment including surface and subsurface flow.

Sensitive environmental features

Environmental features protected by legislation (e.g. heritage resources), or identified during the EIA as sensitive through specialists' findings and input received from Interested and Affected Parties.

Subsoil

The soil horizons between the topsoil horizon and the underlying parent rock.

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Topsoil

Topsoil can be regarded as the fertile upper part or surface of the soil.

Transplanting

The removal of plant material and replanting the same plants in another designated position.

Veld

Unimproved areas of natural vegetation

Wastewater

Water contaminated by the project activities.

Watercourse

A geomorphological feature characterized by the presence of a stream flow channel, a floodplain and a transitional upland fringe seasonally or permanently conveying surface water.

Waterlogged

Soil or land saturated with water long enough for anaerobic conditions to develop.

Weeds and Alien Invasive Plants

Weeds and Alien Invasive plants are defined as undesirable plant growth that shall include, but not be limited to all declared category 1, 2 and 3 listed Alien Invasive species as set out in the Conservation of Agricultural Resources Act (No 43 of 1983) regulations. Other vegetation deemed to be invasive should be those plant species that show the potential to occupy in number, any area within the defined construction area.

Wetland

Land where a surplus of water (i.e. waterlogging) is the key factor determining the nature of the soil development as well as the types of plants and animals living at the soil surface.

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1. BACKGROUND

The purpose of this document is to provide management measures that will ensure that potential negative impacts associated with the activity are minimized whilst positive impacts are optimised, provided that the EMP is implemented by a suitably qualified Environmental Officer (EO). The development proponent, the main contractor and the sub- contractor are responsible for the implementation of the EMP throughout the stages. Therefore, it is imperative that the EMP is circulated to site managers, contractors and Depots who will perform any work on site which has the potential to cause environmental damage. Any parties responsible for transgression of the underlying management measures outlined in this document will be held liable for non- compliances.

The following is a generic EMP to mitigate against “generally occurring impacts” associated with the construction phase of Johannesburg Water’s activities. “Generally occurring impacts” refers to potential impacts typical of Johannesburg Water’s activities and are not restricted to a single or specific site. The findings of this EMP will be implemented at all sites.

This section is an essential component of the contract specification and shall be included during **planning, design, construction, and operational phases.**

PURPOSE

The purpose of this EMP is to ensure that Johannesburg Water conducts all its activities related to the construction and maintenance in accordance with the provisions of NEMA, and other applicable legislations. This EMP has considered the provisions of the Constitution and the principles of Integrated Environmental Management.

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2. APPLICABLE LEGISLATIONS

Several laws and regulations apply to the protection of the environment. These laws contain environmental principles and standards that need to be applied when applicable permits and licences that need to be obtained. This EMP will be subject to regulatory control under a range of State, Provincial and Local regulations. Such legislation largely embraces pollution prevention, sustainable resource use, conservation, and socio cultural (heritage) protection. This chapter reviews legislation pertaining to this generic EMP.

According to Section 2 (1, 2 & 3) of the National Environmental Management Act No. 107 of 1998 (NEMA), all organs of state must apply certain principles set out in NEMA when taking decisions that may significantly affect the environment. The key principles of this Act include that all “actions” that they approve must be economically, socially, and environmentally sustainable. It further states that “people and their needs” must be at the forefront of “its concern” and their interests must be served equitably. These legislative requirements include, but are not limited to, the provisions of the legislation represented as described below:

The Constitution of the Republic of South Africa Act No. 108 of 1996)

Section 24 of the Constitution of South Africa (Act 108 of 1996) states that “Everyone has the right (a) to an environment that is not harmful to their health or well-being; and

(b) To have the environment protected, for the benefit of present and future generations through reasonable legislative and other”

Measures that:

- Prevent pollution and ecological degradation;
- Promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.
- Section 152 of the Constitution states that the objectives of local government are to:
- Ensure that services are provided to communities in a sustainable manner.

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- Promote social and economic development; and
- Promote a safe and healthy environment.

National Environmental Management Act No. 107 of 1998 (as amended)

The National Environmental Management Act 107 of 1998 (NEMA) requires that an environmental authorization is obtained before activities, which have been listed in terms of NEMA, are commenced with. The failure to obtain such an environmental authorization, before commencing with listed activities, could result in administrative sanctions, including compliance notices or directives ordering the cessation of the operations until authorized; and fines of up to ZAR10 million for each such contravention.

The Environmental Impact Assessment Regulations (EIA Regulations) set out the process to be followed in applying for an environmental authorization, while the listing notices; list the activities that require authorization (the Listing Notices). NEMA 107 of 1998 amended in 07 of April 2017. The following are the listed activities:

- EIA Regulations GNR 326
- Listing Notice 1; Government Notice Number (GNR) 327 (Basic Assessment).
- Listing Notice 2; Government Notice Number (GNR) 325 (Full EIA/ Scoping & Environmental Impact Report).
- Listing Notice 3; GNR 324 (It applies on both Basic Assessment and full EIA).

National Environmental Management: Biodiversity Act No. 10 of 2004

Provides management and conservation of South Africa's biodiversity within the framework of NEMA 107 of 1998; the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources.

The National Environmental Management Waste Act 59 of 2008

The National Environmental Management Waste Act (NEMWA) reforms the law regulating waste management in order to protect health and the environment providing reasonable measures for the

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prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.

The Occupational Health and Safety Act No. 85 of 1993

The Occupational Health and Safety Act make provision in regulation

- Section 8 for the general duties of employers to their employees.
- Section 9 of the Regulations makes provision for general duties of employers and self-employed persons to persons other than their employees.

National Heritage Resources Act (NHRA) No. 25 of 1999

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act. The South African National Heritage Resources Agency (SAHRA) is the responsible authority for implementing the National Heritage Resources Act (NHRA) 1999, (Act 25 of 1999).

Section 38(1) of the NHRA lists development activities that would require authorisation by the responsible heritage resources authority. Activities considered applicable to the proposed project include the following:

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.

(b) the construction of a bridge or similar structure exceeding 50 m in length; and

(c) any development or other activity which will change the character of an area of land, or water -
i exceeding 5 000 m² in extent,

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- ii involving three or more existing erven or subdivisions thereof; or
- iii involving three or more erven or divisions thereof which have been consolidated within the past five years; or
- iv the costs of which will exceed a sum set in terms of regulations by SAHRA or a Provincial Heritage v Resources Authority.
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a Provincial Heritage Resources Authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development.

Water Services Act No. 108 of 1997

This Act provides for the rights of people to basic water supply amongst others basic sanitation. It acknowledges that there is a duty on all spheres of government to ensure that sanitation services are provided in a manner which is efficient, equitable and sustainable and that it should be sufficient for subsistence and sustainable economic activity. The provision of sanitation services must be undertaken in a manner consistent with the broader goals of water resource management. This goal is in line with the Act as it aims to provide sufficient sanitation services to the region in a sustainable manner.

Conservation of Agricultural Resources (CARA) Act, Act No. 43 of 1983

The CARA aims to ensure the protection of agricultural resources such as land with agricultural potential and water and makes provision for the eradication of alien and invasive species, and protection of topsoil.

NEMA Air Quality Act (AQA), Act No. 39 of 2004

The aim of this law is to regulate air quality and protect the environment in South Africa through reasonable measures to prevent pollution and ecological degradation, while securing sustainable development. The Act also provides national norms and standards for air quality management, monitoring and control. Under this legislation, Priority Air shed Areas can be proclaimed, where specific

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Air Quality Management Plans are applicable. Regulations are also published under this Act for the format of air quality assessments and what should be included in the assessment. Any Air Quality Management Plan which has been compiled for the area and any proposed WWTW should be in line with this Management Plan. This Act may list activities which may result in atmospheric emissions, and which may have a significant detrimental effect on the environment.

Government Gazette 32434 of 24 July 2009 listed activities, which require an atmospheric emission license before it commences. Air quality limits and thresholds are fundamental to effective air quality management, providing the indicators to safe exposure levels for the majority of the population. The current South African standards have been revised and National Ambient Air Quality Standards were promulgated on the 24th of December 2009 (Government Gazette No. 32816, Notice No. 1210). The newly proposed standards include particulate matter specifically PM10 (particulates with a diameter of less than 10 micrometre), sulphur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), lead, carbon monoxide (CO) and benzene. These revised standards have been adopted as the VTAPA air quality objectives. Any emissions from the proposed WWTW should be within these standards.

National Water Act (NWA), 36 of 1998

Water use is controlled by the National Water Act (NWA) Act No. 36 of 1998. The NWA recognises that water is a scarce resource in South Africa and its provisions are aimed at achieving sustainable use of water to the benefit of all users. The provisions of the Act are thus aimed at discouraging pollution and waste of water resources. According to Section 21 of the NWA the following activities require a water use licence (WUL) prior construction:

- “21.(a) taking water from a water resource;
- 21.(b) storing water;
- 21.(c) impeding or diverting the flow of water in a watercourse;
- 21.(d) engaging in a stream flow reduction activity contemplated in section 36;
- 21.(e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
- 21.(f) discharging waste or water containing waste into a water resource through a pipe, canal,

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sewer, sea outfall or other conduit;

21.(g) disposing of waste in a manner which may detrimentally impact on a water resource;

21.(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;

21.(i) altering the bed, banks, course or characteristics of a watercourse;

21.(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and

21.(k) using water for recreational purposes.”

3. OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The purpose of this EMP is to provide an easily interpreted reference document that ensures that the project environmental commitments, safeguards and mitigation measures from the environmental planning documents, project approvals, and scope of work are implemented.

The objectives for the EMP are:

- To develop, implement and maintain effective management systems for the environmental aspects.
- To document details of environmental protection infrastructure and controls so that they are able to provide long term protection for the natural environment.
- To ensure compliance with relevant legislation (National, Provincial and Local), regulatory requirements and environmental documents.
- To maximise the value and outcomes of environmental monitoring activities so that the information can be applied to the planning and implementation of future projects.
- To ensure that all Environmental Management considerations are implemented during the planning, operational and maintenance phases of the project.

All the environmental specifications and the procedures discussed in this document were also developed in accordance with the relevant legislation applicable to the development.

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3.1 Phases of the Project

The EMP deals with the following phases as detailed below:

3.1.1 The Planning and Design Phase

Overall Goal for Planning and Design: Undertake the planning and design phase of the development in a way that:

- Ensures that the design of the proposed development responds to the identified environmental constraints and opportunities.
- Ensures that the best environmental options are selected for all components of the project.
- **Ensures that there is sufficient financial provision for environmental assessment, monitoring, rehabilitation, and maintenance. The JW rehabilitation calculation template must be used (See Annexure D).**
- The qualified landscaping specialist must be appointed to undertake rehabilitation on site. The landscaping specialist must pose the following qualifications and work experience:
 - Landscaping Specialist should at least have BA/BSc Honours Degree or 4-year Degree in Natural Sciences/Ecological
 - The Landscaping Specialist must at least be registered with South African Council for Natural Scientific Professions (SACNASP) as a Professional Natural Scientist (Copy of SACNASP Certificate must be submitted).
 - At least three letters from their client/s must be submitted, detailing the landscaping work he/she has undertaken (letters should have the name of the client, description of the project and/or scope of work done, contact details and must be signed). Letters should be in their client's company letterhead, and it must indicate if the work has been completed satisfactorily or not.
 - Copy of CV must be submitted, specialist should at least have a minimum of five (5) years working experience as landscaping Specialist (See Table 1).

The EMP offers an ideal opportunity to incorporate pro-active environmental management measures with the goal of attaining sustainable development.

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Pro-active environmental measures minimize the chance of impacts taking place during the construction and operational phase. There is still the chance of accidental impacts taking place; however, through the incorporation of contingency plans (e.g., this EMP) during the planning phase, the necessary corrective action can be taken to further limit potential impacts. In order to meet this goal, action plans for planning and design stages of the project must be identified together with monitoring requirements.

3.1.2 The Construction Phase

The bulk of the impacts during this phase will have immediate effect (e.g., noise-, dust- and water pollution etc.) If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the contingency plans identified in the planning phase, together with a commitment for sound environmental management from Johannesburg Water and its agents.

3.1.3 Rehabilitation and Reinstatement Phase

This phase will involve restoring the land impacted during the construction phase back to its original state (in the case of slopes, gradients, soil profiles, and hydrology) or better. This process will be mainly on rectifying the negative impacts that have been caused during construction by the removing pollution or contaminants and other dangerous substances from groundwater, sediment, or surface water and improvement of the soil.

3.1.4 The Operational Phase

By taking pro-active measures during the planning and construction phases, potential environmental impacts emanating during the operational phase will be minimised. This, in turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete.

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4. ROLES AND RESPONSIBILITY

The implementation of this EMP requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during the construction and operational phases. The stakeholders are discussed below:

4.1 Johannesburg Water and its Agents shall:

Ensure that the EMP is kept on JW's Sites and construction sites.

- Remain ultimately responsible for ensuring that the development is implemented according to the requirements of the EMP.
- Ensure that the Environmental section attends all project related tender briefing sessions.
- Although Johannesburg Water appoints specific role players to perform functions on its behalf, this responsibility is delegated.
- Be liable for restoring the environment in the event of negligence leading to damage to the environment.
- Ensure that the EMP is included in the tender documentation so that the contractor who is appointed is bound to the conditions of the EMP, and there's sufficient budget for environmental assessments and/or assessment during the planning, design, construction, replacement of vegetation and restoration of habitats, decommissioning (rehabilitation) phases of the project.
- Ensure that the contractor appointed understands, acknowledges and fully accepts the content of this EMP and their responsibilities for implementation and compliance.
- Monitor compliance with the conditions of the environmental authorisation and the EMP and compliance audits are undertaken.
- Ensure that the Environmental section signs all close out reports to confirm rehabilitation.

4.2 Appointments and competencies

- The contractor and its appointed sub-contractor must meet the relevant legislative and non-statutory appointments, which must be maintained valid for the entire contract duration.
- All appointees shall be suitably trained and certified competent for the responsibilities they are assigned for.

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- Copies of all relevant appointments and the relevant competence certificates must be kept in the relevant Environmental file.

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Table 1: Environmental Officer's Appointment Index

Appointment	Project Type	Legislative Ref	Competency requirements (Min)
Contractor SHE Officer	Unauthorised Project	JW EMP/ JW Waste Management Procedure	National Diploma in Safety & ISO14001:2015 (Introduction/Awareness, implementation, and auditing ISO14001:2015) + 2 years' Experience OR National Diploma in Environmental Management + 2 years' Experience OR NEBOSH / SAMTRAC & Basic ISO14001:2015/ Basic Environmental Awareness (Introduction and Implementations to ISO14001:2015) + 4 years' Experience. Register with SACPCMP.
Contractor Environmental Liaison Officer/Environmental Officer	Authorised project	JW EMP and Project Specific approved EMP /Directives/Environmental Authorisation/GA/WUL	National Diploma in Environmental Management/ + 3 years' Experience. BA/BSc Environmental Management + 3 years' experience. The recommended and/or market related minimum Salary/wages for ELO/EO should be R17 000.00.

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Environmental Representative/Environmental Rep	Unauthorised Project	JW EMP	Must hold a Senior Certificate (Matric) and one of the following qualifications. National Diploma in Environmental Management/ BA/BSc Environmental Management or Science/ISO 14001:2015(Introduction; Implementation and Auditing/Certificate in Environmental law/National Certificate in Environmental Management. The recommended and/or market related minimum salary/wages for Environmental Representative should be R10 000.00.
Consultant Environmental Control Office	Authorised project (as and when required)	JW EMP and Project Specific approved EMP /Directives/Environmental Authorisation/GA/WUL	Reputable Environmental Consulting Company National Diploma or BA/BSc Environmental Science or Management + 3 years' experience as an independent ECO/Consultant
Landscaping Specialist	Unauthorised and Authorised project	JW EMP and Project Specific approved EMP /Directives/Environmental Authorisation/GA/WUL	Reputable Environmental Consulting firm /Landscaping Company.

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			Landscaping Specialist should at least have BA/BSc Honours Degree or 4-year Degree in Natural Sciences/Ecological. - The Landscaping Specialist must at least be registered with South African Council for Natural Scientific Professions (SACNASP) as a Professional Natural Scientist (Copy of SACNASP Certificate must be submitted). - Specialist should at least have a minimum of five (5) years working experience as landscaping Specialist (See Table).

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4.3 The Contractor shall:

- Be bound to conform to the EMP conditions through his/her contract with Johannesburg Water, and is responsible for ensuring that he adheres to all the conditions of the EMP.
- Thoroughly familiarise with the EMP requirements before construction begins and must request clarification on any aspect of these documents, should they be unclear.
- Be responsible for mitigation and rehabilitating all environmental damage at his/her expense.
- Ensure adherence to, and implementation of, the environmental management specifications.
- Ensure that environmental damage, whether intentional or unintentional, is prevented in the first instance, mitigated and rehabilitated, and must adopt a proactive approach followed by a reactive approach.
- Ensures identification of, and compliance with, all environmental laws, all by laws and regulations.
- Ensure that any instructions (whether verbal or written) issued by the site manager, project manager, site engineer or EO, in terms of the EMP is adhered to.
- Ensure that an environmental compliance report is tabled at each site meeting, which must document all incidents, complaints, and non-compliances, and their close out progress, which has occurred during the period before the site meeting.
- Provide a photographic report to JW upon request showing close out of identified issues.
- Provide any project or compliance information that may be requested by JW in any format as requested.
- Ensure that proposed site camp areas are approved by JW environmental section prior to establishment.
- Ensure compliance with the EMP conditions even if there will be no site camps or the project is an emergency or subject to Directives.
- Take comprehensive site photographs for before, during and after construction.
- Ensure that each individual resident/landowner/stakeholder requirement is documented, pertaining to the area to be disturbed, special features, vegetation to be disturbed, rehabilitation requirements (contractors must state to residents/stakeholders that indigenous vegetation species will be put

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back, however, should residents/stakeholder require non-indigenous species to be replaced, these are to be documented before being affected) prior to any disturbance.

- Provide a detailed, site-specific method statement for rehabilitation, which must be approved by JW Engineer and EO.
- Ensure that a report is tabled at each site meeting, which will document all incidents that have occurred during the period before the site meeting.
- Ensure that incidents register is kept in the site office.
- Ensure that a register of all public complaints is maintained.
- Ensure that all employees, including those of sub-contractors receive Environmental Induction before the commencement of construction in order that they can constructively contribute towards the successful implementation of the EMP (i.e., ensure their staff are appropriately trained as to the environmental obligations).
- Ensure that all disturbed areas are rehabilitated and at least 85% healthy grass/ground cover has established, that rehabilitation is maintained, the sites are free of erosion, waste and pollution of any kind including rubble and spills, and free of weeds and alien invasive species.
- Appoint an Environmental Liaison Officer (ELO) prior Construction for Environmental Authorised Projects.
- Appoint SHE Officer prior Construction for unauthorized projects i.e., the SHE Officer with Environmental Management experience or be trained on Environmental legislation.
- Provide accurate and factual information pertaining to the projects, communications, and discussions at all times.
- Is responsible for NEMA Duty of Care, and Polluter pays principle.

4.4 Environmental Liaison Officer (ELO)/ SHE Officer shall:

- Ensure that the project team is involved in all aspects of project planning that can influence environmental conditions on the site.
- Be permanently on site during the construction phase to oversee the Contractor's internal compliance with the EMP requirements and ensuring that the environmental specifications are adhered to.

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- Assist with day-to-day monitoring of the construction activities. Ensure that any issues raised by the EO will be routed to the SHE Officer for the contractors' attention.
- The ELO/ SHE Officer shall be permanently on site during the construction phase to oversee the Contractor's internal compliance with the EMP requirements and ensuring that the environmental specifications are adhered to.
- Be responsible for keeping detailed records of all site activities that may pertain to the environment and include all these aspects in an environmental register.
- Maintain site documentation and records related to environmental management (EMP, authorisations, permits, way-eaves, method statements, audit reports, monitoring results, receipts for waste removal, environmental file, etc.)
- The ELO/SHE Officer must keep a register of complaints from any community members on environmental issues.
- The ELO /SHE Officer will be required to keep a record of all on-site environmentally related incidents and how these incidents were dealt with.
- Ensure daily implementation of the EMP conditions, and monitoring of the contractor's compliance with EMP conditions, using checklists and visual inspections.
- Provide location details for possible site camp locations to JW environmental section and await approval from this section before establishing.
- Inform JW environmental section when actual work is about to commence.
- Inform JW environmental section of pending completion activities and intention to de-establish, prior.
- Ensure proper rehabilitation is undertaken before site closure.

4.5 Resident Engineer (RE)/ Site Agent shall:

- Liaise with the Contractor and Environmental Officer (EO) on environmental matters, as well as any pertinent engineering matters where these may have environmental consequences.
- Oversee the general compliance of the Contractor with the EMP and other pertinent site specifications.

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- Familiarise him/herself with the EMP specifications and further monitor the Contractor's compliance with the Environmental Specifications daily through the Site Diary and enforce compliance.
- Ensure that Monthly Audits reach the contractor before Monthly Progress Meeting.
- Ensure proper rehabilitation is undertaken before site closure.

4.6 Project Engineer /Inspectors (PE/PI) shall:

- Ensure that there is a sufficient budget for complying with all EMP conditions at the tender stage.
- Ensure sufficient budget is provided for rehabilitation/ Reinstatement.
- Ensure proper rehabilitation is undertaken before site closure.
- Ensure of all specifications and legal constraints specifically with regards to the environment are highlighted to the Contractor(s) so that they are aware of these.
- Ensure that Contractor(s) are made aware of all stipulations within the EMP.
- Ensure that the EMP is correctly implemented throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes.
- Be fully conversant with the EIA for the project, the EMP, the conditions of the Environmental Authorisation (if applicable), and all relevant environmental legislation.
- Ensure compliance monitoring of contractors on a day-to-day basis.
- Ensure adherence and implementation of the tender requirements.
- Ensure reference of specific non-compliance/non-conformance issues to the responsible units and/or contractors.

4.7 Environmental Officers shall:

- Be responsible for informing the contractors of any decisions that are taken concerning environmental management during the project phase.
- This would also include informing the contractors of the necessary corrective actions to be taken, issuing stop work orders and rehabilitation and remediation instructions if necessary.
- Liaise with environmental authorities where necessary.
- Review all the environmental documents submitted by the Contractor, including sign off.

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- Review all the environmental documents from the Contractor, including sign off.
- Conduct environmental monthly audits of all contractors' work on site where necessary
- Maintain site documentation of related to environmental management (EMP, Method statements, audit reports, monitoring results, receipts of waste removal etc.). Documents to be maintained on the relevant site Documents Control Systems.
- Inspect and report on environmental incidents and check corrective actions.
- Conduct environmental incidents enquiries.
- Review and sign off method statements prepared by Contractors.
- Ensure that an environmental compliance monitoring strategy/framework is implemented.

4.8 Environmental Control Officer (ECO)

The role of the ECO shall be to:

- Act as site 'custodian' for the implementation, integration, and maintenance of the EMP in accordance with the contractual requirements.
- Ensure successful implementation of the EMP; and
- Ensure that the Contractor, his employees and/or Subcontractors receive the appropriate environmental awareness training prior to commencing activities.

The responsibilities of the ECO will be to:

- Liaise with the JW Environmental Section and Project Engineer on the level of compliance with the EMP achieved by the Contractor on a regular basis for the duration of the contract.
- Advise the Project Engineer on the interpretation and enforcement of the Environmental Specifications (ES), including evaluation of non-compliances.
- Enforce compliance with the EA and EMP through audit report and checklist
- Supply environmental information as and when required.
- Review and approve Method Statements produced by the Contractor, in conjunction with the PM and EO.
- Monitor any basic physical changes to the environment because of the construction works according to an audit schedule.

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- Attend regular site meetings and project steering committee meetings.
- Undertake regular monthly audits of the construction works and to generate monthly audit reports. These reports are to be forwarded to the JW EO who will communicate the results and conclusions with the principal Contractor.
- Submit audit reports to the authority as per the requirement of issued Environmental Authorisation.
- Communicate frequently and openly with the Contractor and the Project Engineer to ensure effective, proactive environmental management, with the overall objective of preventing or reducing negative environmental impacts and/or enhancing positive environmental impacts.
- Advise the Project Engineer on remedial actions for the protection of the environment in the event of any accidents or emergencies during construction, and to advise on appropriate clean-up activities.
- Review complaints received and made instructions as necessary; and
- Identify and make recommendations for minor amendments to the EMP as and when required.

4.9 Environmental Representative (Environmental Rep) shall:

- Review the effectiveness of environmental measures in the workspace/construction environment for which he/she was appointed.
- Identify potential impacts in the workplace.
- Investigate environmental incidents and identify root causes.
- Investigate Environmental Complaints.
- Conduct Awareness training.
- Participate in Environmental inspections.
- Ensure compliance with JW EMP and other environmental management related legislations.
- Ensure Proper Rehabilitation is conducted.
- Attend site SHE meetings where Environmental issues are addressed.
- Guide Construction crew/team on environmental requirements as per JW EMP.
- Assist in day-to-day monitoring of construction activities.

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- Assist in implementation of ISO 14001:2015 standard.
- Assist the SHE Officer/EO with preparation of audits /inspections.

5. CONTENTS FOR CONTRACTOR'S ENVIRONMENTAL FILE

The following documents must be submitted by the contractor in the Environmental file before Construction commences on site. The file must be submitted to the Environmental Section prior construction for approval. The Contractor should achieve a minimum score of 80% for the file to be approved (**Refer to Annexure B: Environmental File Specification**).

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6. ENVIRONMENTAL SPECIFICATIONS

Table 2: Environmental Management and Mitigation Measures that must be implemented during the Design Phase and Construction Phase

Design Phase Measures						
Aspects	ID	Mitigation Measure/Procedure	Responsible	Implementation Timeframe	Monitoring Methods	Performance indicators
Project Planning/Design	1	- Proposed project is submitted to Environmental Section for screening (Project scope/layout/Maps), - CAPEX and Ops must ensure that there is budget allocated for environmental management throughout the project life cycle i.e., planned project and Directives.	Johannesburg Water (CAPEX/Ops)	Before project commences	- Screening report - Tender document	Keep the records of the project screening report and scope of work as per Directives
Authorisation	2	- Appoint Consulting Company - Ensure that all required licences and permits have been obtained before the start of construction. - Ensure that ECO and/or ELO is appointed as per the authorisation and EMP requirement during project execution (as when and required).	Johannesburg Water (CAPEX/ Environmental Section)	Before construction commences	Keep record of all permits, licences and authorisations	Keep record of all permits, licences and authorisations
Project Handover	3	- The scope of a project is outlined by CAPEX Engineer during the handover meeting. - Environmental Management Requirements are outlined during the handover meeting.	Johannesburg Water (CAPEX/ Environmental Section)	Before construction commences	Meeting invite EA/GA/WUL/ Screening report	Keep record of all permits, licences and authorisations
Environmental Awareness Training/Induction s	4	- Environmental awareness training is given to the Project Team Leaders - Environmental File Specification provided to the Contractor. - JW Environmental Management Plan and other procedures are provided to the Contractor.	Johannesburg Water (CAPEX/ Environmental Section)	Before construction commences	Meeting invite	Meeting records

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Environmental File & Evaluation	5	- Contractor submits environmental file for approval prior work commences on site. - Construction activities/work (including site establishment) should ONLY commence when file is approved.	Appointed Contractor/Environmental Section	Before construction commences	Environmental evaluation report.	Approval/ rejection letter records
Construction Phase Measures						
Aspects	ID	Mitigation Measure/Procedure	Responsible	Implementation Timeframe	Monitoring Methods	Performance indicators
Site camp establishment	1	- Invite the Environmental Officer for the site inspection of proposed site camp prior establishment. - Submit a method statement for Site Camp establishment for approval by JW Environmental Officer/ECO prior commencement of works. - Establish a suitably fenced Site Camp at the start of the contract, which will allow for site offices, vehicle, equipment, material, and waste storage areas to be consolidated as much as possible. Locate the Site Camp at a position approved by the JW EO, at least 100m from watercourses and in an area which is not ecologically sensitive. - Provide water and/or washing facilities at the Site Camp for personnel. - Limit construction and lay down areas to areas within the development footprint. - Ensure that environmentally friendly on-site sanitation options are selected, and these facilities are properly managed and maintained. - Designated eating areas shall be provided on site. - These eating areas shall be clearly demarcated and shall be provided with bins with lids.	All Contractors	Before commencement of Project	- Visual inspection - Site establishment checklist/Method statement	Method statements approved by CAPEX and the Environmental Officer - Position of Site Camp approved by ECO - Security and access to Site Camp controlled - Clear demarcation of no-go areas as agreed with JW EO. - Detailed site layout plan - Environmental file approval letter.

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		- Staff will be prohibited from consuming meals anywhere other than at these eating areas and that noise is limited. - All eating areas shall include provision for a water and smoking area.				
Environmental Awareness Training	2	- Provide environmental awareness training to all personnel on site at the start of their employment. Training should include discussion of: - Potential impact of construction waste and activities on the environment. - Suitable disposal of construction waste and litter. - Key measures in the EMP relevant to worker's activities. - How incidences and suggestions for improvement can be reported. - Ensure that all attendees remain for the duration of the training and on completion sign an attendance register that clearly indicates participants' names.	All Contractors	- Before workers start working onsite - Before new activities are undertaken	- Check training attendance register - Observe whether activities are executed in line with EMP requirements	- Proportion of workers that completed. - Environmental training Compliance of workers with EMP
Plant Search and Rescue/Vegetation clearing	3	- From information gathered during the plant marking exercise, establish the size. - Requirements for the plant rescue team workforce, and the methodology to be employed during the rescue to maximise the likelihood of success; Document and motivate which species found on site are considered to be conservation worthy. - Follow a multi-pronged approach to maximise the likelihood of success wherever feasible. In addition to transplanting of whole plants, seed can be collected and sown in situ in suitable habitats and/or in an off-site nursery. - Any plants not suitable for transplantation must be considered for transplanting to existing conservation	All Contractors	Before commencement of activities	Visual Inspection/ inspection by Botanist/Ecologist	- Incidents of harm coming to fauna/ flora. - Number of incidents of disturbance of vegetation outside construction site boundary; and - Size of area cleared relative to

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		areas nearby. This could involve growing these plants on in an off-site nursery for a period of time. - Depending on the conservation worthy species found, the location of suitable existing conservation areas nearby and the location of the off-site nursery, the most appropriate plant rescue options must be detailed in the search and rescue plan, and could be a combination of the following options: - All required permits must be obtained from the appropriate authority covering plants to be affected by the plant rescue operation prior to the removal of the plants. - Demarcate the area for construction prior to each phase and prevent access by construction personnel outside of this area. - Appoint a suitably qualified botanist to undertake search and rescue of key plant species in the development footprint where necessary (Where is applicable. Clearly demarcate sensitive areas, including buffers, with appropriate signage. - Do not allow personnel to enter calcrete vegetation areas. - Do not allow personnel to pick or destroy plants outside of the construction footprint. - Limit clearing to those areas within the footprint of construction for each phase. - Restrict construction vehicles to designated roadways. - Do not allow the temporary storage of building material within sensitive areas. Aftercare and monitoring				development footprint - Size of area disturbed outside of construction site boundary. - Areas of development footprint must be clearly demarcated

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		- Record numbers and diversity of propagated plants and the health of the same, until they can be planted out; - Aftercare of transplanted plants to be done in accordance with the plant search and rescue plan by an appropriate agent (e.g., staff from the commercial nursery or an appropriately trained onsite Contractor), including watering and alien plant control requirements. If done correctly, the frequency of input will decrease with time. - Record numbers and diversity of transplanted plants and the health of the same. - Monitoring must be undertaken as per requirements of the plant search and rescue plan approved by GDARD, including monitoring of alien plants and maintenance of a photographic record; and - Provide a detailed record (including photographic record) that indicates the success of the plant rescue operation. Records of corrective action taken to improve management of transplanted plants, where relevant, must also be completed. Applicable Legislation - National Environmental Management Act: Biodiversity Act (Act 10 of 2004) including Threatened or Protected Species Regulations. - National Environmental Management Act (Act 107 of 1998). - Gauteng Nature Conservation Bill, 2014/Transvaal Nature Conservation Ordinance 12 of 1983; and - National Forests Act (Act 30 of 1998).				

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Excavation	4	- The process of excavation and back filling must be carried out as a sequential process following one another as quickly as possible. - Excavations must only remain open for a minimum period of time and during this time they must be clearly demarcated. If excavations place the public at risk these sites must be fenced. - Where possible, close excavations immediately after pipe is laid. - The residents directly affected by open trenches must be notified of the dangers. This will be done during the site-specific phase. - Danger tape shall not be utilised to prevent personnel from open excavations, orange nets should be used for all open excavations on site. Construction vehicles should avoid creating new roads, use existing roads. - Wet exposed surfaces using a water cart, bowser or use a biodegradable and environmentally friendly soil binder to prevent dust emissions. - Dewater excavations regularly and channel water to areas of grass cover. If dewatering is near/within a watercourse and is to be discharged to a watercourse, ensure a silt fence/net and sandbags are used to reduce silt loads. - Topsoil must be cleared (considered to be the upper 150mm of soil surface) and retained as it contains most inorganic matter and nutrients. Topsoil must be kept separate from subsoil and stored in windrows parallel to excavations. - Harvested grass should be retained and used as a mulch to combat erosion.	All Contractors	Throughout construction	Visual inspection	- Daily site inspection. - Damage to the environment (sensitive environment)

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		• Soil should be exposed for the minimum time possible once cleared of indigenous or invasive vegetation. • Avoid prolonged exposure of soils to wind and water erosion when clearing and grubbing. • The stockpiled topsoil (which will be left standing for more than 1 month) must be covered with suitable fabric, and / seeded, to prevent erosion and weed invasion. • Stockpiled topsoil must be covered with suitable fabric to prevent erosion and weed invasion. • No vehicles are allowed to access onto the stockpiles after they have been placed. • Topsoil and subsoil must be kept separate throughout construction and rehabilitation. • A marsh wire or snow netting shall be erected around the exposed excavations to warn the public. • The contractor must rip and rehabilitate temporal roads after project completion. • The Contractor shall be in possession of an emergency oil and chemical spill kit, drip trays and bioremediation substances/enzymes that must be complete and available on site at all times.				
Topsoil and subsoil	5	• The contractor should remove 150mm of topsoil and stockpile at a height of not more than 1m. • Topsoil should be temporarily stockpiled, separately from (clay) subsoil and rocky material, when areas are cleared. If mixed with clay sub-soil the usefulness of the topsoil for rehabilitation of the site will be lost. • Stockpiled topsoil should not be compacted and should be replaced as the final soil layer. No	All Contractors	During Vegetation clearance	Visual inspection	• Incident of incorrect storage and harvesting. • Manifestation of alien invasive plants. • Incident of erosions.

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		vehicles are allowed access onto the stockpiles after they have been placed. • Stockpiled soil should be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet season and seeded. • Topsoil must be hydro seeded during shut down in December. • Topsoil stripped from different sites must be stockpiled separately and clearly identified as such. • Topsoil obtained from sites with different soil types must not be mixed. • Topsoil stockpiles must not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the later growth of vegetation and micro-organisms in the soil. • Soil must not be stockpiled on drainage lines or near watercourses without prior consent from the Project Manager. • Soil should be exposed for the minimum time possible once cleared of invasive vegetation, that is the timing of clearing and grubbing should be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion. • Stockpiled topsoil must be either vegetated with indigenous grasses or covered with a suitable fabric to prevent erosion and invasion by weeds. • Limited vehicular access is allowed across rocky outcrops and ridges. • All cut and fill surfaces need to be stabilized with appropriate material or measures when major civil works are complete. • Erosion and donga crossings must be dealt with as river crossings. Appropriate soil erosion and control				

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		procedures must be applied to all embankments that are disturbed and destabilized as per the Authorisation - All equipment must be inspected regularly for oil or fuel leaks before it is operated. Leakages must be repaired on mobile equipment or containment trays placed underneath immobile equipment until such leakage has been repaired. - Soil contaminated with oil must be appropriately treated and disposed of at a permitted landfill site or the soil can be regenerated using bio-remediation methods. - Runoff must be reduced by channelling water into existing surface drainage system.				
Protection of archaeological and heritage resources	6	- Alert the construction workforce of the potential existence of artefacts at the site. - Empower staff to stop works on (chance) discovery of artefacts at the site. - Cease construction on (chance) discovery of archaeological sites of heritage importance or redirect machinery away from finds until an archaeologist is able to make a site inspection and establish the importance of the find and make recommendations for preservation and/or record keeping. - Report the presence of graves or human remains, fragments of fossil bone, ostrich egg and stone fragments to HWC. - Obtain a permit for the removal of artefacts from the site if any are discovered during construction.	All Contractors/Joburg Water	- Before Construction commences - During earthworks	Visual inspection	- Discovery of possible archaeological material - Rescue and reporting of identified material when discovered
Protection of paleontological resources	7	Identify a stand-by palaeontologist to inspect fossils if they are discovered during construction activities.	Johannesburg Water	Prior commencement	Visual inspection	Discovery of possible

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		- Empower staff to stop works on (chance) discovery of fossils at the site. - Alert the construction workforce of the potential existence of fossils at the site. - Cease construction on (chance) discovery of fossils and artefacts of paleontological importance or direct machinery away from finds until the identified palaeontologist is able to make a site inspection and establish the importance of the find and make recommendations for preservation, collection or record keeping.	All Contractors	During earthworks		archaeological material. Rescue and reporting of identified material when discovered.
Concrete / cement Work/Batching plant	8	- Use Ready-Mix concrete rather than batching where possible. - Ensure that no cement truck delivery chutes are cleaned on site. Cleaning operations are to take place off site at a location where wastewater can be disposed of in the correct manner. If this is not possible a suitable washing facility is to be developed on site in consultation with the ECO. - Concrete must be mixed only in an area demarcated for this purpose, ideally on an impervious surface (e.g., cement mixing pit). - Batching operations to take place in a designated area, which will be kept clean at all times. - All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site. - After all concrete mixing is complete; all waste concrete must be removed from the batching area and disposed of at an approved dumpsite. - Ensure separation of clean and dirty water from batching plant.	All Contractors	Throughout construction	Visual inspection and JW EO/ECO approval.	- Number of incidents of batching outside works footprint. - Contamination of water and soil; and - Visible litter / waste on site.

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		- Storm water must not be allowed to flow through the batching area. Water laden with cement must be collected in a retention area for evaporation and not allowed to escape the batching area. - Operators must wear suitable safety clothing. - Wastewater from batching operations to be suitably disposed of. - Waste concrete and cement sludge to be removed on a regular basis (to prevent overflowing) and to be disposed of at a suitable facility. - Unused cement bags will be stored in an area not exposed to the weather and packed neatly to prevent hardening or leakage of cement. - Used cement bags will be stored so as to prevent windblown dust and potential water contamination. Used bags will be disposed of adequately at a licenced waste disposal facility. - Limit concrete batching to single sites where possible. - Concrete transportation will not result in spillage. - Cleaning of equipment and flushing of mixers will not result in pollution, with all contaminated wash water entering the wastewater collection system. - To prevent spillage onto roads, ready mix trucks will rinse off the delivery shoot into a suitable sump prior to leaving the site. The Contractor shall ensure such designated concrete wash bay area's/ sumps are created and that all concrete trucks delivering concrete to site first empty and clean their shoots at this point before leaving the site. The dried waste product shall be handled as construction rubble.				

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		- Suitable screening and containment will be in place to prevent windblown contamination from cement storage, mixing, loading and batching operations. - All contaminated water and fines from exposed aggregate finishes will be collected and stored in sumps and will be adequately disposed of. - All visible remains of excess concrete will be physically removed on completion of the plastering or concrete pouring and disposed of in an acceptable manner. - Any spilled concrete to be cleaned up immediately. - In practice all wastes arising from construction activities are to be handled; transported and disposed of in accordance with the relevant regulations. All efforts should be made to minimise, reclaim or recycle waste, and failing that, dispose of it in a manner licensed by the government for that purpose.				
Water Management	9	- Con serve water wherever possible (e.g., ensure that areas are not watered excessively, and all leaking pipes are replaced and repaired immediately). - Adequate erosion, runoff and sedimentation prevention, control and mitigation measures must be instituted at all sensitive areas, such as embankments, slopes, river crossings/watercourses/drainage lines, wetlands, when excavations or disturbance occurs within these areas, within the buffers, beds, and banks. - These control measures must include use of silt fences/traps, sandbags, retention of vegetation, berms, immediate replacement of vegetation. Additionally, reno mattresses, riprap, stone pitching,	All Contractors	Throughout construction/post construction	Visual inspection	- Incidence of storm water contamination. - Visible leaks/ water wastage. - And Visible surface erosion.

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		gabions, use of geotextiles) e.g., biojute must be used at the direction of the JW Engineer. • Adequate sedimentation control measures must be instituted at any river crossings when excavations or disturbance of a riverbanks or riverbeds takes place. • Adequate sedimentation control measures must be implemented where excavations or disturbance of drainage lines of a wetland may take place. • All fuel, chemical, oil, etc. spills must be confined to areas where the drainage of water can be controlled. Use appropriate structures and methods to confine spillages such as the construction of berms and pans, or through the application of surface treatments that neutralise the toxic effects prior to the entry into a water course. • The drip trays and spill kits must be used to contain oil from spilling into the water. Ensure adequate drip trays are available. • During construction through a wetland or watercourse, the majority of the flow of the wetland should be allowed to pass downstream. • Vehicular traffic across wetland and watercourse areas must be avoided. • No dumping of foreign material in streams, rivers and/or wetland areas is allowed. • The wetland area and/or river must not be drained, filled or altered in any way including alteration of a bed and/or, banks, without prior consent from the DWS. The necessary licenses must be obtained in terms of Section 21 and 22 of the National Water Act, 36 of 1998 from DWS. • No fires or open flames are allowed in the vicinity of the wetland, especially during the dry season.				

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		- No swimming, washing (including vehicles and equipment), fishing or related activity is permitted in a wetland or river. - Disturbances to nesting, breeding and roaming sites of animals in or adjacent to wetland areas must be minimized. - Portable Water shall be the last resort info dust suppression on site.				
Air Pollution	10	- Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution. - Dust must be suppressed on access roads and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that must not result in the generation of run-off. - Where possible the use of potable water should be minimised for dust suppression purposes, preferably recycled or reused water. - The site-specific investigation will quantify the impact of dust on nearby wetlands, rivers and dams in terms of sedimentation. Mitigation measures identified during the site-specific study must be implemented. - The Contractor must notify the principal of all schools within 50m of the site of proposed activities. The principal must in turn ensure that children with allergies and respiratory ailments take the necessary precautionary measures during the construction period. The Contractor must ensure that construction activities do not disturb school	All Contractors	Throughout construction	Visual inspection	Visible air pollution.

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		activities e.g., dust clouds may reduce visibility affecting sports activities. - Waste must be disposed of, as soon as possible at a municipal transfer station, skip or on a permitted landfill site. Waste must not be allowed to stand on site to decay, resulting in malodours. - Noise control measures must be implemented. All noise levels must be controlled at the source. All employees must be given the necessary ear protection gear. IAP's must be informed of the excessive noise factors. - The Contractor must inform all adjacent landowners of any after-hour construction activities and any other activity that could cause a nuisance e.g., the application of chemicals to the work surface. Normal working hours must be clearly indicated to adjacent landowners. - No loud music is allowed on site and in construction camps. - No fires are allowed if smoke from such fires will cause a nuisance to IAPs.				
Social and cultural	11	- Access by non-construction people onto any construction sites must be restricted. The Contractors activities and movement of staff must be restricted to designated construction areas only. - The Contractors crew must be easily identifiable due to clothing, identification cards or other methods. - Rapid migration of job seekers could lead to squatting and social conflict with resident communities and increase in social pathologies if not properly addressed. The Contractor must ensure that signs indicating the availability of jobs are installed.	All Contractors	Throughout construction	Visual inspection	- Community complaints. - Complaints register. - Daily environmental inspection

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	• Criteria for selection and appointment (by the Contractor) of construction labour must be established to allow for preferential employment of local communities. The Local Authority must be actively involved in the process of appointing temporary labourers. • Sub-Contractors and their employees must comply with all the requirements of this document and supporting documents e.g., the Contract document that applies to the Contractor. Absence of specific reference to the sub-contractor in any specification does not imply that the sub-contractor is not bound by this document. • No member of the construction workforce is allowed to wander around private property, except within the immediate surroundings of the site. • The Contractor must provide suitable sanitation facilities for site staff. Sanitation provided during the construction phase should be managed so that it does not cause environmental health problems. The use of the surrounding veld for toilet purposes is not permitted under any circumstance. • The Contractor must arrange for all his employees and those of his sub-contractors to be informed of the findings of the environmental report before the commencement of construction to ensure: • A basic understanding of the key environmental features of the work site and environments, and • Familiarity with the requirements of this document and the site-specific report. • Supervisory staff of the Contractor or his sub-contractors must not direct any person to undertake any activities which would place such person in				

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		contravention of the specifications of this document endanger his/her life or cause him/her to damage the environment. - The demand for construction materials and supplies will have an effect on the local economy. This impact can be optimised by sourcing and purchasing materials locally and regionally wherever possible, insofar as the material complies with the design specification. - The Contractor must maintain a detailed complaints register. This must be forwarded, together with solutions, to the authorities when requested.				
Aesthetics	12	- Scenic Quality - Damage to the natural environment must be minimized. - The contractor may not remove any trees. If trees are in the way of the pipe route or with the development sites, the contractor must inform the environmental section who will then liaise with city parks for permission or recommendation. - Trees and tall woody shrubs must be protected from damage to provide a natural visual shield. Excavated material must not be placed on such plants and movement across them must not be allowed, as far as practical. - The clearing of all sites must be kept to a minimum and surrounding vegetation must, as far as possible, be left intact as a natural shield. - No painting or marking of natural features must be allowed. - Above-ground Structures (reservoirs, water hammer tanks, valve chambers, pump stations etc.)	All Contractors	Throughout construction	- Visual inspection. - Way-leaves	- Daily inspection - Environmental incident.

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		- All above ground structures should be located in areas where the visual impact from roads, houses etc. is minimised. - All above ground structures could be treated or painted to blend in with the natural environment. - Cut and fill areas, river and stream crossings and other soil stabilisation works must be constructed to blend in with the natural environment. - Natural outcrops, rocky ridges and other natural linear features must not be bisected. Vegetation on such features must, as far as possible, not be cut unless absolutely necessary for construction. - Excavated material must be flattened (not compacted) or removed from site. No heaps of spoil material must be left on site once the Contractor has moved to a new construction site. - Any complaints from IAP's regarding the appearance of the construction site must be recorded and addressed promptly by the Contractor.				
Fauna and Flora	13	Flora - All suitable and rare flora and seeds must be rescued and removed from the site. They must be suitably stored, for future use in rehabilitation. - The felling and/or cutting of trees and clearing of bush must be minimised. - Bush must only be cleared to provide essential access for construction purposes. - The spread of alien vegetation must be minimized. - Any incident of unauthorised removal of plant material, as well as accidental damage to priority plants, must be documented by the Contractor. - Woody vegetative matter stripped during construction must either be spread randomly	All Contractors	Throughout construction	- Visual inspection - Way-leave from City Parks. - Biodiversity permit from Gauteng Department of Rural and Development	- Environmental incident register - Daily inspection - Number of environmental incidents. - Fauna and flora removal and relocation register

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		throughout the surrounding veld to provide biomass for other micro-organisms and habitats for small mammals and birds, or it may be stockpiled for later redistribution over the reinstated top soiled surface. No vegetative matter must be burnt or removed for firewood other than those removed during the grubbing and clearing phase. Such vegetation can be made available to the local inhabitants to be used as firewood. - No tree outside the footprint of the Works area must be damaged. Fauna - No species of animal may be poached, snared, hunted, captured, or wilfully damaged or destroyed. - Snakes and other reptiles that may be encountered on the construction site must not be killed unless the animal endangers the life of an employee. - Anthills and/or termite nests that occur must not be disturbed unless it is unavoidable for construction purposes. - Disturbances to nesting sites of birds must be minimized. - The Contractor must ensure that the work site is kept clean and free from rubbish, which could attract pests.				
Infrastructure	14	- The relevant authorities must be notified of any interruptions of services, especially the Local Municipality, National Road Agency, Transnet, TELKOM, and ESKOM. In addition, care must be taken to avoid damaging major and minor pipelines and other services. - The integrity of property fences must be maintained.	All Contractors	Throughout construction	- Visual inspection - Wayleaves from different entities.	- Incident register. - Permit/ Way-leave register - Complaints register.

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		- No telephone lines must be dropped during the construction operations, except where prior agreement by relevant parties is obtained. All crossings must be protected, raised or relocated as necessary. - All complaints and/or problems related to impacts on man-made facilities and activities must be promptly addressed by the Contractor and documented. - Proper storage facilities should be provided for the storage of oils, grease, fuels, chemicals and hazardous materials. - The Contractor must ensure that accidental spillage does not pollute soil and water resources. - Fuel stock reconciliation must be done on all underground tanks to ensure no loss of oil, which could pollute groundwater resources. - Cement must be stored and mixed on an impermeable surface. - The Contractor shall ensure that existing services (e.g., roads, pipelines, and power lines and telephone services) are not damaged or disrupted unless required by the contract and with the permission of the RE. - The Contractor shall be responsible for the repair and reinstatement of any existing infrastructure that is damaged or services which are interrupted. - A time limit for the repairs may be stipulated by the RE in consultation with the Contractor.				
Blasting	15	- Blasting must not endanger public or private property. - Noise mufflers and/or soft explosives must be used to minimize the impact on animals.	All Contractors	Throughout construction	Visual inspection/ Engineer report	- Incident register. - Complaints register.

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		- All the provisions of the Explosives Act, 26 of 1956 and the Minerals Act, 50 of 1991 must be complied with. - The Contractor must take measures to limit fly rock. - Certificate of competence. In file - Blasting permit must be obtained from the South African police station issued in terms of section 9 of explosive Act, Act 26 of 1956) prior blasting. - Method statement for drilling and blasting (NB: Submitted for acceptance before any works) in file - Provide the MSDS's for the chemicals are to be used. - Proof of notification to the affected community. - The Appropriate PPE.				Permit register.
Workshops, storage areas and materials handling	16	- These areas shall be chosen so as to cause the least impact on the biophysical and social elements of the area. - The siting of workshops, maintenance and refuelling sites and materials storage areas shall not be in the vicinity of sensitive sites e.g., wetlands, cultivated fields or drainage lines, or where local landowners can be disturbed. - Storm water shall be diverted around the storage area. Storm water falling on the storage area shall be discharged if it meets the required water quality standards. - Proper storage facilities, placed on an impermeable surface, shall be provided for the storage of oils, grease, fuels, chemicals, and other hazardous materials to be used during the construction phase of the project. If fuel is required on site, it shall be stored in a secure area in a steel tank supplied and	All Contractors	Throughout Construction	- Visual inspection - Method statement for handling hazardous substances. - MSDS	- Hazardous substances register. - MSDS file - Spill register - Incident register.

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		maintained by the fuel suppliers. Leakage of fuel shall be avoided. • An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any spillage or overflow from these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. • In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or container and Material Safety Data Sheets (MSDS's) will be made available for all hazardous chemicals. Before containers or storage facilities are erected, emergency procedures in the event of misuse or spillage that may negatively affect an individual or the environment will be in place. • The storage facilities (including any tanks) shall be surrounded by a bund wall, in order to ensure that accidental spillage does not pollute local soil or water resources. • The storage areas shall not be utilised for accommodation purposes and shall be access controlled. • The storage area shall be kept tidy, and the area shall be rehabilitated after use. • An inventory of any hazardous chemicals/substances (including that within equipment) kept on site, along with a description of possible ill effects and treatment of health-related afflictions resulting from accidents, shall be kept in the storage area as well as by the appropriate manager. These areas shall be securely fenced.				

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ENVIRONMENTAL MANAGEMENT PLAN

		• Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area. • A notice board with the contact details of the responsible party shall be displayed at the gate to the storage area. • The contractor shall ensure that any delivery drivers are informed of all procedures and restrictions required to comply with the EMP. Someone with an adequate understanding of the CEMP shall supervise drivers during delivery and off-loading. • All vehicles and machinery will be inspected for any leaks or malfunctions regularly. Vehicle servicing or repairs is prohibited from site, unless in an emergency. • Drip trays shall be inspected and emptied daily and serviced when necessary. In particular drip trays shall be closely monitored during rain events to ensure that they do not overflow. The contents must be disposed of at a recognised site. • All repairs done on machinery using hydrocarbons as fuels or lubricants shall have a drip tray placed strategically to avoid incidental spillage. • Workers shall be made aware of the health risks associated with any hazardous substances used (e.g., smoking near refuelling depots), and shall be provided with appropriate protective clothing / equipment in case of spillages or accidents. • Cement and other potential environmental pollutants shall be stored and mixed on plastic sheeting or ready-mix trucks shall be used. There shall be no opportunity for environmental contamination.				

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		- Workshop areas shall be monitored for oil and fuel spills and such spills shall be cleaned and remediate to the satisfaction of the EO. - The Contractor shall be in possession of an emergency spill kit that must be always complete and available on site.				
Waste Management	17	Methods for waste management and waste minimisation shall be implemented from the outset of the contract as per the Waste Management Plan to be submitted to Client. All personnel shall be instructed to dispose of all waste in the proper manner. A waste avoidance and minimisation approach will be encouraged for the duration of the project. The following steps in order will be applied. - Prevention – avoid and minimise waste - Recycle – reuse and recover all general waste - Treat – treatment to reduce toxicity reduce waste quantities - Dispose – waste removal into a registered landfill facility Solid waste Waste with the potential for market re-use will be stored in separate containers, this includes, scrap metal, used tyres and paper. This waste will be recycled wherever possible. Solid waste shall be temporarily stored in tip – poof metal drums or waste skips at an approved area on site for collection and disposal. This area shall be away from drainage lines or water courses. - All general waste drums or skips will be appropriately labelled GENERAL WASTE	All Contractors	Throughout Construction	- Visual inspection/Environmental inspection checklist. - Legal Documents: Transport certificate obtained from GDARD for transporting general or hazardous waste. - Transport certificate obtained from City of Johannesburg for transporting general waste within COJ. - Waste manifest/	- Littering - Soil contamination - Water pollution.

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ENVIRONMENTAL MANAGEMENT PLAN

		- A refuse control system shall be established for the collection and removal of refuse to the satisfaction of Client and ECO. - No waste shall be burned at the site offices or anywhere else on the site. - All building rubble shall be a) removed from the site and disposed of at an appropriate dumping site, or b) temporarily stored in a clearly demarcated area on site for future use. - All waste shall be disposed at an appropriate waste disposal facility. Litter - No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter. - Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. - Littering, discarding or burying of any materials shall not be allowed on site. Hazardous waste - Hazardous waste shall be temporarily stored in tip – poof metal drums or waste skips at an approved area on site for collection and disposal. This area shall be away from drainage lines or water courses. - All hazardous waste drums or skips will be appropriately labelled.			waste disposal certificate/ weighbridge slip.	

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ENVIRONMENTAL MANAGEMENT PLAN

		- Hazardous waste must not be temporary stored on site for a period exceeding 90 days as per the National Environmental Management Waste Act (Act 59 of 2008) as amended in 2014) (Schedule 19 (2)). HAZARDOUS WASTE. - Hazardous waste such as bitumen, tar and oil shall be disposed of at a registered waste disposal facility. Special care shall be taken to avoid spillage of tar products such as tar prime or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water. - All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced with clean soil. Soil contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials. - Used oil, lubricants, and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and returned to the supplier. Water and oil shall be separated in an oil trap. Oils collected in this manner shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at an approved hazardous waste disposal site. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company. - Sludge should be managed in accordance with the Sludge Guideline 2010.				

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		- Sludge should be kept only at the drying bed and no sludge should be stored at a permeable ground or natural ground. - Hazardous waste shall be disposed of at a registered hazardous waste disposal site, disposal certificates shall be kept in the site file for record. Medical Waste - All medical waste will be contained in the special bins provided. All sharp needles must be separated from other medical waste, - All outdated and disused medicines will be disposed of as a hazardous medical waste or returned to the supplier for disposal. (Tablets and syrups will be crushed and/or dissolved before disposal as hazardous waste), - Medical waste used on personnel coming for treatment at the clinic are to be placed on a demarcated container storage room, - The Occupational Health Nurse (OHN) will notify a service provider for removal of the medical waste prior exceeding 90 days. - The service provider to provide Waste Manifest as well as the Safe Disposal Certificate, to the OHN who will maintain the copies of the waste manifest and safe disposal certificate. - The OHN will arrange for an approved hazardous waste disposal company to collect and dispose of this medical waste. The OHN is responsible for and authorised to keep all records in connection herewith (disposal certificates).				

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ENVIRONMENTAL MANAGEMENT PLAN

Ablution facilities	18	• Provide ablution facilities (i.e., chemical toilets) for all site staff at a ratio of 1 toilet per 15 workers (absolute minimum 1:25). • Secure all temporary/portable toilets to the ground within the Site Camp to the satisfaction of JW EO/ECO to prevent them toppling due to wind or any other cause. • Maintain toilets in a hygienic state (i.e., toilet dispensers to be provided, toilets to be cleaned and serviced regularly (by registered appropriate waste contractor), and toilets to be emptied before long weekends and builders' holidays). • Remove/ appoint an appropriate supplier to remove accumulations of chemicals and treated sewage from the site and dispose of at an approved waste disposal site or sewage plant. • Ensure that no spillages occur when the toilets are cleaned or emptied. Repeated incidents of spillage of chemicals and or waste (i.e., more than one incident), will require toilets to be placed on a solid base with a sump. • Ablution facilities must be located at least 50m from any watercourse. • Ablution facilities shall be provided on site. • The positioning of the ablution facilities shall be done in consultation with Client and shall be placed so that it cannot contaminate the natural streams and rivers. One toilet shall be provided per 10 staff members on site. Toilets shall be positioned within walking distance of wherever employees are employed on the site. Toilets shall be provided with locks and doors shall be secured to prevent the toilets from blowing over.	All Contractors	Throughout construction	• Visual inspection • Records of waste manifest/disposal certificates/ weighbridge slip	• Incidence of staff not using Facilities • Incidence of pollution

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ENVIRONMENTAL MANAGEMENT PLAN

	• The toilets shall be placed outside of areas susceptible to flooding. • Chemical toilets shall be serviced regularly by an authorised service provider and removed to a registered wastewater treatment works and disposal certificates shall be obtained from the waste disposal facility for each disposal and retained on site. • Polluted run-off must be discharged in the local sewerage main and not overland or into public streams. In instances where a sewerage main is not available, polluted run-off will be collected in sub-surface tanks and a reputable effluent removal contractor will be contracted to dispose of the waste in an environmentally acceptable manner. Official documentation shall be obtained from the waste disposal facility for each disposal and retained on site. • Toilets situated close to the site boundaries or within sight of residential areas shall be hidden behind screens or other cover as approved by the Engineer. • Discharge of waste from toilets into the environment and burial of waste is strictly prohibited. • Only flushable toilets should be utilised on site. • If the Ablution facilities are to be connected to the Municipal sewer line, method statement and a letter for municipal tax and rates should be submitted to JW Environmental section and responsible Depot for approval. • A letter or agreement for disposing waste must be obtained from the applicable WWTW; this must be provided by service provider. Waste manifests, disposal certificates and service certificates are				

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ENVIRONMENTAL MANAGEMENT PLAN

		required; these must be provided by service provider. The contractor shall not appoint service providers who do not have registration certificates with GDARD and CoJ for transporting hazardous (and general waste), and copies of permits for landfills, and agreement letter from WWTW, to be used for disposals. The contractors themselves are encouraged to register as general and hazardous waste transporters, and open accounts with Pikitup, so disposal slips may be obtained.				
Access road and traffic control	19	Access Roads - The Contractor and the affected landowner must collaborate on the planning and construction of new access routes and the repair or upgrading of existing routes. - Access to the site must be controlled such that only vehicles and persons directly associated with the work gains access to the site. - Temporary access roads must not be opened until required and must be restored to its former state as soon as the road is no longer needed. Traffic Control - All reasonable precautions must be taken during construction to avoid severely interrupting the traffic flow on existing roads, especially during peak periods. - Before any work can start the Local Traffic, Department must be consulted about measures to be taken regarding pedestrian and vehicular traffic control and obtain proper road signage's	All Contractors	Throughout construction	- Method statement for access road and traffic control. - Way-leave	- Daily Inspection checklist. - Environmental incident. - Incident register.

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Electrical	20	- Measures must be taken during thunderstorms to protect workers and equipment from lightning strikes. - All tall structures must be properly earthed and protected against lightning strikes.	All Contractors	Throughout construction	- Permit - OHS approval letter - Wayleave	- Approval letter - Electrical certificate
Development Footprint	21	- The development footprints and disturbed areas surrounding the proposed project infrastructure should be kept at minimum as possible and the areas cleared of natural vegetation and topsoil must be kept to a minimum. - The extent of all development footprint areas and permanent/ temporary structures must be limited to what is essential. - As far as possible, existing roads are to be utilised, to limit cumulative impacts from roads and traffic. - The height of any temporary structures such as topsoil stockpiles should be kept as low as possible below 1m.	All Contractors	Throughout construction	- Agreement letter. - Wayleave	- Incident register. - Complaints register.
Fire Prevention	22	- The Contractor must take all the necessary precautions to protect the materials on site and to avoid veld fires. - No fires or open flames are allowed on site unless directly used for construction purposes, - Review all SANS standards relating to fire precautions and fire control namely, SANS 0131-3 Section 8 and SANS 089-1 or as amended. - The Contractor must have fire-fighting equipment and a first aid box available on site and on all vehicles working on site. - All waste bins must be kept away from fuel tank installations.	All Contractors	Throughout construction	- Visual inspection - Emergency Response Plan.	- Fire extinguisher inspection checklist. - Incident register - Mock drill report.

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		- All fuel tanks must be installed above ground, depending on the volume of stored fuel, for easy detection of fuel leaks. - Any welding or other sources of heating of materials must be done in a controlled environment, wherever possible and under appropriate supervision, in such a manner as to minimise the risk of veld fires and/or injury to staff. - Fires lit for comfort (warmth) must be actively discouraged by the Contractor, due to the risk of veld fires and the risk to adjacent properties. Also, no waste material must be burnt.				
Noise Pollution	23	- Temporary noise pollution due to construction works should be controlled by proper maintenance of equipment and vehicles and tuning of engines and mufflers. Construction works should be completed in as short a period as possible by assigning qualified engineers and foremen. - It is the responsibility of the Contractor to monitor for the mitigation of such impacts. Noise problems should be reduced to normally acceptable levels by incorporating low-noise equipment in the design and/or locating such mechanical equipment in properly acoustically lined buildings or enclosures. In the presence of adequate buffer zones between the facility and residential areas, noise control measures must be minimized.	All Contractors	Throughout Construction	Random noise measurements	- Results of random noise measurements - Number of registered complaints
Complaints	24	Maintain complaints register for all complaints. The register must list: - Complainant name and contact details. - Date complaint was lodged. - Person who recorded the complaint. - Nature of the complaint.	All Contractors	Throughout construction	Complaints register	- Availability of register on site - Designated person to maintain register

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		• Actions taken to investigate the complaint and outcome of the investigation. • Action taken to remedy the situation. • Date on which feedback was provided to complainant.				• Complaints logged • Complaints followed up and Closed out.
Housekeeping	25	• All construction and operational areas must be kept in a neat and orderly condition at all times. • An efficient removal system of waste and rubble must be ensured during all development phases. • All operational facilities, including vehicles, should be actively maintained. • Any areas for material storage, waste sorting and other potentially intrusive activities must be screened from view as far as considered feasible. • Regularly inspect all construction machinery and holding tanks for leaks or damages. • Place generators on drip trays. • Repair any defects as soon as possible. In the case of leaks, ensure that the leaking water or effluent is captured and not released into the environment. • Service and refuel equipment that uses hydrocarbon fuels, oils, lubricants, and other hazardous chemicals at the designated area at the Site Camp only under conditions approved by JW EO/ECO • Ensure that absorbent pads (or equivalent) and/ or drip trays are available to collect any oil, fluid, etc. in the case of a breakdown or emergency repair outside the designated area. Keep a copy of fuels and hazardous substance inventory on site. • Keep spill containment and clean-up equipment at all work sites and for all polluting materials used at the site.	All Contractors	Throughout	Visual inspection of site camp/ construction site	Regular inspection reports by SHE Officer and JW EO

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		- Prevent discharge of any hazardous substances or pollutants, such as cements, concrete, chemicals, and other contaminated wastewater and fuels into the ground, surface, or storm water systems on site. - Control litter and keep construction areas as clean and neat as possible.				
Transportation and refuelling	26	- Undertake regular maintenance of vehicles and machinery to identify and repair minor leaks and prevent equipment failures. - Undertake any on-site refuelling and maintenance of vehicles/machinery in designated areas. Line these areas with an impermeable surface and install oil traps. - Ensure that oils and lubricants used for maintenance of equipment in the field are correctly contained. - Use appropriately sized drip trays for all refuelling and/or repairs done on machinery – ensure these are strategically placed to capture any spillage of fuel, oil, etc. - Use drip trays under all equipment and plants that are parked overnight or for long periods. - Store and handle fuels, oils and chemicals so as to avoid the risk of spillage, i.e., in waterproof and impervious	All Contractors	Throughout Construction	Visual inspection of vehicles, barges, machinery and refuelling / maintenance areas	- Incidence of non-compliance - Incidence of leaks and spills - Cost of cleaning up spills
Safety and Security	27	- Do not allow any open fires on the site. - Do not allow smoking on the site except within designated areas. Suitable fire-fighting equipment must be readily available in these areas. - Equip all fuel stores and waste storage areas with fire extinguishers.	All Contractors	Throughout construction	- Inspect attendance register for training sessions - Inspect fire extinguishers	- Number of fire incidents - Certified extinguishers in appropriate locations

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		- Ensure that all personnel on site are aware of the location of fire-fighting equipment on the site and how the equipment is operated. - Suitably maintain fire-fighting equipment. - Ensure that emergency procedures (in relation to fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc.) are established prior to commencing construction. - Make all emergency procedures available, including responsible personnel, contact details of emergency services, etc. to all the relevant personnel. Clearly demarcate emergency procedures at the relevant locations around the site. - Secure the Site Camp, particularly to restrict - Unauthorised access to fuels and other hazardous substances. - Provide suitable emergency and safety signage on site and demarcate any areas which may pose a safety risk (including hazardous substances, deep excavations, etc.). - Advise the ECO of any emergencies on site, together with a record of action taken.	All Contractors	Before and during construction	and certificates Visual inspection	Number of safety / emergency incidents.
Response to environmental pollution	28	- In the event of environmental pollution, e.g., through spillages, immediately stop the activity causing the problem. - Maintain relevant Material Safety Data Sheets (MSDS) at the site for all potentially hazardous substances (as defined in the regulations for hazardous chemical substances). In the event of an emergency, procedures detailed in the MSDS shall be followed. Clean up any spills immediately, through containment and removal of free product and appropriate disposal of contaminated soils.	All Contractors	Throughout construction	- Maintain register of pollution events and response - Following resumption of activities, frequently inspect repaired	- Number of incidents - Time activities stopped - Number of recurring Incidents - Availability and completeness of register

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		• Immediately remediate and rehabilitate areas in the event of a spill of an environmentally hazardous substance. • Only resume activity once the problem has been stopped or (in the case of spillages) the pollutant can be captured without reaching the environment. Repair faulty equipment as soon as possible. • Treat hydrocarbon spills, e.g., during refuelling, with adequate absorbent material, which then needs to be disposed of at a suitable landfill. • Ensure a quantity of appropriate remedial agent, capable of containing and/or remediating a hydrocarbon spill is available on site at all times in case of an emergency spill. The material shall be capable of handling a spill of at least 200l. • Report all fuel, oil or hydraulic fluid spills to the JW EO/ECO so that appropriate clean-up measures can be implemented. • Report all incidents within 24 hours to JW environmental section. • All environmental incidents must be investigated within seven (7) working days.			equipment to ensure proper functioning	
Storm Water Management	28	Objective • To minimise erosion of soil from site during construction. • To minimise deposition of soil into drainage. • Minimise loss of vegetation cover due to construction related activities. Mitigation Measures • Identify and demarcate construction areas for general construction work and restrict construction activity to these areas. Prevent unnecessary	All Contractors	Throughout Construction	• Visual inspection. • Storm water management Plan. • Way-leave from JRA	• Daily inspection checklist. • Incident register.

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		destructive activity within construction areas (prevent over-excavations) • Stockpile topsoil for re-use in rehabilitation phase. Maintain stockpile shape and protect from erosion. All stockpiles must be positioned at least 50 m away from drainage lines and wetlands. • Erosion control measures: Run-off control and attenuation on slopes (sandbags, logs), silt fences, storm water channels and catch-pits, shade nets, soil binding, geofabrics, hydro seeding or mulching over cleared areas. • Control depth of excavations and stability of cut faces/sidewalls. • Compile a comprehensive storm water management plan as part of the final design of the project and implement during construction and operation.				
Re-vegetation, Rehabilitation, Reinstatement	29	Objective To ensure re-vegetation and rehabilitation of disturbed areas is undertaken Legislation and Standards Conservation of Agricultural Resources Act (Act 43 of 1983) Environment Conservation Act (Act 73 of 1989) National Forestry Act (Act 84 of 1998) National Environmental Management Act 107 of 1998 and Gauteng Nature Conservation Bill, 2014. Mitigation measures In order to meet this goal, the following objective, actions, and monitoring requirements are relevant: • Disturbed areas must be rehabilitated/re-vegetated with appropriate natural vegetation and/or local	All Contractors	Throughout Construction	• Rehabilitation Plan • JW EMP • Visual inspection • Ecologist Specialist report • Environmental Authorisation/ GA • Practical and completion certificate.	• Daily inspection checklist. • Rehabilitation report • Waste management collection report (Waste Disposal Certificate).

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		seed mix. Re-use native/indigenous plant species removed from disturbance areas in the rehabilitation phase as per the re-vegetation and rehabilitation management plan. • Alien/non-native species must not be used. If these are requested/ required by stakeholders, then this must be documented by contractor. • Re-vegetated areas may have to be protected from wind erosion and maintained until an acceptable plant cover has been achieved. • On-going alien plant monitoring and removal within the disturbed project footprint (where the initial clearing for construction took place) must be undertaken on all areas of natural vegetation on an annual basis. • All temporary facilities, equipment and waste materials must be removed from site and appropriately disposed of. • All temporary access road must be rehabilitated to their original condition • Necessary drainage works and anti-erosion measures must be installed, where required, to minimise loss of topsoil and control erosion. • On-going inspection of rehabilitated areas to determine effectiveness of rehabilitation measures implemented. • On-going alien plant monitoring and removal should be undertaken as per the approved Rehabilitation/Re-vegetation plan. Management and Mitigation Requirement • Conduct a detailed search of at the area. As a minimum, this should take place during the			• Community Happy Letters.	

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		spring and summer months prior to impoundment so positive identification of flowering plants can be made. This should be done taking due cognisance of specialist studies already undertaken as part of the EIA process; • Allow time for additional searches if these are deemed necessary, based on progress and diversity of plant species found; • Identify and physically mark all conservation worthy plants found on the ground; and • Capture markers and reference in a retrievable system, so that these can be located again for transplanting (e.g., using a combination of aerial photography, GPS, and GIS, as appropriate).				
Practical and Final completion inspection	30	• Ensure that practical inspection is conducted before the Contractor hands over the project back to JW in order to ascertain if the reinstatement or rehabilitation has been done accordingly. • The snag list is to be compiled and accepted by all parties (JW CAPEX Representatives, JW environmental section as applicable, and appointed Contractor) All responsible personnel including Environmental representative sign both practical and final completion letter.	CAPEX/ OHSE& DM/ All Contractors	During the final stage of project	• Meeting invite • Visual inspection	• Meeting invite • Attendance register • Snag list • Signed practical and final completion inspection letter.
Final close out report	31	• Conduct final audit on site. • EO must ensure that audit reports are signed by RE/Engineer and Contractor. • Environmental File is returned to JW, after rehabilitation has been deemed successful.	OHSE & DM	During the final stage of project.	• Final audit report. • Signing of Audit reports.	• Final Audit report. • Signed Audit report. • Environmental file.

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Table 3: Environmental Management and Mitigation Measures that must be implemented during the Operational Phase

Operational Phase Measures						
Aspects	ID	Mitigation Measure/Procedure	Responsible	Implementation Timeframe	Monitoring Methods	Performance indicators
Waste Management	1	Sanitation Facilities - Ablution facilities shall be provided on site. - The positioning of the ablution facilities shall be done in consultation with Client and shall be placed so that it cannot contaminate the natural streams and rivers. One toilet shall be provided per 15 staff members on site. Toilets shall be positioned within walking distance of wherever employees are employed on the site. Toilets shall be provided with locks and doors shall be secured to prevent the toilets from blowing over. - The toilets shall be placed outside of areas susceptible to flooding. - Chemical toilets shall be serviced regularly by an authorised service provider and removed to a registered wastewater treatment works and disposal certificates shall be obtained from the waste disposal facility for each disposal and retained on site. - Polluted run-off must be discharged in the local sewerage main and not overland or into public streams. In instances where a sewerage main is not available, polluted run-off will be collected in sub-surface tanks and a reputable effluent removal contractor will be contracted to dispose of the waste in an environmentally acceptable manner. Official documentation shall be obtained from the waste	Johannesburg Water	During operation and maintenance activities	- Visual inspection of Waste collection and disposal areas. - Visual inspection of site. - Check waste disposal slips. - Monitor activities against JW Waste Management Plan. - Waste Inventory Register.	- Presence of litter - Availability of waste bins and skips. - Degree to which rubbish bins and skips are filled - Total volume of general and hazardous waste storage capacity - Total volume of general and hazardous waste stored on site - Degree to which different waste is separated. - Frequency of waste collection. - Total volume of recycled and reused waste.

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		disposal facility for each disposal and retained on site. - Any cooking on Site shall be done on well-maintained gas cookers with fire extinguishers present. No cooking shall be permitted to occur on open fires. - Toilets situated close to the site boundaries or within sight of residential areas shall be hidden behind screens or other cover as approved by the Engineer. - No spillage shall occur when the toilets are cleaned or emptied and the contents shall be properly stored and removed from site. - Discharge of waste from toilets into the environment and burial of waste is strictly prohibited. - All building rubble and rubble from the demolished structures, solid and liquid waste must be disposed of as necessary at an appropriately licensed refuse facility. - Ensure that no refuse wastes are burnt on the premises or on surrounding premises. No fires will be allowed on site. Contaminated water - Workshops, refuelling depots and washing areas shall be bunded. - Any wastewater or spilled fuel collected within bunded areas around the refuelling area shall be disposed of as hazardous waste - Wastewater containing hydrocarbons, paints oil etc. shall be treated as hazardous waste				
Protection of Vegetation	2	Limit the footprint of the maintenance and operational activities to the minimum to minimise environmental damage.	Johannesburg Water	During operation and maintenance activities/.	Visual inspection	Incidents of vegetation damage.

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		- Designate vegetated areas outside the development footprint as “No go” areas. - Limit the off-road driving within the Johannesburg Water Sites. - Protected or endangered species of plants shall not be removed unless they are interfering with a structure. - All trees and vegetation cleared from the site shall be cut into manageable lengths. - Big trees with large root systems shall be cut manually and removed, as the use of a bulldozer will cause major damage to the soil when the root system are removed. - Stumps shall be treated with herbicide. - Protected or endangered species of plants shall not be removed unless they are interfering with a structure. - Where such species have to be removed due to interference with a structure, the necessary permission and permits shall be obtained from Provincial Department of Agriculture and Rural Development. - All protected species not to be removed must be clearly marked and such areas fenced off if required. - The use of herbicides shall only be allowed after a proper investigation into the necessity, the type to be used, the long-term effects and the effectiveness of the agent. - No scalping shall be allowed on any part of Johannesburg Water Sites.		When necessary? is		Number of incidents of disturbance of vegetation outside site boundary.
Alien invasive/weeds control	3	Some of the areas of JW area are covered with moderate to very dense invasive alien shrubs and trees. Clearing of such vegetation will be necessary	Johannesburg Water	During operation and maintenance activities	Visual inspection.	- Daily inspections register. - Incident register.

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		to gain access. However, clearing of this vegetation from the entire project area as far as possible will reduce the re-establishment rate of this vegetation over time, and will thus not only benefit the environment but also the proposed project and potential future phases of the project in the long term. • The type of invasive, however, will require regular follow-up eradication of seedlings after clearing, as extensive seedbanks of these species are present underneath present infestations. • Wood from alien vegetation can be used. However, care must be taken not to leave any of the leaf- or seed material on the site where the vegetation was cleared. Rather, identify a particular area that no longer has any indigenous vegetation, demarcate that area and dump excess material of alien species there. • Once the material is sufficiently dry, it should be burned to destroy any regenerating capacity of stems and roots as well as seeds. • Only registered PCO with Certificate for competency to handle the hazardous substances (e.g., Herbicides) is allowed to use herbicide. • Only environmentally friendly herbicide is allowed within JW sites. • MSDS for the herbicides must be kept in the storage area. • Method Statement for applying and handling herbicides and Risk Assessment for applying and handling herbicides. • Appropriate PPE for handling herbicides. • Herbicides stored only in a designated storage.			• Monitoring against Vegetation Management Plan. • PCO certificate.	

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		• Empty containers of herbicides disposed of accordingly to the registered hazardous landfill site. • Proof of disposal provided to JW Environmental Section.				
Sludge Management	4	• The sludge must be managed according to the sludge guideline. • All agreements or Contract must be placed in the file. • The sludge must be kept on a designated bunded and concrete lined drying bed.	Johannesburg Water/Bulk Waste	During operations activities	• Visual inspection according to Sludge SOP. • Monitoring against Sludge Guideline. • Monitoring against WUL.	• Sludge test report • Complaints register. • Sludge spill register. • Environmental Officers Internal WUL Audit Report.
Workshop and storage Area	5	• The siting of workshops, maintenance and refuelling sites and materials storage areas shall not be in the vicinity of sensitive sites e.g., wetlands, cultivated fields or drainage lines, or where local landowners can be disturbed. • Storm water shall be diverted around the storage area. Storm water falling on the storage area shall be discharged if it meets the required water quality standards. • Proper storage facilities, placed on an impermeable surface, shall be provided for the storage of oils, grease, fuels, chemicals, and other hazardous materials to be used during the construction phase of the project. If fuel is required on site, it shall be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. Leakage of fuel shall be avoided.	Johannesburg Water	During operations and maintenance activities	• Visual inspection • SOP for handling hazardous substances. • MSDS register	• Workshop and storage register. • MSDS register. • Incident register.

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- An adequate bund walls, 110% of volume, shall be provided for fuel and diesel areas to accommodate any spillage or overflow from these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil.
- In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or container and Material Safety Data Sheets (MSDS's) will be made available for all hazardous chemicals. Before containers or storage facilities are erected, emergency procedures in the event of misuse or spillage that may negatively affect an individual or the environment will be in place.
- The storage facilities (including any tanks) shall be surrounded by a bund wall, in order to ensure that accidental spillage does not pollute local soil or water resources.
- The storage areas shall not be utilised for accommodation purposes and shall be access controlled.
- The storage area shall be kept tidy, and the area shall be rehabilitated after use.
- An inventory of any hazardous chemicals/substances (including that within equipment) kept on site, along with a description of possible ill effects and treatment of health-related afflictions resulting from accidents, shall be kept in the storage area as well as by the appropriate manager. These areas shall be securely fenced.
- Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.

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		• A notice board with the contact details of the responsible party shall be displayed at the gate to the storage area. • All vehicles and machinery will be inspected for any leaks or malfunctions regularly. Vehicle servicing or repairs is prohibited from site, unless in an emergency. • Drip trays shall be inspected and emptied daily and serviced when necessary. In particular drip trays shall be closely monitored during rain events to ensure that they do not overflow. The contents must be disposed of at a recognised site. • All repairs done on machinery using hydrocarbons as fuels or lubricants shall have a drip tray placed strategically to avoid incidental spillage. • Workers shall be made aware of the health risks associated with any hazardous substances used (e.g., smoking near refuelling depots), and shall be provided with appropriate protective clothing / equipment in case of spillages or accidents. • Cement shall be mixed on a plank, metal plate or a plank only or ready-mix trucks shall be used, and other potential environmental pollutants shall be stored at the designated area. There shall be no opportunity for environmental contamination. • Workshop areas shall be monitored for oil and fuel spills and such spills shall be cleaned and remediate to the satisfaction of the EO. • The site shall be in possession of an emergency spill kit that must be complete and available at all times on site.				
Complaints	6	• Maintain complaints register for all complaints. The register must list:	Johannesburg Water	During operations and maintenance activities	• Complaints register.	• Availability of register on site

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		- Complainant name and contact details. - Date complaint was lodged. - Person who recorded the complaint. - Nature of the complaint. - Actions taken to investigate the complaint and outcome of the investigation. - Action taken to remedy the situation. - Date on which feedback was provided to complainant.			GDARD complaints reference number.	- Designated person to maintain register - Complaints logged - Complaints followed up and closed out.
Collection of water sample	7	- Water sampling shall be undertaken at the selected sampling points as per the WUL. - Any incident or non-compliance with the WUL parameters or DWS Water Quality Guidelines shall be reported accordingly and investigated - Unused sampling bottle shall be disposed of accordingly.	Johannesburg Water/CDYNA	During operation activities	- Visual inspection. - Online Lab reports	- Daily water sample report. - Incident register.
Environmental Incident reporting and Emergency Response and Preparedness	8	NEMA Section 30 and 30A emergency incidents and situations must be reported to GDARD or DEA immediately after as an incident or situation occurs. NWA Section 20 emergency must be reported to DWS, mostly by Operations Department. This can be done via phone, fax, or email. JW must implement measures to contain the incident or situation immediately. Thereafter the Emergency Incident Report (EIR) or Emergency Situation Report (ESR) must be submitted to the authorities ASAP. The reports must provide as much information as possible, if not; the reports can be updated later as the investigation progresses. Not reporting an incident could result in the authorities issuing a directive or a compliance notice to the responsible person.	Johannesburg Water Sites	During operation and maintenance activities.	- Visual inspection. - Flash report/ Incident investigation report. - Section 30A Annexure A. - JW Environmental Emergency Preparedness	- Incident register - Bioremediation report. - Section 30A Directive. - Corrective Action Plan

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		- Important Note: For Section 30A Emergency Situation, an oral or written directive must be obtained from GDARD or DEA before works can be undertaken in the watercourse to avoid undertaking listed activities without obtaining EA. - Johannesburg Water takes responsibility in order to effectively respond to emergency incidences such as fire, hydrocarbon and sewer spills or leakages, disturbance of wildlife and archaeological artefacts. The SHE Rep must conduct daily inspections to ensure that the required equipment needed to handle environmental incidents/ emergencies are readily available and in working condition. Quick response to an incident prevents escalation to an emergency:			ess and Response Procedure.	

9. Water Management

- Water is a scarce resource and water shall be conserved wherever possible.
- Improved and protected watercourses to Class C classification which is moderately modified in terms of determined class of water resource and resource quality objectives of chapter 3 (Part 2) of National Water Act (Act 36 of 1998).
- Demand reduction/ Alternative sources.
- Building a water sensitive city.
- Well managed and maintained water infrastructure networks.

Water Usage	9.1	- The site must be kept tidy and hygienic at all times with special reference to sanitation & water management. - Maintain a monthly water usage. - Reporting of water pipe burst and damaged meters	Johannesburg Water Sites	During operation	- Visual inspection - Meter readings	Records of Monthly water Usage.
Reduce water demand	9.2	Implement effective demand-side management practices while exploring investment into smart infrastructure and alternative supplies to increase levels of net water savings.	Johannesburg Water (Network)	During operation	- Monthly Monitoring - Monthly water	- Records of percentage reduction on non-revenue water. - Records of Percentage

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		- Establish Task Team with different law enforcement agencies to develop and implement solution for infrastructure abuse problem. - Promote the implementation of Sustainable Urban Drainage System practice.			managem ent report	reduction of Rand Water system input volume.
Incentivise water saving interventions across domestic and economic sector users.	9.3	- Implementation of command-and-control base mechanism that promote water saving (CoJ By-laws). - Implementation of incentives base mechanism - Develop partnerships beyond the City to encourage water savings. - Expand current CoJ drought policy to build greater resilience of the water system. - Integrate water conservation requirements in conditions of planning approval. - Develop an awareness and communications campaign using available technology.	Johannesburg Water	CoJ/Operations	Monthly water managem ent report	- Records of reduction in annual water consumption per capita - Water from alternative sources as % of total water supply
Rehabilitation/ Reinstatement	10	- Clean up and remove any spills and contaminated soil in the appropriate manner. - Ensure that no discarded materials are buried on site or on any other land not designated for this purpose. - Rehabilitate any disturbed areas as soon as maintenance or construction in the area is complete. - If disturbed areas are left to rehabilitate naturally, they must be frequently monitored and interventions put in place immediately should it become necessary. Special attention must be given to the potential for soil erosion and the associated environmental degradation. It is also essential to undertake alien vegetation control and management.	Johannesburg Water	During operation and maintenance activities	- EO complianc e monitoring - Visual inspection. - Complianc e inspection against rehabilitati on plan.	- Inspection report. - Audit report by External Auditor. - Photos before and after.

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					• JW EMP.	

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6.1 Method Statement

The objective is to ensure all construction activities are undertaken with the appropriate level of environmental awareness to minimise environmental risk. The environmental specifications are required to be underpinned by a series of Method statements, within which the Contractors and Service Providers are required to outline how any identified environmental risks will practically be mitigated and managed for the duration of the contract, and how specifications within this EMPr will be met. That is, the Contractor will be required to describe how specified requirements will be achieved through the submission of written Method Statements to Johannesburg Water Environmental Section and ECO.

Method Statement is defined as “a written submission by the Contractor in response to the environmental specification or a request by the Site Manager, setting out the plan, materials, labour and method the Contractor proposes using to conduct an activity, in such detail that the Site Manager and Environmental Officers are able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications”. The Method Statement must cover applicable details with regard to:

- Construction procedures
- Materials and equipment to be used
- Getting the equipment to and from site
- How the equipment/material will be moved while on-site
- How and where material will be stored
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur
- Timing and location of activities
- Compliance/non-compliance with the Specifications, and
- Any other information deemed necessary by the Johannesburg Water.

The Contractor may not commence the activity covered by the Method Statement until it has been approved by the Site Manager, except in the case of emergency activities and then only with the consent of the Site Manager. Approval of the Method Statement will not absolve the Contractor from their obligations or responsibilities in terms of their contract.

Failure to submit a method statement may result in suspension of the activity concerned until such time as a method statement has been submitted and approved. The EO and ECO should monitor the construction activities to ensure that these are undertaken in accordance with the approved Method Statement.

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6.2 Monitoring

- Regular inspections of the site by EO/SHE and Environmental Reps
- Immediate reporting of ineffective sediment control systems.
- Public complaints register must be developed and maintained on site.

6.2.1 Monitoring Program

OBJECTIVE: Monitor the performance of the control strategies employed against environmental objectives and standards

A monitoring programme must be in place not only to ensure conformance with the EMP, but also to monitor any environmental issues and impacts which have not been accounted for in the EMP that are or could result in significant environmental impacts for which corrective action is required. The period and frequency of monitoring will be stipulated by the environmental authorisation (once issued). Where this is not clearly dictated, Johannesburg Water will determine and stipulate the frequency of monitoring required in consultation with the relevant authority. The contractor project manager will work with the site manager of the contractor to ensure that monitoring is conducted and reported.

The aim of the monitoring and auditing process would be to routinely monitor the implementation of the specified environmental specifications, in order to:

- Monitor and audit compliance with the prescriptive and procedural terms of the environmental specifications.
- Ensure adequate and appropriate interventions to address non-compliance.
- Ensure adequate and appropriate interventions to address environmental degradation.
- Provide a mechanism for the lodging and resolution of public complaints.
- Ensure appropriate and adequate record keeping related to environmental compliance.
- Determine the effectiveness of the environmental specifications and recommend the requisite changes and updates based on audit outcomes, to enhance the efficacy of environmental management on site.
- Aid communication and feedback to authorities and stakeholders.

6.2.2 Method of Monitoring

The Environmental Officer will ensure compliance with the EMP and will conduct monitoring activities. The EO will undertake site inspections monthly or as specified in the environmental authorisation once issued.

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6.2.3 Monitoring Reports

Environmental Monthly reports will be compiled by the EO monthly and must be submitted to Environmental Specialist. The report should include details of the activities undertaken in the reporting period, any non-conformances or incidences recorded, corrective action required and details of these non-conformances or incidents which have been closed out.

A document handling system must be established to ensure accurate updating of EMP documents, and availability of all documents required for the effective functioning of the EMP. The complied environmental file must be ISO14001:2015 conformant as per JW environmental file specification (Annexure B). Supplementary EMP documentation could include:

- Method Statements.
- Environmental Action Plan
- Environmental File Site instructions.
- Emergency preparedness and response procedures.
- Record of environmental incidents.
- Non-conformance register
- Training records.
- Site inspection reports.
- Waste Register
- Water Usage Register
- Fauna and Flora Register
- Hazardous chemical Inventory list
- Monitoring reports.
- Auditing reports; and
- Public complaints register (single register for maintained for overall site).

Table 4: Monitoring Programme

ISSUE	FREQUENCIES OF MONITORING	RESPONSIBLE PERSON
WATER		
Prevention of water pollution	Weekly in rainy season	Contractor's Representative (CR)/ Johannesburg Water
Prevention of stagnant water on site.	Weekly in rainy season	
Proper functioning of sanitation facilities	Weekly	

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ISSUE	FREQUENCIES OF MONITORING	RESPONSIBLE PERSON
SOIL		
Surface or gully erosion on site	Weekly in rainy season	CR/JW
Soil contamination with oils	Monthly	CR/JW
If small, clean up. If large, appoint a suitable contractor for clean-up.	Immediately	CR/JW
Air		
Control domestic fires.	Weekly	CR/ JW
Heavy vehicle emission control.	Monthly	CR/JW
Dust control of access roads. Wetting when required.	Weekly inspection	CR
WASTE		
Efficiency of domestic waste collection.	Weekly	CR/JW
Prevention of burning of solid/liquid wastes on site.	Weekly	CR/JW
Proper collection and containment of liquid wastes (petroleum, oils, paints, resins & cooking oils)	Monthly	CR/JW
The recycling and/or disposal thereof.		
The collection and disposal of construction waste (concrete, wood, steel)	Biweekly	CR
	Monthly Biweekly	CR/JW
Collection of hazardous waste.		CR/JW
WILDLIFE		
Weed Control	On-going	CR/JW
Control of illegal hunting or snaring of game, birds, or other wild animals.	On-going	CR/JW
SOCIAL		
Inspect overall appearance of site.	Weekly	CR

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ISSUE	FREQUENCIES OF MONITORING	RESPONSIBLE PERSON
(Paint work, cleanliness & housekeeping)	Daily	CR/JW
Resolve complaints	Daily	CR/JW
Monitor behaviour of labourers		
SAFETY		
Inspect road signs, pedestrian, and vehicle behaviour	At least once a week	CR/JW

6.3 Internal Audits and Reporting

Typically, an audit analyses the results obtained from monitoring, assesses whether objectives and targets have been met and whether there are variances from the stipulated EMP and legal requirements. In addition, the audit assesses whether EMP implementation has been undertaken according to planned arrangements and that the EMP itself is being appropriately updated. The audit should confirm that identified corrective actions have been undertaken and then assess the effectiveness of such actions. The timing of audits should be included in the implementation schedule in the EMP.

The key steps in a successful audit are:

- Establish audit procedures.
- Determine the frequency of audits.
- Ensure that the auditors are competent, in that they must be able to undertake the audit objectively and competently. Audits may be undertaken by internal or external parties, although certain I&AP requirements may define a need for external auditors.
- Maintain records of audits.

A procedure is to be developed by the project management team for conducting EMP audits, and should incorporate processes for scheduling and reporting, as well as the timing and frequency of the audits. This procedure should also address responsibilities and required resources. The EO is usually responsible for the maintenance of the environmental audit information that is required prior, during and

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after an audit. Internal audits must be undertaken by Johannesburg Water Environmental Section on monthly basis.

6.3.1 Monthly compliance rating

A monthly compliance rating will be calculated for each Principal Contractor as per a formula determined by Johannesburg Water SOC Ltd focussing on or incorporating outcomes of assurance (e.g., monthly audit), operational assessments and other requirements, as necessary. Johannesburg Water SOC Ltd reserves the right to adjust the monthly compliance calculation formula as and when required – each revision of the monthly compliance calculation formula will be communicated to the Principal Contractor before implementation (**Each Principal Contractor is required to maintain a minimum compliance rating of 93% (Ninety-Three Percent).**)

Table 5: Compliance Rating Protocol

Classification	Scoring	Classification description
Good	93 – 100%	Substantial compliance
Average	80-92%	Compliance status needs to be improved
Poor	61-79%	Methods to ensure compliance require substantial improvement
Very poor	<60%	Methods to ensure compliance failed completely - no system in place

6.3.2 Work Stoppage

Work stoppages will be identified for 2 (two) types of work stoppages to be implemented:

- Overall work stoppage – the Principal Contractor and its Contractors are not allowed to continue with any type of construction / site work up until the work stoppage has been closed-out.
- Activity work stoppage – The Principal Contractor and its Contractors are not allowed to continue with the specific activity / task / job up until the work stoppage has been closed-out (**Overall work stoppages will be issued where non-conformances are identified against the criteria in Annexure C).**

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6.4 Environmental Awareness Plan

OBJECTIVE: Ensure all operation personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm (Environmental Awareness Plan).

To achieve effective environmental management, it is important that Contractors and site employees are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMP. Johannesburg Water is responsible for informing its employees and contractors (transportation contractor) of their environmental obligations in terms of the environmental specifications, and for ensuring that employees are adequately experienced and properly trained in order to execute the works in a manner that will minimise environmental impacts. Johannesburg Water's obligations in this regard include the following:

- Employees must have a basic understanding of the key environmental features of the depot and its surrounding environment.
- Ensuring that a copy of the EMP is readily available on-site and that all site staff is aware of the location and has access to the document.
- Employees must be familiar with the requirements of the EMP and the environmental specifications as they apply to the operation of the facility.
- Ensuring that, prior to commencing any new site works, all employees have attended an Environmental Awareness Training course. The course must provide the site staff with an appreciation of the project's environmental requirements, and how they are to be implemented.
- Awareness of any other environmental matters, which are deemed to be necessary by the depot manager.
- Ensure that construction workers have received basic training in environmental management, including the storage and handling of hazardous substances, minimise of disturbance to sensitive areas (wetland), management of waste and prevention of water pollution
- Records must be kept of those that have completed the relevant training.
- Training should be done either in a written or verbal format but must be in an appropriate format and language for the receiving audience

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- Refresher sessions must be held to ensure the operating staffs are aware of their environmental obligations.

Therefore, prior to the commencement of construction activities on site and before any person commences with work on site thereafter, adequate environmental awareness and responsibility are to be appropriately presented to all staff present onsite, clearly describing their obligations towards environmental controls and methodologies in terms of this EMPr. This training and awareness will be achieved in the following ways:

6.4.1 Environmental Awareness and Training

Environmental Awareness and Training must be undertaken by the Environmental Officer or SHE/ELO and must take the form of an on-site talk and demonstration by the Environmental Officer before the commencement of construction activities on site. A record of attendance of this training must be maintained by the Environmental Liaison Officer/SHE Officer on site.

6.4.2 Formal Environmental Training

NB: JW must ensure that there is a budget allocated for environmental formal training in CAPEX projects for the skills development of contractor staff, development of community where project is being undertaken. The principal Contractor shall identify short courses and include them on the training matrix that can be done on site during project duration. The following are some of the trainings that can be done on site:

- ISO14001:2015 Environmental Management System Awareness
- Handling of beehives
- Snake awareness and handling
- Environmental legal Liability.
- Waste Management
- Environmental Site Representative
- Recycling
- Grass cutting training

The principal Contractor must ensure that they are appointing a registered company that meet all the requirements and before appointment of service provider, the files shall be submitted to Environmental Section for evaluation.

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6.4.3 Induction Training

Environmental induction training must be presented to all persons who are to work on the site, be it for short or long durations. Contractors or Engineers staff, site staff, sub-contractors, or visitors to site. This induction training should include discussing Johannesburg Water's environmental policy and values, the function of the EMP and the importance and reasons for compliance to these. The induction training must highlight overall dos and don'ts on site and clarify the repercussions of not complying with these. The reporting procedure must be explained during the induction as well. Opportunity for questions and clarifications must form part of this training. A record of attendance of this training must be maintained by the SHE officer on site.

6.4.4 Toolbox Talks

Toolbox talks should be held on a scheduled and regular basis (at least once a month) where the foreman/site supervision manager, environmental and safety representative and all employees on site hold talks relating to environmental practices and safety awareness on site. These talks should also include discussions on possible common incidents occurring on site and the prevention of reoccurrence thereof. Records of attendance and the awareness talk subject must be kept on file.

6.5 Erosion Management Plan

The objective to control soil erosion from an ecological perspective is:

- To reduce the effects of raindrop splash erosion on exposed soil surfaces.
- To keep rainwater on the soil surface for as long as possible to increase the infiltration rate and reduce surface runoff.
- To reduce the speed of surface runoff to reduce the erosion effect of the soil surface.
- To provide methods to retain soil, debris, seed banks and organic matter being carried away by runoff.
- To improve water retention of the area (Coetzee, 2005).

a) Areas with a high soil erosion potential on the site

Areas identified as being of high soil erosion potential on the site include:

- Any areas without vegetation cover

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- Excavated areas
- Steep areas
- Areas which undergo overland flow of water.
- Areas close to water
- Irrigated areas
- Compacted areas
- Rivers
- Drainage lines
- Any areas where developments cause water flow to accelerate on a soil surface.

If any erosion features are present as a result of the activities mentioned above the ELO must:

Assess the situation.

- Take photographs of the soil degradation.
- Determine the cause of the soil erosion.
- Inform and show the relevant contractors the soil degradation.
- Inform the contractor that rehabilitation must take place and that the contractor is to implement a rehabilitation method statement and management plan.
- Monitor that the contractor is taking action to stop the erosion and assist them where needed.
- The progress of the rehabilitation must be monitored weekly and recorded in the site diary.
- All actions with regards to the incidents must be reported on in the monthly Audit report.
- If the erosion incident has not been addressed by the contractor within 14 days of you reporting it, the Johannesburg Water 's Environmental Section must be informed.

The contractor/ developer (with the EO's consultation) must:

- Select a system to treat the erosion
- Design the treatment system
- Implement the system
- Monitor the area to see if the system functions like it should, if it the system fails adapt or adjust the system to ensure erosion is controlled.

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- Monitoring must continue until the area has been stabilized

b) General Erosion

The civil works contractor may use the following instruments to combat erosion when necessary:

- Reno matrices
- Slope attenuation
- Shade catches nets
- Mulching
- Hydro-seeding or transplanting
- Re-vegetating
- Tilling (roughing the surface)

c) Erosion Management control measures

- Areas susceptible to erosion must be protected by appropriate measures and repair of any damage caused by erosion due to construction activities must be undertaken as soon as possible.
- Minimise erosion and sedimentation into water courses through effective stabilisation (gabions and reno-mattresses) and re-vegetation of disturbed riverbanks (Refer to rehabilitation specifications and erosion control measures below).
- Stabilisation of sandy, dispersive slopes or slopes steeper than 1:3 will be required. Ensure that bare soil is covered, and hydro seeded to reduce topsoil loss.
- Ensure that all soil surfaces are protected by vegetation or a covering to avoid the surface being eroded by wind or water.
- Ensure that heavy machinery don't compact areas that are not meant to be compacted as this will result in compacted hydrophobic, water repellent soils which increase the erosion potential of the area.

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d) Surface water control measures

- Prevent the concentration or flow of surface water or storm water down cut or fill slopes or along pipeline routes or roads and ensure measures to prevent erosion are in place prior to construction.
- Storm water and any runoff generated by hard surfaces should be discharged into retention swales or areas with rock riprap.
- These areas should be grassed with indigenous vegetation.
- These energy dissipation structures should be placed in a manner that flows are managed prior to being discharged back into the natural water courses, thus not only preventing erosion, but also supporting the maintenance of natural base flows within these systems, i.e., hydrological regime (water quantity and quality) is maintained.
- Mitigate against siltation and sedimentation using the above-mentioned structures and ensure that all structures do not cause erosion.
- Ensure that all storm water control features have soft engineered areas that attenuate flows, allowing for water to percolate into the local aquifers.
- Minimise and restrict site clearing to areas required for construction purposes only and restrict disturbance to adjacent undisturbed natural vegetation.
- Vegetation clearing should occur in parallel with the construction progress to minimize erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.
- Minimise the diversion of flows into different catchments.
- If implementing dust control measures, prevent over-wetting, saturation and run-off that may cause erosion and sedimentation.
- Water course (stream) crossings should not trap any run-off, thereby creating inundated areas, but allow for free-flowing water courses.

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e) Environmental Incident/Accident

All environmental related incidents should be reported to environmental section. The ELO should compile and keep an Incidents and Accidents Register on the file/book in which all environmental related incidents and accidents are recorded, e.g., chemical spills, fires, accidents involving workers and vehicles, etc.

The following information must be recorded in the Incidents Register:

- The name and contact details of the persons involved
- The person recording the incident
- The date and time of incident
- The nature, extent, and cause of the accident
- The name and contact details of any persons notified of the incident
- The actions taken to deal with the incident and whether the accident has been sufficiently
- Dealt with additional steps required to prevent recurrence of the incident.

7. RECORD KEEPING, COMPLIANCE AND PENALTIES

Various records will be kept on site for monitoring purposes these include but not limited to:

- Copy of Environmental Management Plan
- Approved Environmental Method Statements
- Environmental Authorisation
- Environmental induction attendance register
- Hazardous chemicals register
- Waste disposals register and disposal certificates
- Oil/fuel spill register

Records of non-compliance shall also be kept on record and will include the nature and magnitude of the non-compliance in a register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. External complaints received regarding activities on the construction site pertaining to the environment shall be recorded in public complaints register and

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the response noted with the date and action taken. This record shall be submitted with the monthly reports and a verbal report given at the monthly site meetings. A score of 90% is required for the Monthly Audit undertaken by the Johannesburg Water 's Environmental Officers.

8. DECOMMISSIONING

Objective

- To avoid and or minimise the potential environmental and social impacts associated with the decommissioning phase

Mitigation Measures

Mitigation measures as detailed in the construction phase on the EMP regarding impacts on flora, fauna, habitats, and wetlands would be applicable to this phase.

- Rehabilitation to be undertaken in terms of specifications outlined in the Rehabilitation section of this EMP as well as in terms of any specific requirements applicable at the time.
- Johannesburg Water EO will need to supervise and monitor all decommissioning activities as per the snag list.
- All disturbed areas should be rehabilitated closer to its original state and more.

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Retainable Annexure A (Ref: Annexure 5 of JW 6.4): Acknowledgement of EMP specification by the Contractor.

Environmental Requirement for Contractors and Suppliers working for Johannesburg Capital Expenditure (CAPEX) projects	Unique no	JWEMP:122017
	Revision no	00

I, the undersigned, hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and the consequences of non-compliance. The Contractor furthermore reiterates its commitment to compliance of the requirements contained within the following provided documentation:

Name of the Contractor	
Vendor Number	
Project Number	
Scope of Work	
Declaration by Capital Expenditure Projects Contractor	
- I undertake to adhere to the requirements as set out in: - Johannesburg Water Environmental Management Plan and Waste Management Plan - Environmental requirements for Contractors working on Capital Expenditure Projects - I undertake to comply with all applicable environmental legal and other requirements. - Undertake to comply with Johannesburg Water 's environmental standards, policies, and procedures where applicable. - I pledge to inform all staff of their role in managing environmental impacts on site. - I am fully aware that incidents must be reported within 24 hours of occurrence. - I pledge to always implement environmental best practice on site during the contract. - I pledge that all non-conformances issued to us will be addressed promptly.	

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I hereby acknowledge that I have obtained copies of Johannesburg Water Environmental Management Plan and Waste Management Plan and confirm that I fully understand the contents thereof and the consequences of non-compliance. The Contractor furthermore reiterates their commitments to compliance of the requirements contained within the following provided documentations and conform to all above mentioned requirements.

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

Contractor Representative Name:	Signature:	Date:
Designation:		
JW Project Engineer/Manger (Witness) Name:	Signature:	Date:

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Annexure B: Contractors Environmental File Evaluation Form

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		A minimum score of 80% is required on all sections for the approval of the submitted Environmental file System. Failure to achieve the required score will result in non-approval of the Environmental file, and the project will not commence prior file approval.	
ENVIRONMENTAL SYSTEM EVALUATION OUTCOME			
AVERAGE SCORE OBTAINED			0.00%
APPROVED/REJECTED			
EVALUATED BY:	REVIEWED BY:	APPROVED/REJECTED BY:	ACKNOWLEDGED BY:
DESIGNATION:	DESIGNATION:	DESIGNATION:	DESIGNATION:
SIGNATURE:	SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE:	DATE:	DATE:	DATE:
PROJECT DETAILS			
Contract Number			
Project Title			
Name of Contractor			
Is the project screened?	YES/NO	IF NO	Construction activities/work (including site establishment) should ONLY commence when after the project is Screened

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Specialist Studies/Report		
Environmental Authorisation (If applicable)		
Water Use Licence /General Authorisation (If applicable)		
SCORE ANALYSIS		
	Satisfactory (Approved)	Requirements have been met
0.00%	Unsatisfactory (Not Approved)	Requires substantial improvement / partially achieved
ENVIRONMENTAL REQUIRED DOCUMENTS		
1	Copy EMP and signed acknowledgement letter for JW EMP	0
2	SHE/ELO appointment letter	0
3	Contractor Environmental Induction presentation	0
3	Environmental Toolbox talk and copy of attendance register template	0
5	Environmental Objective (Site specific)	0
6	Environmental Policy Statement	0
7	Registers	0
3	Legal Register (Site specific)	0
9	Environmental Aspect and Impact register (site specific)	0
10	Permit register	0
11	Non-Conformance Register	0
12	Waste register template	0
13	Complaint register	0
14	Incident register	0

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15	Method statement register	0
16	Hazardous substances register	0
17	Daily Environmental checklist/ weekly checklist and spill kit checklist	0
18	Spill kit checklist	0
19	Method statements or procedures	0
20	Document control procedure	0
21	Storm water management plan/ Erosion control	0
22	Alien invasive and weeds control plan	0
23	Hazardous Management Plan/ Procedure (i.e., handling of hazardous substances)	0
24	Method statement for the activities to be undertake/ (include environmental aspects on the technical MS)	0
25	Waste management plan/ Method statement for waste management	0
26	Incident report template (Flash report/Investigation report)	0
3	Emergency Response Plan	0
28	Training Matrix	0
29	Dust Management Plan or Method Statement for dust suppression	0
30	Contractor Audit procedure/template	0
31	Rehabilitation Plan or Method Statement for Rehabilitation/Reinstatement	0
TOTAL		0

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Annexure C: Environmental Work instruction

ENVIRONMENTAL MANAGEMENT (EM) SITE INSTRUCTION Document No: JW- EMS-HO—R014	  a world class African city
1. All JW rules and regulation including JW Environmental Management Plan and other applicable legislation, standard and by-laws must be adhered to at all times. 2. Copies of Environmental Authorisation, Water Use License/General Authorization, Rehabilitation plan, EMP shall be kept on site (where applicable). 3. All JW sites must have waste bins, drip trays, spill kit and designated hazardous storage (where applicable). 4. Only registered Waste Service providers who comply with National Environmental Management Waste Act and Municipal By-laws shall be appointed. 5. No burning or burying of waste is allowed on site. 6. The conservation of water and the use of energy efficiently shall be implemented in all JW sites. 7. The letter from City Parks for occupying the open space shall be received and kept in the file and if the land belongs to the private owner, the copy of an agreement letter shall be kept in the file (where applicable). 8. The photos are taken before and during and after the project (where applicable). 9. The Environmental file must be approved before the commencement of works on site (where applicable). 10. The Environmental file will be kept on site all the times and shall be made available to competent authority and JW environmental representative (where applicable). 11. Rehabilitation/ reinstatement of the site must be done as per the JW EMP, rehabilitation method statement. 12. The hazardous waste must only be stored not more than 90 days on site as per the legislation. 13. Only asbestos registered service providers shall be appointed to handle and dispose asbestos to registered landfill site. 14. No mixing of general and hazardous waste will be allowed. 15. No cutting of trees is allowed on site without permit. 16. If archaeological artefacts or anything of heritage importance are found at JW sites/ servitude Environmental Section must be informed. 17. Everyone working within JW sites shall familiarize with the EMP requirements and other applicable JW environmental procedures. 18. All the environmental incidents shall be reported within 24 hours to JW environmental Section.	

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19. Ensure that all JW employees and its service providers or suppliers receive environmental induction.
20. All work must be carried out under close supervision by the competent persons.
21. Repetitive findings or non-compliances shall be avoided.
22. Topsoil stockpile shall be protected by erosions control berms if it is exposed to a period of 14 days during wet season (where applicable).
23. Only 150mm of topsoil shall be removed and stockpile at a height of not more than 1m.
24. All hazardous material must be stored on a bunded and ventilated storage, and MSDS must be available for all of them.
25. No painting or marking of natural features is allowed on site.
26. Pollution of the environment shall be prevented all the times.
27. No leaking mobile plant is allowed on site.
28. Dust control measures shall be implemented on site (where applicable).
29. No sewer spillage shall spill into the storm water or the watercourse.
30. All environmental related incidents and/or emergencies shall be investigated within 48 hours from the date of notice.
31. Killing of fauna and/or Avifauna is prohibited.
32. Alien invasive and weeds must be eradicated.
33. Fumigation shall be done by trained personnel that is registered with DAFF.
34. No smoking is allowed in restricted areas. All such areas are posted appropriately.
35. Personal protective equipment is required to be worn at all times in production areas.
36. Maintain good housekeeping in your work area.
37. Keep fire lanes, roadways, walkways, and aisles free and clear of material.
38. The use of unsafe or defective equipment or tools is not permitted.
39. A contractor or subcontractor shall leave no unused materials on site. At the completion of a project the contractor shall remove all unused material and all waste shall be properly disposed of at a registered landfill site.
40. Any contractor or subcontractor found to be in violation of any EH&S rules can be ejected or escorted off premises if deemed necessary.
41. This file shall be kept on site and will be available at all times to the JW Reps and authorities (upon request).

ACKNOWLEDGEMENT BY MANAGER/CONTRACTOR

I, _____ the Manager/Contractor, do hereby declare that my site/company

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_____ acknowledges having read and understood the conditions contained in this document and furthermore, the employees agree to abide by these conditions.

CONTRACTOR/FACILITY	REP.	SIGNATURE	DATE
ENVIRONMENTAL SITE INSTRUCTION		Document No: JW- EMS-HO- R014	  a world class African city
Name of Contractor/Facility			
Responsible Manager/ Engineer			
Project No. <i>(where applicable)</i> :		Date Issued:	Date of Inspection:
Environmental Representative:		Designation:	
<i>Should the responsible persons fail to comply with any term of this instruction, JW may demand compliance in writing from the defaulting party. Should the defaulting party fail to comply within the stipulated time frames, JW shall take the necessary steps to remedy the situation.</i>		PROJECT DESCRIPTION	
Reference No. of Non-Conformances		Action Required	
EM-1.			
EM-2.			

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EM-3.		
EM-4.		
EM-5.		
EM-6.		
EM-7.		
EM-8.		
EM-9.		
EM-10.		
Received & Acknowledged by	Signature	Date
Responsible Manager/Contractor		
Responsible Consultant (<i>where applicable</i>)		
JW Environmental Representative		
JW Project Inspector / Engineer (<i>where applicable</i>)		
Contractor SHE/EL Officer (<i>where applicable</i>)		
COMMENTS BY RESPONSIBLE MANAGER/ENGINEER:		Target date for corrections
		Accepted/Acknowledged by Manager/Contractor

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COMMENTS BY CONTRACTOR (<i>WHERE APPLICABLE</i>):	Follow up comments by JW Environmental Representative

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Annexure D: Johannesburg Water General Surface Rehabilitation Specification

Johannesburg Water General Surface Rehabilitation Specification

Doc No: JW-EMS-CAPEX-T040
Effective Date:14/9/2021

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Rehabilitation Plan	m2	0	10.05	1	1	0
2	Rehabilitation of disturbed area/s including roads (prepare the ground/level profiling,soil surfaces including	m2	0	22.05	1	1	0
2	Replacement/import of topsoil (if required)	m2	0	22.05	1	1	0
3	Planting of grass/hydroseeding (Including hydro seeding seed mix ratio).	m2	0	22.05	1	1	0
4	Maintainance for 3 month (weed removal, replanting, soil conditioner, erosion repairs ect.)	m2	0	17.4	1	1	0
5	Rehabilitation close-out report	m2	0	10.05	1	1	0
6	Bioremediation (process to be determined if required)	m2	0	22.05	1	1	0
					Sub Total 1		0

1	Preliminary and General	0	weighting factor 2		0
			1		
2	Contingencies		0		0
			Subtotal 2		0.00
			VAT (15%)		0.00
			Grand Total		0

DISCLAIMER

- Should there be any other Environmental related activities issued as non-compliance during construction, the contractor is liable to comply with those requirements
- Should the contractor deviate from the conditions and requirements of the EMP and/or Environmental Authorisation (if applicable), the contractor is liable for non-compliances, rectification and associated fines thereof
- This EMP does not exempt the Contractor from complying with other relevant legislations related to the construction activities.

	OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION	
	TENDER NUMBER:	JW 14427
	PROJECT LOCATION:	Orange Farm
	PROJECT DESCRIPTION:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

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 2)
- 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 T2.12 as applicable*



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

BASELINE RISK ASSESSMENT



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ACTIVITY: TRANSPORTATION OF MATERIALS TO SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Transportation of material to site	Unsafe road conditions Un-road worthy vehicles Equipment and material not safely secured Incompetent drivers Driving under the influence of alcohol Inclement weather Speeding Slippery road	Overturning vehicles Vehicle collisions Bumping pedestrians / employees	Injuries Property damages Third party liability	M	Adherence to the speed limit Only competent/ authorised drivers should operate the vehicle Inspection of vehicles Equipment and material to be properly secured Alcohol testing to be done The road to be paved to prevent accidents Traffic control to be implemented to avoid collisions

 Johannesburg Water	OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT	
	PROJECT NUMBER:	JW 14427
	PROJECT LOCATION:	Orange Farm
	PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Offloading of material	Faulty lifting machinery & equipment Suspended load Poor housekeeping	Malfunctioning Falling on employees Obstructed walkways by materials	Injuries	M	Inspect lifting equipment prior to use. Ensure the safe working load prior to use Train the employees in manual lifting Ensure proper housekeeping The correct PPE must be worn Designate the stacking areas and put signs Stacking and storage inspector must be appointed and in charge

ACTIVITY: SITE ESTABLISHMENT					
Task	Hazard	Risk	Consequence	Rating	Controls



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Site establishment	Sharp objects/ wires Uneven surface Faulty connection Poor ergonomics Falling objects Inadequate security services Not enough ablution facilities	Cuts Slips and trips Damage to services Using the environment as ablution facilities	Injuries Back strains and injuries Crime, theft, fights Contracting of communicable diseases Soil, water pollution	M	Supervisors to plan during site set up and induct employees A competent electrician must be appointed to connect electrical wires to the site offices and Distribution Board. Ensure there are welfare facilities on site for health and hygiene purposes Awareness on hygiene and use of ablution facilities Detailed Risk Assessment must be drawn before any work commences on site.
Installing containers	Using lifting equipment Faulty equipment Faulty slings / chains	Wind Incompetent personnel Heavy load Failing of lifting equipment	Serious injuries Property damage	H	Check wind speed prior to using the crane. Inspect the crane, slings and chains before use. Load test the crane before use Only carry loads certified to be carried by the crane
Entry and exit	No access control	Unauthorised entry into the construction site	Injuries Theft	M	Appoint a full time, registered security guard on site



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ACTIVITY: SITE ESTABLISHMENT

Task	Hazard	Risk	Consequence	Rating	Controls
Electrical installation	Electricity Incompetent personnel Wrong tools Damaged cables	Contact with live electricity Incompetent person connecting electricity Electric shocks	Electrocution Serious injuries	H	Follow lock out procedure Ensure that equipment are earthed to an approved earthing point Ensure a zero potential test is performed for electricity is isolated Inspect all tools Use correct tools for the job Appoint a competent electrician/ technician Wear task specific PPE Ensure that there are no exposed wires on the cables



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Stacking and storage	Unsafe stacks of materials	Falling of pallets and material on employees	Injuries Property damage	L	Supervision of all stacking of materials on site Materials of same base and heights stacked together Barricade the stacking area Unsafe stacks to be removed immediately Never stack materials during knocking off time or late at night Use task specific PPE

ACTIVITY: CONTACT WITH UNDERGROUND SERVICES

Task	Hazard	Risk	Consequence	Rating	Controls



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Working close to Eskom line	High voltage	Electrocution	Fatalities Power cuts Property damages	H	Proper scanning of services prior to starting with excavations Obtain wayleaves from Eskom prior to starting with work Do not use lifting equipment in close proximity to power lines unless authorized to do so. Appoint an OHRVS to supervise all work done in close proximity to power lines Contact Eskom if services are identified for isolation Develop a method statement and risk assessment Train employees in the method statement as well as risk assessment Develop emergency response procedures for explosions
Working close to gas lines	Gas leaks	Explosion Suffocation Inhalation	Fatalities Property damages		Proper scanning of services prior to starting with excavations Obtain wayleaves from service provider prior to starting with work Develop a method statement and risk assessment Develop emergency response procedures for leaks and explosions



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ACTIVITY: PIPE LAYING & METER INSTALLATION

Task	Hazard	Risk	Consequence	Rating	Controls
Excavation	Deep excavations	Collapse Falling Unsafe entry and exit Spoil material	Serious injuries	M	Geotechnical surveys to be conducted prior to construction Shoring of the excavation No unauthorised entry into the project site. Full time security on site to monitor entry and exit. Safe method of entry and exit to be provided for employees Spoil material to be stored at least 2m away from the excavation Signage to be displayed indicating deep excavations
	Excavator	Incompetent operator Faulty excavator Contact with underground services	Serious injuries Electrocution	M	Only competent personnel are allowed to operate the excavator All excavators must be inspected prior to use All underground services to be identified prior



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

	Use of hand tools	Unsafe use of hand tools Damaged tools	Injuries	L	Adherence to the hand tool procedure Report damaged tools Use the right tool for each job Appoint hand tool supervisor Safe working method must be implemented Supervision Correct PPE must be worn

ACTIVITY: PIPE LAYING & METER INSTALLATION

Task	Hazard	Risk	Consequence	Rating	Controls
Pipe & meter installation	Handling	Poor lifting techniques Falling material	Injuries Back pain	L	Training in proper lifting Provide correct PPE to employees and enforce usage thereof
Pipe laying	Use of cutting tool Flooding of excavation with water	Exposure to excessive noise Falling inside	Noise induced hearing loss Injuries	M	Only employees involved in the cutting of pipe to be allowed close to the process Trenches to be dewatered prior to employees working inside. Trenches to be inspected prior to entering
Storage of meters on site	Poor stacking and storage	Trips and falls	Injuries	L	Proper stacking storage of meters at designated places.



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

	Unprotected meters	Exposure to criminal activities	Theft	M	Appoint PSIRA accredited security guard. Store meters away from the public eye. Use shaded netting to prevent passers 'by from seeing what is inside the camp.
Tie-in to existing pipeline	Pressure on the existing pipes	Failure of existing pipeline under pressure	Injury from high pressure	M	Use PPE. Ensure adjacent stop valves are operational / closed. Secure adjacent valves against movement. Relieve pressure in system.
Reconnecting house services	High pressure water	High pressured water splashing on employees	Injuries	M	Use PPE. Relieve pressure in system. Develop and follow an SOP
Restoration of site	Backfilling	Dust generation	Inhalation of dust	L	Wear dust mask

ACTIVITY: PIPE LAYING & METER INSTALLATION

Task	Hazard	Risk	Consequence	Rating	Controls
	Inadequate compaction	Public hazard	Injuries	L	Compaction to specified standard.
	Paving	Inadequate handling of paving material	Injuries	L	Pave according to specification Handle material with care Wear job specific PPE

 Johannesburg Water	OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT				
	PROJECT NUMBER:	JW 14427			
	PROJECT LOCATION:	Orange Farm			
	PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal			

	Housekeeping	Slip, trip, falls	Injuries	L	Maintain proper housekeeping on site Remove waste on a regular basis from site
House visits	Unhappy residents	Attacking the technicians	Injuries	M	JMPD services to be sought where challenges are experienced.

ACTIVITY: OPERATING CONSTRUCTION VEHICLES					
Task	Hazard	Risk	Consequence	Rating	Controls
Operating construction vehicles and mobile plant	Moving bucket / arm	Hitting employees	Injuries	M	Workers to stand clear of the path of the construction vehicles and mobile plant Rigger to direct the loading and offloading activities
	Incompetent operator	Hitting employees; Bumping vehicles and properties	Injuries Property damages	M	Only trained, competent and appointed operators may operate a concrete truck Flagman to be posted to direct the operator
	Unhealthy operator	Collapsing whilst operating	Fatalities Injuries to other people Property damages	H	All operators to undergo annual medical examinations prior to resumption of duties All sick employees must report to their supervisors, and not be allowed to operate construction vehicles and mobile plant.



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

	Speeding	Hitting employees; Bumping vehicles and properties	Injuries Property damages	M	Site speed limits to be adhered to at all times
Parking	No visibility Parking on a blind spot Uncontrollable movement	Collision with other vehicles Bumping into people	Fatalities Property damages	H	Ensure that construction vehicles are parked at safe areas while conducting operations Use signage where trucks are parked in / near the road Place stop blocks to prevent any movement. Ensure that the key is removed from the ignition when parked.



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ACTIVITY: HDD

Task	Hazard	Risk	Consequence	Rating	Controls
Inserting the drilling rig	Underground services such as gas or electricity	Explosion Damages	Fatalities	H	Proper scanning of services prior to starting with excavations Obtain wayleaves from all utilities prior to starting with work Develop a method statement and risk assessment Train employees in the method statement as well as risk assessment Develop emergency response procedures for explosions
Inserting the drilling rig	Vibration	Road collapse	Fatalities Property damages	H	Only experienced service providers for pipe cracking should be appointed. Check Geotech conditions prior to starting with HDD Ensure that the correct depth is used for HDD HDD from JRA are always valid, and are complied with.
	Vibration	Exposure to excessive vibration	Raynaud's syndrome	M	Provide employees with sufficient rest periods for every 1hr worked.
Insertion	Improper handling	Hands getting caught Pipe slipping from hands	Injuries	L	Only trained employees may perform that task Training in the correct handling and connecting of bursting head



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

	Machinery	Exposure to excessive noise above 85dB(A)	Noise-induced hearing loss	M	Provide employees with hearing protection Regular servicing and maintenance of equipment Have a barrier wall where possible to shield the community from the noise.

ACTIVITY: USE OF GENERATOR ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Transporting the generator to site	Lifting	Improper lifting	Back pain	M	Training in proper lifting techniques Provide proper PPE
Fueling	Spillages	Slips, trips, falls	Injuries	L	Prevent spillages Use drip trays Use funnels for fueling
	Fuel	Fire	Injuries	M	No smoking allowed near the generator
	Diesel fumes	Inhalation	Respiratory problems	L	Provide employees with respirators
	Fuel	Skin contact	Skin irritation	L	Provide employees with gloves, safety boots and overalls



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

	Running engine	Explosion	Injuries	M	Switch engine off before refueling and make sure fuel cap is replaced. No smoking allowed near the generator
Running the engine	Noise	Over-exposure	Noise-induced hearing loss	M	Provide employees with hearing protection Provide rest periods for employees
	Vibration	Over exposure	Raynaud's Syndrome	L	Provide employees with vibration gloves. Rotate employees or provide rest periods.
	Fumes	Inhalation	Respiratory problems	L	Provide employees with respirators Never use indoors

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Traffic Management	Moving vehicles and pedestrians Improperly placed signage Incorrect signage displayed Poor communication between flagmen	Road accidents People getting knocked down by cars	Fatalities Serious injuries Property damages	H	Adhere to traffic management procedures Ensure good communication between flagmen Display correct road signage Employees should wear reflective PPE Keep area clean & clear of obstacles.
Reinstatement	Inadequate compaction Construction refuse Inadequate resurfacing High Ground collapse Hydraulic / pneumatic pressures	Uneven surfaces	Injuries	L	Compaction to specified standard. Site cleared of debris and refuse. Re-surface appropriately. Do not leave gaps in turf or leave uneven surface. Erect fence around hazardous areas until restored and safe. Ensure plugs and compressors are installed and secured against movement. Release air before removing plugs. Clear area of pipe ends being tested.



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Working on site	Unhappy community Criminals	Community coming to site Violence against employees	Property damages Serious injuries	H	Develop an emergency response procedure Meet with the community and all stakeholders prior to commencement of the project Keep all gates locked at all times Have the contact details of the nearest police station / JMPD offices Liaise with CLO, ward governance and councilor Stop work and evacuate employees where possible Have 24/7 security on site
	Unfavourable weather conditions	Exposure to temperature extremes	Heat exhaustion Frost bite	M	Provide employees with water for cooling down. Provide employees with warm jackets during winter and gloves Provide 5-minute rest periods for every 30 minutes of exposure to temperature extremes.
	Housekeeping	Trips and falls	Injuries	M	Ensure that proper housekeeping is maintained on site at all times.
Storage of HCS	Burning or fires on site Improper labelling of chemical containers	Property damage Accidental consumption of flammable liquids	Serious injuries Illnesses	M	A well ventilated cage may be used for storage of all the HCS and flammables HCS supervisor must record all quantities on a register. Label containers correctly Display HCS signage



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Working on site	Unhappy community	Community coming to survey site Violence against employees	Property damages Serious injuries	H	Develop an emergency response procedure Meet with the community and all stakeholders prior to commencement of the project Have the contact details of the nearest police station / JMPD offices
	Unfavourable weather conditions	Exposure to temperature extremes	Heat exhaustion Frost bite	M	Provide employees with water for cooling down. Provide employees with warm jackets and gloves during winter Provide 5-minute rest periods for every 30 minutes of exposure to temperature extremes. No work to be undertaken in rainy conditions
	Housekeeping	Trips and falls	Injuries	M	Ensure that proper housekeeping is maintained on site at all times.
Working near open spaces	Snakes	Bites Poisoning	Fatalities Serious injuries	H	Inspect the area for snakes prior to entering Conduct snake awareness training Know the do's and don'ts of what to do when coming across snakes



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Bees	Bites	Allergic reaction	M	Inspect the area for bees / wasps prior to entering Conduct bees awareness training Know the do's and don'ts of what to do when coming across bees
Sharp objects	Getting pricked by sharp objects	Tetanus Injuries	M	All employees to get Tetanus vaccination. Provide employees with proper safety boots

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
	Criminals	Getting mugged	Loss of personal possession	M	Personal belongings such as phones and car keys to be safely put in pockets while working. Employees to report any suspicious activities to the local police. Equipment to be safely stored while not in use
	Criminals	Employees being attacked	Injuries Fatalities	H	Ensure that employees do not work in isolation. Employees to report any suspicious activities to the local police. Develop an emergency response procedure



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

	Open excavations (other works)	Falling inside	Injuries	M	Employees to be vigilant while working on site
	Water bodies	Falling inside	Serious injuries Fatalities	H	Employees to be vigilant while working on site Emergency procedures to be developed
	Rotating equipment	Entrapment Getting caught by	Serious injuries Fatalities	H	Ensure that machinery is isolated or locked out while working on it.
	Raw sewer	Skin contact Ingestion Splashing into eyes	Waterborne diseases	H	Provide employees with proper PPE, and ensure that the mouth, nose and eyes are covered. Vaccinate employees and ensure that they are medically fit to work in confined spaces.

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Use of ablution facilities	Infrequent collection and disposal	Unhygienic toilet	Illnesses	M	Ensure that a proper toilet with a closing door is made available for personnel on site. Where there are employees of different genders, two separate toilets will be sourced to be used by both males and females. Ensure that the toilet is collected and emptied frequently by a registered service provider. Ensure that disposal certificates are obtained from service provider. Ensure that toilet is cleaned daily, and provision for toilet paper and washing of hands is made.

RISK ASSESSMENT MATRIX

Likelihood	Consequences				
	Insignificant (minor problem easily handled by normal day to day processes	Minor (Some disruption possible e.g., damage equal to R150k	Moderate (significant time / resources required. E.g., damage equal to R500k	Major (Operations severely damaged. E.g., damages equal to R1m	Catastrophic (business survival is at risk. Damage equal to R5m – 10m



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Almost certain (90% chance)	High	High	Extreme	Extreme	Extreme
Likely (between 50-90%)	Moderate	High	High	Extreme	Extreme
Moderate (between 10-50%)	Low	Moderate	High	Extreme	Extreme
Unlikely (between 3-10%)	Low	Low	Moderate	High	Extreme
Rare (<3%)	Low	Low	Moderate	High	High

JOHANNESBURG WATER (SOC) LTD

MEDICAL SCREENING POLICY

**JW 14427A: GREATER ORANGE
FARM PHASE 3 PACKAGE 1 WATER
INFRASTRUCTURE UPGRADE AND
RENEWAL**

NOTICE

It is the Contractor's responsibility to ensure that medical surveillance requirements specified in the Occupational Health and Safety Act (85/1993) and Regulations and any other applicable legal and Johannesburg Water's requirements are fully complied with.

This document is meant to facilitate the Contractor's compliance to applicable requirements and does not replace the applicable legal requirements.

This document may be revised at any time to include applicable legal requirements not currently included that may come to the attention of Johannesburg Water in future. The Contractor will accordingly be responsible to comply with the revised requirements as might be necessary.

Where methods to ensure legal compliance have been specified in this document, Contractors may submit alternative detailed method statements for consideration and approval by Johannesburg Water. Johannesburg Water may, at its sole discretion, reject or accept such alternative methods.

1 PURPOSE OF THE MEDICAL SURVEILLANCE REQUIREMENTS PROCEDURE

The purpose of this Medical Surveillance Requirements Procedure is to facilitate the achievement of legal compliance relating to medical surveillance by all Consultants, Contractors, Subcontractors and suppliers that will be working on the Johannesburg Water project and to ensure that employees are fit to work in the roles that they have been employed to execute and remain so for their duration on the project site.

This document represents the minimum requirements for medical surveillance and does not replace applicable legal requirements.

2 MEDICAL SURVEILLANCE OBJECTIVES

The Johannesburg Water main objectives for medical surveillance are:

- a) To ensure compliance with all applicable medical surveillance legal requirements.
- b) To ensure compliance with all Johannesburg Water's requirements regarding medical surveillance.
- c) To ensure that employees are fit to execute the work for which they have been employed.
- d) To prevent employees from acquiring occupational diseases or illnesses.
- e) To ensure early detection and treatment of occupational diseases and to prevent the aggravation of existing medical conditions.

-
- f) To ensure that employees on departure from the project have not contracted any occupational diseases and to enable any such condition that arises to be suitably addressed.

All contractors are required to demonstrate total commitment towards the achievement of these objectives.

3 GENERAL REQUIREMENTS

3.1 The Principal Contractor shall ensure that a medical surveillance programme is implemented for all employees.

3.2 An initial health evaluation shall be carried out by an occupational health practitioner immediately after a person commences employment, where any exposure exists or may exist, which comprises:

- an evaluation of the employees medical and occupational history; ○ a physical examination; and
- any other essential examination which in the opinion of the occupational health practitioner is desirable in order to enable the practitioner to do a proper evaluation.

3.3 Medical surveillance & Immunization shall be done accredited institutions or occupational health doctor, including, but not limited to:

- a) Audiograms.
- b) A cardio-respiratory examination, including full size chest x-rays (If lung function tests are abnormal)
- c) Lung function tests.
- d) Eye/ sight tests.
- e) A general physical examination.
- f) A review of previous medical history.
- g) Blood pressure tests
- h) Glucose tests
- i) Vaccination (Hepatitis A & Typhoid)

Copies of all medical certificates shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent prior to site establishment and before an employee is allowed to come onto site.

Specific attention shall be given to the physical and psychological fitness of people who will be required to work in elevated positions and operators of mobile machinery.

An exit medical certificate shall be obtained for all workers at the end of the contract and for all workers who leave the employment of the Contractor before the end of the Project. Copies of all exit medical certificates shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent.

Medical surveillance shall address all occupational health risks to which the employee is exposed, identified through the risk assessment referred to in section 4 below.

Retention monies will be withheld if the exit medical is not complete for all employees.

The cost of all medical examinations will be borne by the Contractor as provision is made on the bill of quantities.

4 OCCUPATIONAL HEALTH RISK ASSESSMENT

4.1 The Contractor shall conduct an occupational health risk assessment prior to site establishment.

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

4.3 The methodology used by the contractor to assess occupational health risks associated with their activities shall be submitted to Johannesburg Water for approval by the Johannesburg Water Project Specialist or Appointed OHS Agent prior to site establishment. The methodology should take the following into consideration, among others:

- a) Legal requirements.
- b) Normal activities undertaken by the contractor.
- c) Abnormal situations (e.g. unanticipated breakdown of equipment etc).
- d) Emergency situations (e.g. fires, exposure to chemicals).
- e) Changes in work procedures and methods.
- f) Previous experience.

4.4 A risk register that will include the following shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent before site establishment.

- a) All occupational health risks identified during the occupational health risk assessment.
- b) A list of the occupational health risks that have been identified as being significant.
- c) Reference to the method statements, measures or procedures that will be followed to either eliminate or reduce the significant risks to tolerable levels.

4.5 The Contractor shall, in writing, clearly explain how each occupational health risk assessed to be significant will be addressed to eliminate or reduce it to a tolerable level and submit it for approval by the Johannesburg Water Project Specialist or Appointed OHS Agent before site establishment. This may be through method statements or written operational control procedures. Associated responsibilities and authorities shall be clearly defined. All method statements shall reflect at least:

- a) When the activities relating to the method statement will be conducted (timing). b) Materials to be used.
- c) Equipment and staffing requirements.
- d) The proposed construction procedure designed to implement the relevant requirements.
- e) The system to be implemented to ensure compliance with the method statement.
- f) Any other information deemed to be necessary by the Johannesburg Water Project Specialist or Appointed OHS Agent and/or the contractor's responsible person.

4.6 For significant occupational health risks identified after site establishment, method statements shall be submitted to the Johannesburg Water Project Specialist or Appointed OHS Agent at least 10 working days before the start of the associated activity, when possible.

- 4.7 All changes to approved method statements or procedures shall be approved in writing by the Johannesburg Water Project Specialist or Appointed OHS Agent.
- 4.8 The contractor's Responsible Person shall retain records of any amendments and shall ensure that only the most current approved version of any method statement or procedure is used.
- 4.9 Every occupational health risk that is identified during the risk assessment process shall be conveyed to every employee whose work is associated with the risk. This may be done in the form of a toolbox talk but does not replace the toolbox talk entirely. Each employee shall sign to confirm an understanding of the occupational health risks in the tasks.
- 4.10 Occupational health risk assessments may be combined with safety and environmental risk assessments, but the consideration of occupational health issues shall be clearly reflected in the records generated and maintained.
- 4.11 The occupational health risk assessment process and effective implementation of measures to eliminate or reduce identified risks is the responsibility of the Contractor. Johannesburg Water will closely monitor the effectiveness of implemented measures.

Acknowledgement of JW Medical Screening Policy

Name of Contractor

I, the undersigned, hereby acknowledge that I have obtained copies of JW Medical Screening Policy and confirm that I fully understand them and the consequences of non-compliance.

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

Signature of Contractor / Mandatory

Date

Signature of 16.2 / Construction Manager

Date

Witness 1

Witness 2

 Johannesburg Water	OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION	
	PROJECT NUMBER:	JW 14427A
	PROJECT LOCATION:	Orange Farm
	PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

VOLUME 2

OCCUPATIONAL HEALTH & SAFETY SPECIFICATION

JW 14427A

Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

Prepared by: OHS Department PO Box 61542 Marshalltown 2107 Tel: +27 11 688 1476	PRINCIPAL CONTRACTOR:	
	CEO (16.1 APPOINTEE):	
	TELEPHONE NUMBER:	
	FAX NUMBER	
	E-MAIL ADDRESS:	
	SIGNATURE:	

General Notification

This document forms an integral part of the Contract Specification and, in particular, shall constitute the Client's

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(Johannesburg Water SOC Ltd.) Occupational Health, Safety & Environmental (SHE) Specification, as required by the Construction Regulations, 2014, as promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993). The Specification shall furthermore be applied for the management of Mandatories performing activities for or on behalf of Johannesburg Water SOC Ltd, irrespective whether the contract work constitutes construction work or not.

The Contract Specification is contained in Volume 1 of the contract documents in Part 3: Scope of Work.

Acknowledgements

This Occupational Health, Safety & Environmental (SHE) Specification was developed by the internal OHS Department for the sole use by Johannesburg Water SOC Ltd. The issue date of this SHE Specification is September 2016.

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ABBREVIATIONS

Abbreviation	Description
CR	Construction Regulations
COID	Compensation for Occupational Injuries and Diseases
DoL	Department of Labour
GAR	General Administrative Regulations
GMR	General Machinery Regulations
GSR	General Safety Regulations
HCS	Hazardous Chemical Substances
HIRA	Hazard Identification and Risk Assessment
JW	Johannesburg Water (SOC) Ltd
MSDS	Material Safety Data Sheet
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
PER	Pressure Equipment Regulations
SANS	South African National Standards
SABS	South African Bureau Standard
SHE	Safety, Health & Environment
SOC	State Owned Company

DEFINITIONS

Word / Phrase	Definition
“WCL 1”, “WCL 2” and “WCL 22”	Means the prescribed forms for reporting of incidents and occupational diseases referred to in the Compensation for Occupational Injuries and Diseases Act.

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Competent Person	A person who has in respect of the work or task to be performed the required knowledge, training, experience and, where applicable, qualifications specific to that work or task: provided that where appropriate, qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, (Act 67 of 2000).
Construction work	Any work in connection with: a) The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure b) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work
Contractor (inclusive of Principal Contractor)	Any organization, person, entity performing activities for or on behalf of Johannesburg Water SOC Ltd.
Corrective Action	Action to eliminate the cause of a detected nonconformity or other undesirable situation.
Employee	Any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person
Employer	Any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him, but excludes a labour broker as defined in section 1 (1) of the Labour Relations Act, 1956 (Act No. 28 of 1956)
Hazard	Means a source of or exposure to danger.
Hazard identification	The identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed.
Incident	Means an incident as contemplated in section 24 (1) of the OHS Act 85 of 1993.
Machinery	means any article or combination of articles assembled, arranged or connected and which is used or intended to be used for converting any form of energy to performing work, or which is used or intended to be used, whether incidental thereto or not, for developing, receiving, storing, containing, confining, transforming, transmitting, transferring or controlling any form of energy
Mandatory	Includes an agent, a contractor or a subcontractor for work, but without derogating from his status in his own right as an employer or a user
Medical surveillance	Means a planned programme or periodic examination (which may include clinical examinations, biological monitoring or medical tests) of employees by an occupational health practitioner or, in prescribed cases, by an occupational medicine practitioner.
Method Statement	A document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment.
Principal Contractor	Any employer who performs work and is appointed by the Client to be in overall control and management of the contract work (inclusive of Mandatories).
SHE File	A file or other record in permanent form, containing the information required as contemplated in the S.H.E Specification Document and legal requirements applicable to work activities.

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SHE Plan	A documented plan which seeks to address all hazards identified means and ways to control and eliminate such to ensure compliance to the S.H.E Specification.
Workplace	Any physical location in which work related activities are performed under the control of the organization.

1. Introduction

In terms of Section 37 of the Occupational Health and Safety Act (Act no. 85 of 1993), Johannesburg Water SOC Ltd is required to control persons/organizations conducting activities for or on their behalf (Mandatories) and the Construction Regulations promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993), is requiring Johannesburg Water SOC) Ltd. to compile an occupational health and safety specification for any intended project classified as construction work and to provide the specification to prospective tenderers / Mandatories.

The dual objective of this specification is to ensure that the Mandatories and Principal Contractors (herein after called Principal Contractor (including Mandatories)) entering into a contractual agreement/relationship with Johannesburg Water SOC Ltd. achieves and maintains an acceptable level of occupational health, safety and environmental performance whilst conducting activities to perform the contract work.

This document forms an integral part of the Contract Specification and, in particular, shall be the OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL (SHE) SPECIFICATION FOR CONSTRUCTION WORK. The Contract Specification is contained in Volume 1 of the contract documents. The principal and other contractors shall ensure that this specification is included with any contract/s that they may have with other contractors and/or suppliers that are engaged for the provision of labour, goods or services for this project. The Principal Contractor and its Contractors shall furthermore implement any reasonable practicable means to ensure compliance to this Occupational Health, Safety and Environmental (SHE) Specification and any other applicable legislation on their organization and/or activities performed by or for them. This SHE Specification will be read in conjunction, where issued and applicable, with the Environmental Specification issued for listed activities requiring environmental authorization by a relevant authority.

Compliance with this SHE specification does not absolve the Principal Contractor from complying with any other applicable minimum legal requirement and the Principal Contractor remains responsible for the sustainable integrity of the environment and the health and safety of its employees, mandatories as well as any persons affected by activities conducted for or on behalf of Johannesburg Water SOC Ltd (SOC) Ltd..

1.1 Johannesburg Water SOC Ltd's commitment to Occupational Health, Safety & Environmental (SHE) Management

Johannesburg Water SOC Ltd is committed to responsible occupational health, safety and environmental management. This commitment is essential to protect the environment, employees, Mandatories, visitors and provide a work environment conducive to health and safety. Principal Contractors and their Contractors shall demonstrate their commitment and concern by:

- Ensuring that decisions and practices affecting occupational health, safety and environmental performance are consistent with the issued SHE specification;
- Ensuring adequate resources are made available for the effective implementation of occupational health, safety and environmental control and mitigation measures;
- Participating in hazard identification and risk assessments and design safety reviews;
- Communicating occupational health, safety and environmental management processes, strategies and control measures with all levels of employees, contractor and/or visitors;
- Ensuring visible leadership at all sites;
- Promoting and enforcing the use of correct types of Personal Protective Equipment (PPE);

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- Reporting and investigation of incidents and accidents and ensuring actions are identified and implemented to prevent similar types of incidents reoccurring;
- Participating in Client audits and meetings and ensuring required actions are implemented within reasonable time frames on the site/project;
- Recognizing and commending safe work practices and coaching employees who require guidance;
- Applying and enforcing consequence management from deviations and transgressions of/from compliance to this SHE Specification noted and/or observed, where applicable;
- Carrying out safety observations, implement corrective and preventative actions and giving immediate feedback;
- Encouraging employee participation in the formulation of work instructions and safety rules.

1.2 Scope of Occupational Health, Safety and Environmental (SHE) Specification

The scope of this Occupational Health, Safety and Environmental (SHE) Specification is to address the reasonable and foreseeable aspects of occupational health, safety and environmental management, which will be affected by the contract work.

The specification will provide 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 or degradation of the environment, to a level as low as reasonably practicable and possible.

In particular, Johannesburg Water SOC Ltd will ensure that it shall not appoint any Principal Contractor unless it is reasonably satisfied that the contractor which it intends to appoint has the necessary competencies and resources to carry out the work safely.

1.3 Omissions from SHE Specification

Where any omission from the SHE Specification is identified, applicable legal requirements will constitute the minimum standard for compliance to the relevant omission. The responsibility will be on the Principal Contractor to provide assurance to Johannesburg Water SOC Ltd on compliance to the applicable legal requirements related to the activity / task / process.

1.4 Change management

Whenever Johannesburg Water SOC Ltd identifies the need to change or review the SHE Specification, approved changes and revisions will be communicated to the Principal Contractor. A cost analysis on the implementation of the proposed changes / revisions will be calculated through a collaborative processes between Johannesburg Water SOC Ltd and the Principal Contractor – where the approved changes and/or revisions has no cost implication for the Principal Contractor the Principal Contractor will be required to accept the approved changes / revisions and ensure implementation within the SHE Plan / File framework.

2 Overview of contractor management process

The contractor management process consists of the following phases:

- Tender briefing and tender documentation;
- Competency evaluation of Principal Contractors (integrated into Supply Chain Management processes);
- Appointed contractor to attend SHE system induction;
- Preparation of SHE File by Principal Contractor;
- Evaluation of SHE File;
- Principal Contractor engagement phase;

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- Project close-out and submission of consolidated Health & Safety File.

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	PROJECT DESCR: Greater Orange Farm STS Prepayment Water Meters and Retrofitting



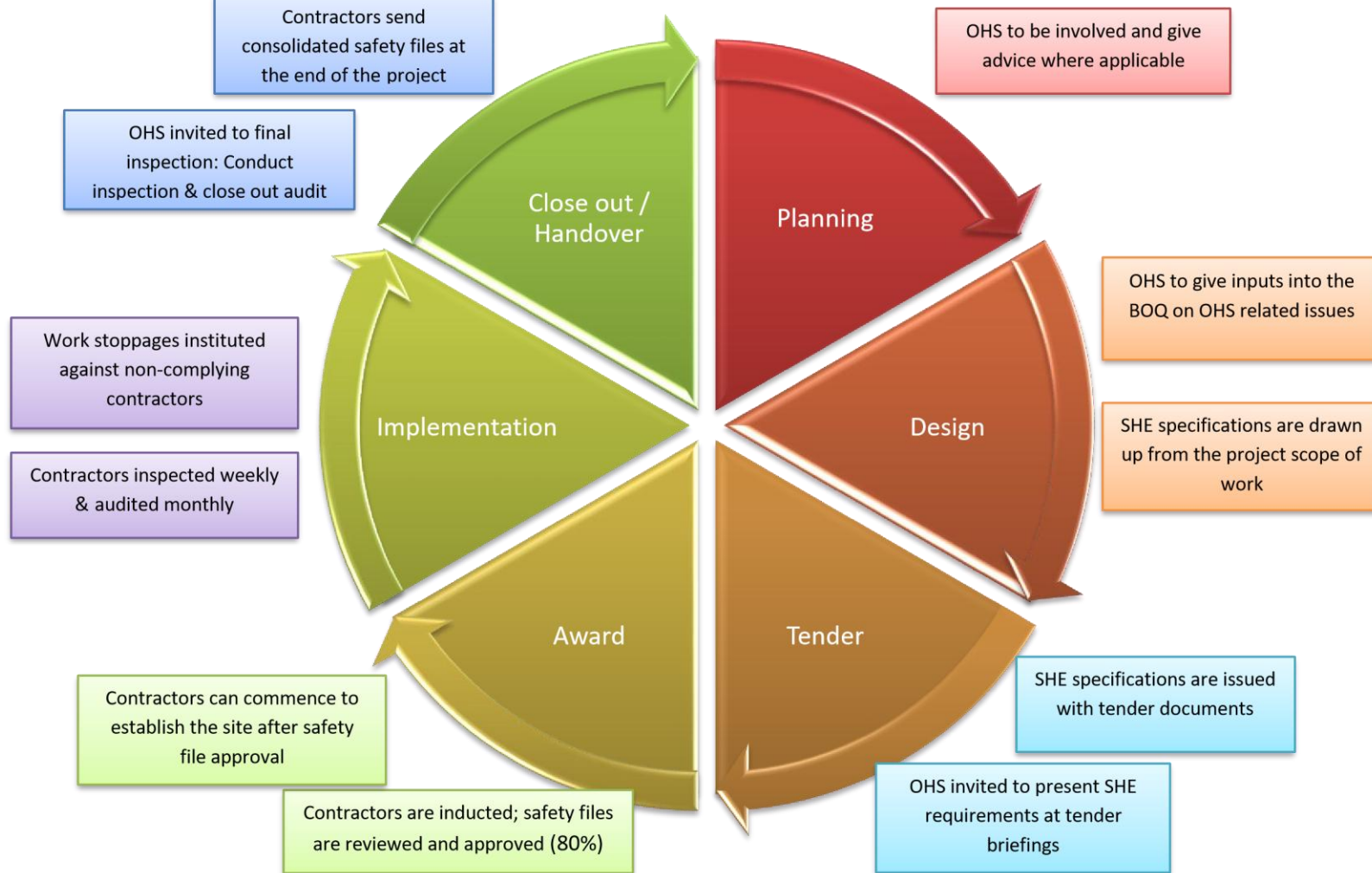
OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION

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PROJECT DESCR:	Greater Orange Farm STS Prepayment Water Meters and Retrofitting

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2.1 CONTRACTOR MANAGEMENT PROCESS



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2. SHE DOCUMENTATION

2.1 Safety file

The Principal Contractor will prepare a SHE File containing the processes / procedures and templates to be applied during the project period for the scope of work. The Principal Contractor will be evaluated during the contract period against the submitted SHE File.

At a minimum the SHE File will contain the following documentation:

- Notification of construction work to the relevant Department of Labour (stamped on each page / no faxed copies);
- Scope of work to be performed;
- Personnel list (Principal Contractor employees);
- OH&S / SHE Policy and other Policies;
- Updated copy of the Occupational Health and Safety Act (Act no. 85 of 1993) and its Regulations; COIDA Act.
- Proof of valid registration and good standing with the Compensation Commissioner or another licensed Insurer;
- SHE Plan agreed with Johannesburg Water SOC Ltd.
- Approved risk assessments, review and monitoring plans and safe work procedures (method statements);
- A list of contractors (sub-contractors) including copies of the agreements between the parties and the type of work being done by each contractor;
- All written designations and appointments for project scope of work (CV and competency copies);
- Management structure (inclusive of OH&S responsibility & meeting structure);
- Induction training and site SHE rules;
- Occupational health and safety training matrix / plan;
- Arrangements with contractors and/or mandatories;
- Description of security measures;
- The following registers (as applicable to contract scope of work):
 - Accident and/or incident notifications, investigation & control register;
 - Occupational health and safety representatives inspection register;
 - Template for entry into confined space;
 - Toolbox talks pro-forma;
 - Fall protection inspections template;
 - First-aid box content template;
 - Record of first-aid treatment template;
 - Fire equipment inspection and maintenance template;
 - Ladder inspection template;
 - Machine safety inspections template (including machine guards, lock-outs etcetera);
 - Inspection templates for lifting machines and –tackle (including daily inspections by drivers/operators);
 - Inspection templates of scaffolding;
 - Inspections templates of structures;
 - Templates of issuing of Personal Protective Equipment;
 - Monthly reporting and recording of statistics templates;
 - Keeping of any other record in terms of applicable legislation falling within the scope of SHE Legislation applicable to the project and the Principal Contractor / Contractor's activities and organization.
- Emergency preparedness and response programmes;
- Medical examination tests

2.2 Principal contractor appointment

- The principal contractor will be appointed in terms of Construction Regulations 2014, Reg 5(1) k

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- All responsibilities imposed on the contractor by the Regulations will be applicable
- The duties will include:
 - a) Prepare a site specific SHE file based on client SHE specification and project scope.
 - b) Have an updated Letter of Good standing.
 - c) Ensure the necessary legal appointment letters are compiled and signed by affected parties.
 - d) Ensure SHE file submitted before work commences to Johannesburg Water for evaluation and approval.
 - e) Must ensure an organizational medical programme for its employees is in place. This must address preemployment, periodic examination, and exit examinations.
 - f) Ensure all employees undergo medical examination and are declared fit for the job they are employed for by a Medical Practitioner.
 - g) All employees undergo his control undergo company specific induction and Johannesburg water induction.
 - h) Ensure before work commences employees are trained on the health and safety risks associated with the work they are conducting.
 - i) Ensure employees are trained on company procedures, policies, method statements and informed of the Johannesburg Water SHE requirements as per the specification.
 - j) Ensure legislative requirements are complied with during the duration of the contract and ensure that their employees comply also.
 - k) Sign the 37 (2) Agreement between Johannesburg Water and themselves before any work commences and kept on their SHE file.
 - l) Ensure that 37(2) Agreement(s) are signed between themselves and their sub-contractors.
 - m) Ensure that sub-contractors have valid Compensation Commissioner Letter of Good Standing.
 - n) Have a disciplinary procedure to address those found to be transgressing requirements of SHE specification, SHE plan, site rules or any other OHS act and its Regulation requirement.
 - o) Prevent any employee or visitor who is under the influence of any alcohol or drugs (in state of intoxication) from being allowed to site.
 - p) Ensure the safety of employees who are taking legal medication.
 - q) Must hand over a consolidated SHE file at the end of the contract.
 - r) Stop his/her employees who are doing unsafe acts or who are creating an unsafe environment.
 - s) Investigate all incidents and report to Johannesburg water and ensure all reportable incidents as per the legislative requirement are complied with.
 - t) Ensure work is supervised by competent personnel and that work is done by competent employees.
 - u) Ensure pre-task risk assessment is done by a competent person and that employees are informed of the pre-task risks and the risk control measures.
 - v) Ensure tool box talks are conducted to communicate SHE issues in connection to the work being done and any other aspects.
 - w) Ensure that appointed personnel as per the SHE file are executing their duties as per the legal appointment.
 - x) Ensure first aid kit is made available in case of any emergency.
 - y) Ensure that housekeeping is maintained in good condition and that materials are store/stacked properly in designated areas.
 - z) Have sufficient waste receptacles and ensure the correct disposal of the different wastes.
 - aa) Proof of hazardous waste disposal to be requested from disposal site and to be kept inside SHE file.
 - bb) Take reasonable steps to ensure that each appointed sub-contractor health and safety plan is implemented and maintained on the site and SHE File documentation is up to date.
 - cc) Stop any work from being executed which is not in accordance with the client's health and safety specification and the principal contractor's health and safety plan for the site or which poses a threat to the health and safety of persons.

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- dd) Must maintain an up to date list of all the sub-contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done; and
- ee) Ensure that all his or her employees have a valid medical certificate of fitness.

2.3 37.2 Agreement

- Johannesburg Water will enter into a 37(2) Agreement with all the appointed contractors • A copy of the 37(2) Agreement must be kept in the SHE file of the contractor at all times.
- It is the responsibility of the contractor to ensure that there are 37(2) agreements between themselves and all their appointed sub-contractors.

2.4 SHE Plan

- The contractor shall prepare a SHE plan to address and manage all applicable sources of risk that are identified during the execution of the project. The SHE plan shall incorporate the requirements as listed in the SHE specification.
- A copy of the SHE plan shall be submitted together with SHE file for review and approval.
- It is the contractor responsibility to ensure they sub-contractor compiles a SHE plan that in line with the SHE specification requirement of Johannesburg Water.

2.5 Legislative framework

All contractors shall comply with legislation pertaining to this contract, including but not limited to:

- Constitution of the Republic of South Africa
- Occupational Health and Safety Act and its associated Regulations
- National Environmental Management Framework Legislation
- National Road Traffic Act
- Applicable South African National Standards (SANS)
- Compensation of Occupational Injuries and Diseases Act (COIDA)
- Local by-laws and provincial ordinances

2.6 SHE Policy

A SHE policy is a statement of intent and a commitment by the organization Chief Executive or Managing Director (OHS Act 16(1) appointee) in relation to requirements applicable to their Safety, Health and Environmental legal obligation, relevant SHE roles and responsibilities, and contractual obligations to the Client.

The contractor and their sub-contractor companies shall each have a documented SHE Policy authorized by their Chief Executive/Managing Director (OHS Act Section 16 (1) Appointee). The SHE Policy must meet the following minimum requirements;

- Organizational Mission and Goal.
- State the overall SHE objectives within the project.
- Show commitment to the prevention of injuries and ill-health.
- Show commitment to the protection of environment and the conservation of natural resources.
- Must be reviewed at predetermined intervals, or when there is change in work process, serious incident occurs.
- The SHE Policy must be in line with OHSAS 18001 and ISO 14001 requirements and guidance documentation.
- Must be authorized by contractor CEO.

2.7 Appointments and competencies

- The contractor and its appointed sub-contractor must make the relevant legislative and non-statutory appointments, which must be maintained valid for the entire contract duration.

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- All appointees shall be suitably trained and certified competent for the responsibilities they are assigned for.
- Copies of all relevant appointments and the relevant competence certificates must be kept in the relevant SHE file.

2.8 Supervision of construction work

- The principal contractor shall ensure that the construction manager and construction health and safety officer are appointed for a **single site** on a full time basis.
- JW should be informed in writing of the absence of the above-mentioned on site.

Appointment index

Appointment	Legislative Ref	Competency requirements (Min)
Alternate Construction Manager	CR 8.1	N.Dip Eng + 4yrs exp
Assistant Construction Manager	CR 8.2	N.Dip Eng + 4yrs exp
Confined Space Supervisor	GSR 5	Certificate + Proven experience
Construction Manager	CR 8.1	N.Dip Eng + 4yrs exp Full time on site
Construction Health, Safety & Environmental Officer	CR 8.5 JW requirement	N.Dip Safety + 2yrs exp; OR N.Dip Enviro + 3yrs exp; OR NEBOSH / SAMTRAC + 4yrs exp Fully registered with SACPCMP Full time on site
Construction supervisor	CR 8.7	3 yrs experience
Construction vehicle & mobile plant supervisor	CR 23.1	Certificate
Electrical installation and appliances inspector	CR 24	
Emergency, security and fire coordinator	CR 29	Certificate
Excavation supervisor (including piling)	CR 13	3yrs exp / N.Dip building
Explosive actuated fastening device inspector	CR 21	Certificate
Fall protection supervisor	CR 10.1	Certificate
First-aiders	GSR 3	Certificate
Fire fighting equipment inspector	CR 29	Certificate
General Machinery Supervisor	GMR 2.1/7	GCC (GMR 2.1)/ 3yrs exp (GMR 2.7)
Temporary work supervisor (Formwork)	CR 12.2	N.Dip building + 4yrs exp
Hazardous chemical substances supervisor	HCS Regs	Certificate
Incident investigator	GAR 9.2	Certificate

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Ladder inspector	GSR 13A	-
Lifting machines and equipment inspector	DMR 18.5	Certificate + 3yrs experience
Materials hoist inspector	CR 19.8	Certificate
Occupational health and safety representatives	OHS Act 17	Certificate
Risk assessor	CR 9.1	Certificate
Stacking and storage supervisor	CR 28	Certificate
Structures supervisor	CR 11.2	N.Dip building + 4yrs exp
Suspended platform supervisor	CR 17.1	Certificate
Vessels under pressure supervisor	PER 12	Certificate
Welding supervisor	GSR 9	Certificate

2.9 Insurances

- The principal contractor and all his appointed contractors shall be registered with an appropriate compensation commissioner and have available a valid letter of good standing at all times.
- The obligation lies with the contractor to ensure that the Letter of Good Standing remains valid throughout the entire duration of the project.
- A copy of the said letter must be filed in all SHE files and made available during inspections and audits.

2.10 Costing for SHE

The contractor is responsible for ensuring that SHE costing is taken into consideration for the entire project/contract as this will ensure they comply with the SHE legislative requirements.

2.11 Sub-contractors

- Whenever the Principal Contractor appoints contractors or sub-contractors, it is a requirement that an Occupational Health and Safety Act (Act no. 85 of 1993) Section 37(2) agreement (i.e. Agreement with Mandatory) is entered into between the Principal Contractor and Contractors.
- The Principal Contractor will ensure that all appointed contractors comply with the Johannesburg Water SOC Ltd SHE Specification requirements.
- The Principal Contractor will establish a procedure on sub-contractor management and assurance on compliance to the established procedure will be provided to Johannesburg Water SOC Ltd on a monthly basis.
- Principal Contractors are required to formally notify Johannesburg Water SOC Ltd before appointing subcontractors.
- Johannesburg Water SOC Ltd shall approve all specialist subcontractors to be appointed and/or engaged by the Principal Contractor.

The Principal Contractor shall:

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- Ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
- Appoint each contractor in writing for the part of the project on the construction site;
- Take reasonable steps to ensure that each contractor's health and safety plan is implemented and maintained on the construction site;
- Ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days;
- Stop any contractor from executing construction work which is not in accordance with the client's health and safety specifications and the principal contractor's health and safety plan for the site or which poses a threat to the health and safety of persons;
- Include and make available a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done; and
- Ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

2.12 Notification of construction work

- The Principal Contractor shall, before carrying out any work, notify the relevant Department of Labour of the intention to carry out construction work and use the form (*Annexure 2 in the Construction Regulations 2014*) for this purpose.
- Only a certified copy stamped (each page) by the Department of Labour will be acceptable. No faxed or emailed notifications will be accepted.
- No work shall commence before the Principal Contractor has submitted notification of construction work to the relevant Department of Labour.
- Johannesburg Water SOC Ltd will not approve the SHE File if no original stamped / certified copy of the notification of construction work has been done.

2.13 Construction work permit

- Construction work permit may apply if:
 - The project value is >R60m
 - The project duration is more than 12 months
- The Client will be responsible for the application once it is determined that the permit is applicable.

3. ORGANISATIONAL STRUCTURE

- The contractor shall develop and submit together with SHE file an organizational organogram related to the contractor, listing all the levels of responsibility from the Chief Executive down to the supervisor(s) responsible for the project.
- The organogram diagram must list all relevant positions, names of appointees and legal appointments.
- The contractor is responsible for updating the organogram timeously when there are changes to the appointments.
- All appointed sub-contractors are also required to compile their own organograms.

4. COMMITMENT TO SHE

- Visible commitment is essential to providing a safe working environment.

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- Managers, supervisors and employees at all levels must demonstrate their commitment by being proactively involved in the day to day SHE operations.
- Legislation requires that each employee takes reasonable care of themselves and their fellow workers

5. HIRA

Annexure 1: List of possible hazards emanating from projects and activities conducted for or on behalf of Johannesburg Water SOC Ltd includes an assessment of site specific health and safety hazards and risks and environmental aspects and impacts that have been identified by Johannesburg Water SOC Ltd as possibly applicable to the contract work for this project. It is by no means exhaustive and is offered as assistance to the tenderers and contractors.

Development of risk assessments

Every Contractor performing construction work shall, before the commencement of any construction work or work associated with the construction work, and during construction work, ensure that a risk assessment is undertaken by a competent person, appointed in writing, and the risk assessment shall form part of the SHE plan to be applied on the site. Risk assessments shall identify occupational health and safety hazards and risks and environmental aspects and impacts emanating from the activity to be performed by the Principal Contractor / Contractor.

The risk assessment (inclusive of impact assessment) shall include (at a minimum):

- Identification of the relevant Johannesburg Water SOC Ltd Project with regard to JW Number, Project name and area;
- Date on which risk assessments were conducted / reviewed;
- The identification of the risks / hazards and aspects / impacts to which persons may be exposed to per activity;
- The analysis and evaluation of the risks / hazards and aspects / impacts identified;
- Existing control measures and proposed corrective measures;
- A plan to review the risk assessments as the work progresses and changes are introduced;
- Identification of significant risks (e.g. high; exceeding 75%);
- A documented plan of Safe Working Procedures (SWP)', and its relevance to the risk assessment, inclusive of method statements, to mitigate, reduce or control the risks and hazards that have been identified;
- A plan to monitor the application of the Safe Working Procedures (SWP);
- Signature of appointed competent person conducting risk assessment; and
- Signature of approval by Principal Contractor management and employees involved in risk assessment. Based on the risk assessments, the Principal Contractor must develop a set of site-specific occupational SHE rules that will be applied to regulate the health, safety and environmental hazards/aspects of the construction work.

The risk assessments, together with the site-specific occupational health and safety rules, must be submitted to Johannesburg Water SOC Ltd before mobilisation on site commences. These will be included in the SHE plan. The Contractor shall ensure through his risk management process the hierarchy of controls stipulated as follows, are implemented:

- **Eliminate** - The complete elimination of the hazard.
- **Substitute** - Replacing the material or process with a less hazardous one.
- **Redesign** - Redesign the equipment or work process.
- **Separate** - Isolating the hazard by guarding or enclosing it.
- **Administrate** - Providing control such as training, procedures etc.
- **Personal Protective Equipment (PPE)** - Use of appropriate and properly fitted PPE where other controls are not practical. (PPE as the last resort)

The Principal Contractor will be required to carry out the following three forms of risk assessment:

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- Baseline risk assessment;
- Issue based risk assessment; • Continuous risk assessments.

Baseline risk assessments

The Principal Contractor is required to develop a baseline risk assessment taking the resources, competency levels, nature and scale of their organization into consideration for submission during SHE File evaluation phase. The hazards and risks to which persons, plant, vehicles and facilities may be exposed during the construction should be identified and evaluated. The aspects and impacts resulting in environmental pollution or degradation should also be identified and evaluated. Measures to reduce or control these risks or hazards should be defined during this assessment. The effectiveness of the measures defined and the baseline risk assessment prepared shall be monitored and reviewed from time to time to ensure that it remains relevant and accurate.

Issue based risk assessments

The Contractor will be required to carry out separate risk assessments during construction of the project when methods and procedures are varied, for example when:

- Designs are amended;
- New machines are introduced;
- Plant is periodically cleaned and maintained;
- Plant is started-up or shut-down;
- Systems of work change or operations alter;
- Indents or near-misses occur; or
- Technological developments invalidate prior risk assessments.

Continuous risk assessments

The Occupational Health and Safety Act (Act no. 85 of 1993) specifically requires that employers shall provide and maintain working environments that are safe and without risk to health. The general awareness of hazards needs to be raised as work ethic to maintain a safe and risk free environment on an on-going basis. This is achieved by continuous risk assessments, a form of risk assessment that takes place as an integral part of day-to-day management. Examples of continuous risk assessments include:

- Maintaining general hazard awareness, and
- Pre-work risk assessments / Daily Safety Task Instructions.

Occupational health and safety risks or environmental impacts that are identified during the risk assessment process shall be communicated before the commencement of the said activity to every employee whose work is associated with the risk. Each employee shall sign to confirm understanding of the safety, health or environmental risks in the tasks.

Review of risk assessments

The Principal Contractor is required to review the hazards identified, the risk assessments and the Safe Work Procedures as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and/or processes. Revisions to the approved risk assessments and Safe Work Procedures will be presented at each production planning and progress meeting.

Risk assessments are to be reviewed whenever there is change on the scope of work, process, and accidents or when required by Johannesburg Water SOC Ltd

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The Principal Contractor must provide Johannesburg Water SOC Ltd, other contractors and all other concerned or affected parties with copies of any changes, alterations or amendments to risk assessments and Safe Work Procedures within 14 days of such changes.

6. SAFE WORK PROCEDURES / METHOD STATEMENTS

Method statements or written safe work procedures shall be documented for all high risk activities:

- Design change or scope change/addition
- Change in job or task
- Introduction of new machinery, equipment or substance.

Method statements or written safe work procedures shall identify following:

- Tasks that are to be undertaken
- The hazards and associated risks of the task(s)
- The control measures for the task(s)
- The equipment and substances that are associated with task(s) • Any training or qualification needed to do the task
- Personal protective equipment to be worn.

7. INCIDENT MANAGEMENT

7.1 Reporting of accidents and incidents

The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he:

- Dies
- Becomes unconscious
- Loses a limb or part of a limb
- Is injured or becomes ill to such a degree that he is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he was usually employed

Or where -

- A major incident occurred
- The health or safety of any person was endangered
- Where a dangerous substance was spilled
- The uncontrolled release of any substance under pressure took place
- Machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- Machinery ran out of control to Johannesburg Water SOC Ltd within two days and to the Provincial Director of the Department of Labour within seven days from date of incident (Section 24 of the Occupational Health and Safety Act (Act no. 85 of 1993) and General Administrative Regulations), except that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both Johannesburg Water SOC Ltd and the Provincial Director of the Department of Labour forthwith by telephone, telefax or e-mail.
- All other reports required by this specification must also be completed. Reporting of accidents / incidents to Johannesburg Water SOC Ltd will be on the prescribed format.
- The Principal Contractor is required to provide Johannesburg Water SOC Ltd with copies of all statutory reports required in terms of the Occupational Health and Safety Act (Act no. 85 of 1993) within 7 days of the incident occurring.
- The Principal Contractor is required to provide Johannesburg Water SOC Ltd with copies of all internal and external accident/incident investigation reports, within 7 days of the incident occurring.

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7.2 Accident and incident investigation

- The Principal Contractor is responsible for the investigation of all accidents and/or incidents where employees and non-employees were injured to the extent that they had to receive medical treatment other than first aid.
- The results of the investigation are to be entered into the accident and/or incident register. The Principal Contractor is responsible for the investigation of all incidents, including those described in Section 24 (1) (b) and (c) of the Occupational Health and Safety Act (Act no. 85 of 1993) and for keeping a record of the results of the investigations including the steps taken to prevent similar accidents in future.
- The Principal Contractor is responsible for the investigation of all road traffic accidents, related to the construction activities, and for keeping a record of the results of the investigations including the steps taken to prevent similar accidents in future.
- Johannesburg Water SOC Ltd reserves the right to hold its own investigation into an incident or call for an independent external investigation.

7.3 Close out

- All incident investigation reports will be closed out once all the recommendations to prevent further incidents have been implemented.
- A copy of the investigation report must be handed to JW Safety Officer conducting the investigation.

8. MEDICAL SCREENING REQUIREMENTS

- The Principal Contractor shall ensure that a medical surveillance programme is implemented for all employees.
- An initial health evaluation shall be carried out by an occupational health practitioner immediately after a person commences employment, where any exposure exists or may exist, which comprises:
 - an evaluation of the employees medical and occupational history; ◦ a physical examination; and
 - any other essential examination which in the opinion of the occupational health practitioner is desirable in order to enable the practitioner to do a proper evaluation.
- Medical surveillance and immunisation shall be done accredited at / by institutions or occupational health personnel, including, but not limited to:
 - Audiograms.
 - A cardio-respiratory examination / Lung function test; ◦ Chest X-rays ◦ Eye/ sight tests. ◦ A general physical examination; ◦ A review of previous medical history.
 - Glucose levels
 - Blood pressure
- An entry medical certificate shall be obtained for all workers prior to commencing with site activities from approved medical institution. Copies of all medical certificates shall be retained in the SHE File prior to site establishment and before an employee is allowed to come onto site.
- Specific attention shall be given to the physical and psychological fitness of people who will be required to work in elevated positions and operators of mobile machinery.
- An exit medical certificate shall be obtained for all workers at the end of the contract and for all workers who leave the employment of the Contractor before the end of the Project. Copies of all exit medical certificates shall be submitted to the Johannesburg Water SOC Ltd Project Specialist or Appointed OHS Agent.

9 EMERGENCY MANAGEMENT

The Principal Contractor must appoint a competent person to act as emergency controller and/or coordinator.

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The Principal Contractor must conduct an emergency identification exercise and establish what emergencies could possibly develop. He must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that Johannesburg Water SOC Ltd may have in place.

In the event where a contractor incorporates the services of a 3rd party service provider for the provision of Emergency Response Services, the following criteria must be met:

- Identification of 3rd party emergency response services (organization & contact details);
- Notification of contractor to 3rd party emergency response service of incorporation of services into contractor's emergency response plan (written agreement / signed letter).

The Principal Contractor and the other contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarise employees with them. **First-aid**

The Principal Contractor must provide first-aid equipment (including a stretcher) and have qualified first-aiders(s) on site as required by General Safety Regulations promulgated in terms of the Occupational Health and Safety Act (Act no. 85 of 1993).

The contingency plan of the Principal Contractor must include arrangements for the speedy and timeous transporting of injured and/or ill person(s) to a medical facility or of getting emergency medical aid to person(s) who may require it.

The Principal Contractor must have written arrangements in place with his other contractors regarding the responsibility of the other contractors towards their own injured and/or ill employees.

10 SHE TRAINING

All employees in jobs requiring training in terms of the Occupational Health and Safety Act (Act no 85 of 1993) and any other applicable legislative requirements are to be in possession of valid proof of training. Other occupational health, safety and environmental training requirements of the Occupational Health and Safety Act (Act no 85 of 1993) and Construction Regulations can include:

- General induction;
- Site and job specific induction, including visitors;
- Occupational health and safety representatives;
- Training of the legal and nominated appointees;
- Operators and drivers of construction vehicles and mobile plant;
- Basic fire prevention and protection;
- Basic first-aid;
- Storekeeping methods and safe stacking; and
- Emergency planning and coordination
- Incident investigation
- Risk Assessment
- Planned job observations (supervisors)

All operators, drivers and users of construction vehicles, mobile plant and other equipment are to be in possession of valid proof of training and, where applicable, valid licenses.

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10.1 General Job training

The contractor is required to ensure that before an employee commences work their direct supervisor or line manager who is responsible for the employee has informed the employees of his scope of authority, hazards and risks associated with the work to be performed as well as the safety control measure(s). This will involve discussion in connection with any work standard, job description or company policy or procedure.

10.2 Awareness and promotion

The Principal Contractor is required to have a promotion and awareness programme in place to create an occupational health and safety culture within employees. The following are some of the methods that may be used:

- Toolbox talks;
- Posters;
- Videos;
- Competitions;
- Suggestion schemes;
- Participative employee activities such as "occupational health and safety circles".

The Principal Contractor is, at a minimum, required to provide awareness programmes to employees on the following:

- General Health and Safety Awareness • Environmental Awareness; • HIV / AIDS awareness.

10.3 General competence requirement

The Principal Contractor shall ensure that his personnel and other contractors' personnel are trained and competent to carry out work safely and without risk to health has been completed before work commences. The Principal Contractor shall ensure that follow-up and refresher training is conducted as the work progresses and whenever the scope or nature of the work changes.

A "competent person" in relation to construction work, means any person having the knowledge, training and experience specific to the work or task being performed: Provided that where appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training. It is the responsibility of the Contractor to determine whether any appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act.

Records of all training must be kept in the SHE File. The contents of the file will be audited from time to time.

At a minimum, the Principal Contractor will provide training on Safe Work Procedures / Safe Operating Standards to personnel responsible for performing the related task. Records of training on Safe Work Procedures / Safe Operating Standards will be retained. Competence and skill levels by the employees responsible for performing the task on the implementation of the Safe Work Procedures / Safe Operating Standards will be measured through Planned Job Observations.

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10.4 Site-specific induction training

The Principal Contractor will be required to develop a project specific induction-training course based on the baseline risk assessment for the contract work. He will ensure that all his employees and other contractors and their employees have received training on the submitted induction-training programme.

All employees of the principal and other contractors are to be in possession of proof (on person) that they have attended a site-specific occupational health and safety induction-training course.

No contractor shall allow or permit any employee, visitor or any other person to enter the site, unless such employee or person has undergone health, safety and environmental induction training pertaining to the hazards prevalent on the site at the time of entry.

Where the Principal Contractor is required to operate within Johannesburg Water SOC Ltd Depot's the Principal Contractor will ensure that all employees undergo the Johannesburg Water SOC Ltd induction.

11 PPE REQUIREMENTS

- The Principal Contractor is required to continuously identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.
- The Principal Contractor will establish a Personal Protective Equipment Policy and a Personal Protective Equipment study will be conducted to determine the types of Personal Protective Equipment (PPE) to be supplied related to the hazards and risks emanating from the tasks.
- Cognisance shall be given to the gender of individuals required to where PPE; size required by the employee and size issued.
- Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered.
- Where it is not possible to create an absolutely safe and healthy workplace the Principal Contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.
- It is a further requirement that the Principal Contractor maintains the equipment, instructs and trains the employees in the use of the equipment and ensures that the employees use the prescribed equipment.
- Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear the prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition(s) for which the equipment was prescribed. An alternative solution has to be found that may include relocating the employee.
- The Principal Contractor may not charge any fee for protective equipment prescribed by him but may charge for equipment under the following conditions:
 - Where the employee requests additional issue in excess of what is prescribed;
 - Where the employee has patently abused or neglected the equipment leading to early failure; and
 - Where the employee has lost the equipment.

All employees shall, as a minimum, be required to wear the following personal protective equipment on any of Johannesburg Water SOC Ltd's projects:

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- Protective overalls with reflective strips;
- Safety boots (Steel toe cap with steel midsole or equivalent)
- Safety vests
- Protective headwear; and
- Eye, face and ear protection.
- Gloves

NO SHORTS OR DRESSES WILL BE ALLOWED ON SITE!!!

All Personal Protective Equipment will clearly display the branding components of the Principal Contractor's organization (e.g. Name of Organization, logo).

12 DISCIPLINARY PROCESSES

- The contractor is required to implement disciplinary process in order to enforce compliance with requirements.
- All sub-contractors are required to have the same.

13 SITE RULES

- The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the Health and Safety Plan and associated aspects of the construction.
- When required for a site by law, visitors and non-employees upon entering the site shall be issued with the proper Personal Protective Equipment (PPE) as and when necessary.

Alcohol, Drugs and Other Intoxicating Substances

- The contractor shall ensure that all personnel under his authority do not at any time enter the site or perform any work whilst under the influence of alcohol, a drug, or any other intoxicating substance.
- Selling or possessing drugs, alcoholic beverages or any other intoxicating substance on the site is strictly prohibited.
- A drugs and alcohol testing program must be implemented. Persons entering the site must be randomly tested.
- Any person who tests positive for alcohol or drug consumption must be subject to disciplinary action and be dealt with in accordance with the contractor's drug and alcohol / substance abuse policy.
- Should the actions and / or demeanour of an employee suggest possible narcosis or drunkenness, the employee must be removed from the site. This may be done without testing. Note: All personnel involved in an incident / accident must immediately be subjected to an alcohol test and a drug test as part of the investigation.

Firearms, Ammunition and Offensive Weapons Firearms, ammunition, and offensive weapons of any kind are strictly prohibited. No person shall be permitted to enter the site carrying any such item

14 PUBLIC HEALTH AND SAFETY

The Principal Contractor is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from the construction work as well as the precautionary measures to be observed to avoid or minimise those dangers. This includes:

- Non- employees entering the site for whatever reason;
- The surrounding community; and
- Passers-by the site.

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- The Principal Contractor shall organize the site in such a manner that pedestrians and vehicles can move safely and without risks to health, including sufficient and suitable traffic routes and safe walkways with relevant signage.
- Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that nonemployees are protected at all times.
- All non-employees entering the site must receive induction into the hazards and risks of the site and the control measures to be observed.
- The Principal Contractor shall recognize that the Community Liaison Officer (CLO) is the link between Johannesburg Water SOC Ltd and the community and provide all reasonable support to the Community Liaison Officer to ensure relevant responsibilities are fulfilled and positive relationships with the community are maintained.
- Where activities are performed close to public routes, the Principal Contractor will establish a traffic management plan incorporating the requirements of relevant by-laws. At a minimum, barricading, warning signage and flagmen will be provided to ensure the protection of workers from vehicles in transit. Where required, the Principal Contractor will interact with the local traffic department to establish minimum requirements to be implemented on public routes.

15 REFUSAL TO WORK

- Section 14 of the OHS Act states that employees shall carry out any lawful orders given to them, suggesting that they have the right to refuse to obey any unlawful order or work instruction.
- In terms of legal and JW requirements, if an employee has reasonable belief that the work to be carried out is likely to endanger themselves or other persons in any way, he/she has the right to refuse to work.
- An employee may also refuse to work in term of Section 29 of NEMA, if the work would result in imminent and serious threat to the environment.
- All contractors shall ensure that their employees are conversant with hazards associated with their work and work environment, and be aware of the precautionary measures to take.
- The contractor must ensure that all refusals to work are investigated promptly and resolved timeously.

16 SECURITY

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must, amongst other, include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of security rules and procedures and maintain these throughout the construction period.

The Principal Contractor shall:

- Provide a guardhouse for security personnel. The guardhouse should be in good condition and at-least meet minimum requirements as per Environmental Regulations for Workplaces as promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993).
- Supply an access card containing the name, surname, employee number and photograph for all appointed employees (full or part time) for the site.
- Ensure that no person enters the construction site without wearing the necessary Personal Protective Equipment (PPE).
- Ensure that no children are allowed on the construction site.
- Ensure that no family members are sleeping over on the construction site.
- Ensure that no pets are allowed on the construction site.
- No firearms are allowed on site.

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Visitors

- Visitors (including reps and suppliers) must be advised in advance of the mandatory Personal Protective Equipment (PPE) requirements for the site, and must arrive with all of this PPE.
- All visitors must sign in the visitors register and undergo a visitor induction briefing before entering the site.
- A visitor access card must be issued to each visitor on conclusion of the induction briefing. Whilst on site, visitors must be accompanied at all times by an appropriately senior employee who has been inducted fully.
- When leaving the site, each visitor must return his or her visitor access card to the security personnel posted at the entrance / exit.
- A visitor will not be permitted to leave the site until he or she produces the access card that was issued.
- Any request (typically made by a government official) to carry out a site inspection must be referred to the Project Manager / Engineer / Safety Agent.
- The contractor must not arrange any such inspection without prior approval from the Client's representatives

17 ACCOMMODATION ON SITE

No employees shall be accommodated on site.

18 WELFARE FACILITIES

The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 28. Chemical toilets are allowed instead of the water borne sewerage type. Toilets have to be provided at a ratio of 1 toilet per 30 workers. The Principal Contractor shall provide flushing toilets on the construction premises.

- At least cold-water showers for each sex have to be provided at a ratio of 1 shower per 15 workers.
- Some form of screened off changing facility must be provided separately for each sex.
- Some form of eating facility sheltered from the sun, wind and rain must be provided.

The employer needs to provide his employees with the following:

- Potable water for drinking;
- Water and soap for hand washing
- Toilet paper

19 COMPLIANCE MONITORING

19.1 Inspections

- Contractors will be inspected at least once per week by the JW Project Inspectors.
- Feedback of the inspections will be issued immediately on work instructions, and a formal report sent within 7 days of conducting the inspection to all relevant stakeholders.
- Johannesburg Water SOC Ltd. reserves the right to conduct other ad-hoc assessments and inspections as deemed necessary.
- This may include, amongst other measures, site safety walks. Corrective actions will be identified by Johannesburg Water SOC Ltd. and the Principal Contractor's representative and implemented by the Principal Contractor (at no cost to Johannesburg Water SOC Ltd.) to ensure SHE Performance improvement.

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19.2 Monthly audits

- Monthly audits will be conducted within periods not exceeding 30 days.
- The Principal Contractor is to conduct his own monthly internal audits and inspections to verify compliance with his own occupational health and safety plan and management system as well as compliance with the requirements of the Johannesburg Water SOC Ltd. SHE Specification.
- The Principal Contractor will also assess and inspect the compliance of other contractors under its control. Management members of the Principal Contractor will be involved in the internal assessments and inspections.

19.3 Monthly compliance rating

A monthly compliance rating will be calculated for each Principal Contractor as per a formula determined by Johannesburg Water SOC Ltd focussing on or incorporating outcomes of assurance (e.g. monthly audit), operational (e.g. behavioural based safety inspection) assessments and other requirements, as necessary. Johannesburg Water SOC Ltd reserves the right to adjust the monthly compliance calculation formula as and when required – each revision of the monthly compliance calculation formula will be communicated to the Principal Contractor before implementation.

Each Principal Contractor is required to maintain a minimum compliance rating of 93% (Ninety Three Percent).

Scoring	Classification	Classification description
93% -100%	Good	Substantial compliance
80% -92%	Average	Compliance status needs to be improved
60% - 79%	Poor	Methods to ensure compliance require substantial improvement - operations with substantial non-compliance risks
<60%	Very poor	Methods to ensure compliance failed completely - troubled operation with severe non-compliance risks

19.4 Work stoppages

Work stoppages will be identified for 2 (two) types of work stoppages to be implemented:

- Overall work stoppage – the Principal Contractor and its Contractors are not allowed to continue with any type of construction / site work up until the work stoppage has been closed-out;
- Activity work stoppage – The Principal Contractor and its Contractors are not allowed to continue with the specific activity / task / job up until the work stoppage has been closed-out.

Overall work stoppages will be issued where non-conformances are identified against the criteria in the following table.

NO.	DESCRIPTION OF AUDIT NON-CONFORMANCE / NON-COMPLIANCE

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1	NOTIFICATION OF CONSTRUCTION WORK
1.1	Local Department of Labour not notified of construction work before commencement of construction activities
1.2	Notification of construction work not stamped by local Department of Labour (no fax copies)
1.3	Copy of notification of construction work not available on site
2	PROOF OF REGISTRATION WITH COMPENSATION COMMISSIONER
2.1	Proof of registration with Compensation Commissioner or other insurer not available
2.2	Registration with Compensation Commissioner or other insurer not valid and up-to-date
3	POLICY COMMITMENT & SHE SPECIFICATION
3.1	SHE Plan not compiled, approved by contractor management and available on site
4	SECTION 37(2) AGREEMENT
4.1	Signed section 37(2) Agreement not signed and available on site
5	RISK ASSESSMENTS
5.1	Risk assessments not developed/ not applicable to scope of work issued by Client
6	CONSTRUCTION MANAGER
6.1	No construction manager appointed / on site / Construction Manager not full time on site
6.2	Appointed construction manager does not meet requirements
7	SITE SAFETY OFFICER
NO.	DESCRIPTION OF AUDIT NON-CONFORMANCE / NON-COMPLIANCE
7.1	No safety officer appointed/ available on site
7.2	Safety officer does not meet requirements
8	SHE FILE
8.1	No file on site

Activity work stoppages will be issued where non-conformance are identified per activity where the health and safety of employees or the public is compromised.

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20.4 Non-compliance management process

The following actions will be instituted where non-conformances are identified in terms of compliance to relevant legislative requirements and the Johannesburg Water SOC Ltd SHE Specification.

CRITERIA	ACTION TO BE INSTITUTED	RESPONSIBLE PARTY
Compliance rating: 93-100%	Non-conformance closure	Principal Contractor / Contractor
Compliance rating: 80-92%	Letter of compliance improvement to Principal Contractor	Johannesburg Water SOC Ltd
	Non-conformance closure	Principal Contractor / Contractor
Compliance rating: 60-79%	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
Compliance rating: <60%	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
	Supply Chain Management to be informed of non-compliance standing	Johannesburg Water SOC Ltd
3 x Work stoppages	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
	Supply Chain Management to be informed of non-compliance standing	Johannesburg Water SOC Ltd
3 x Non-conformance to <93% monthly compliance rating	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor

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CRITERIA	ACTION TO BE INSTITUTED	RESPONSIBLE PARTY
	Supply Chain Management to be informed of non-compliance standing	Johannesburg Water SOC Ltd
3 x consecutive repeat findings	Non-compliance hearing	Johannesburg Water SOC Ltd
	Letter of commitment for performance improvement	Principal Contractor / Contractor
	Non-conformance closure	Principal Contractor / Contractor
	Escalation to SCMU & CAPEX	Johannesburg Water SOC Ltd

20 OPERATIONAL REQUIREMENTS

20.1 EXCAVATIONS

- Where excavations will exceed 1.5 m in depth the contractor will be required to submit a method statement to Johannesburg Water SOC Ltd for approval before commencing with the excavation and Johannesburg Water SOC Ltd will issue a permit to proceed once the risk assessment and method statement is approved.
- Excavations must be limited to 100m per day, or equated to the amount of work to be done for the day.
- All open excavations shall be closed within 3 days of excavation. No excavation will remain open beyond 3 days or during holidays.
- Excavation work must be carried out under the supervision of a competent person, who has been appointed in writing, with at least two years' experience in excavation work. Before excavation work begins the stability of the ground must be evaluated.
- Whilst excavation work is being performed, the contractor must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material.
- No person may be required or permitted to work in an excavation that has not been adequately shored or braced.
- Where the excavation is in stable material and where the sides of the excavation are sloped back to at least the angle of repose of the excavated material, shoring or bracing may be left out but only after written permission has been obtained from the appointed competent person.
- Shoring and bracing must be designed and constructed to safely support the sides of the excavation.
- Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained whose opinion will be decisive. The opinion must be in writing and signed by the engineer or technologist as well as the appointed competent person.
- No load or material may be placed near the edge of an excavation unless suitable shoring has been installed to be able to carry the additional load.
- Neighbouring/adjoining buildings, structures or roads that may be affected or endangered by the excavation must be suitably protected.
- Every excavation must be provided with means of access that must be within 6 metres of any worker within the excavation.
- The location and nature of any existing services such as water, electricity, gas etc. must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for workers in the excavation.

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- The appointed competent person must inspect every excavation, including the shoring and bracing or any other method to prevent collapse, as follows:
 - Daily before work commences
 - After every blasting operation
 - After an unexpected collapse of the excavation
 - After substantial damage to any supports
 - After rain
- The results of any inspections must be recorded in a register kept on site and in the safety file.
- Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced to at least one meter high and as close to the excavation as practicable, regardless of the depth of the excavation.
- Every excavation must be provided with warning lights or visible boundary indicators after dark or when visibility is poor.
- Upon entering an excavation the requirements of General Safety Regulation 5, work in confined spaces, must be observed:
- Any confined space may only be entered after the air quality has been tested to ensure that it is safe to breathe and does not contain any flammable or noxious air mixture.
- The confined space must be purged and ventilated of any hazardous or flammable gas, vapour, dust or fumes.
- The safe atmosphere must be maintained and, where necessary.
- Employees are to be provided with breathing apparatus and must wear a safety harness with a rope with the free end of the rope being continuously attended to by a person outside the confined space.
- Furthermore, an additional person, trained in resuscitation, to be in full-time attendance immediately outside the confined space.
- Additional serviceable breathing and rescue apparatus is kept immediately outside the confined space for rescue purposes.
- All pipes, ducts etc. that may leak into the confined space to be blanked off sufficiently to prevent any leakage or seepage.
- The employer must ensure that all employees have left the confined space after the completion of work.
- Where flammable gas is present in a confined space no work may be performed in close proximity to the flammable atmosphere.
- Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into them.
- Excavations left open for extended periods of time (exceeding 48 hours) must be approved the relevant Engineer / Construction Supervisor.

20.2 EXISTING SERVICES

- The Contractor shall note that although the drawings have been prepared using available information they show only the approximate positions of existing services where applicable.
- The information is supplied in good faith but shall be used as a guide only and does not relieve the Contractor of his responsibility to exercise due caution when working in areas where existing services can reasonably be expected, nor his obligation to liaise with the authorities in this regard and the obtaining of the necessary work permits and wayleaves.
- The Contractor shall be responsible to locate and safeguard any existing service he may encounter during construction. The Contractor shall be responsible for any damage to such existing services and works in the execution of this contract and shall reimburse the Employer, authority or the owner concerned for any repairs required following damages due to the Contractor's negligence.

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- The Contractor shall be responsible for immediately notifying the Engineer and the authorities concerned regarding any damage caused to public services and existing works.
- Any alterations to public services shall be carried out by the Authority concerned unless the Contractor is instructed otherwise.

20.3 SETTING OUT OF WORKS

- Reference and level beacons will be shown to the Contractor by the Engineer at the commencement of the Contract and the Contractor will be responsible for transferring the datum to the Site of Works.
- The Contractor shall check the condition and accuracy of all reference and level beacons and satisfy himself that they have not been disturbed and are true with regard to position and level. A beacon that has been disturbed shall not be used until its true position and level have been re-established and the new values have been certified by the Engineer. The Contractor shall thereafter be held entirely responsible for the protection of all reference and level beacons.
- The Contractor shall employ a capable surveyor to set out the Works to the required lines and levels. The Engineer shall be informed immediately should any discrepancy be discovered between the levels or dimensions obtained by the Contractor and those shown on the drawings.
- Where a beacon is likely to be disturbed during construction operations, the Contractor shall establish suitable reference beacons at locations where they will not be disturbed during construction. No beacons shall be covered over, disturbed or destroyed before accurate reference beacons have been established and details of the positions and levels of such beacons have been submitted to the Engineer. The Contractor's reference beacons shall be of at least the same accuracy and sturdiness of construction as the existing beacons.
- The Contractor shall submit the method of setting out he proposes to employ to the Engineer. Accurate control of line and level shall be provided by the Contractor at all stages of construction.
- Work set out by the Contractor may be checked by the Engineer and any errors found shall be rectified by the Contractor at his own expense. The Contractor shall supply any instrument, equipment, material and labour required by the Engineer for this survey work. Any assistance, including checking given to the Contractor by the Engineer or any setting out done by the Engineer for Contractor shall not be held as relieving the Contractor of his responsibility for the accurate construction of the Works.
- The Contractor's survey instruments and survey equipment shall be suitable for the accurate setting out of the Works and shall be subject to the approval of the Engineer. They shall furthermore be checked and correctly adjusted by the authorized agents before the commencement of the contract and subsequently when required by the Engineer and when otherwise necessary.

Survey work shall not be measured and paid for directly and compensation for the work involved in setting out shall be deemed to be covered by the rates tendered and paid for the various items of work included under the contract.

20.4 CONFINED SPACE ENTRY

- Enclosed space work necessitates a Confined Space Permit. This may only be obtained from the authorized person nominated in writing.
- The responsibility for safe procedure, both at the time of entry and during the entire operation of entering and working in confined spaces, rests with the Contractor.
- The Contractor shall be sure that adequate steps have been taken to eliminate or control hazards.
- Before working in an area that contains dust, the area is to be ventilated and hosed down to settle and dampen the dust.
- The Contractor shall provide all necessary equipment to manage confined spaces, including all necessary monitoring and rescue equipment (such as tripods, breathing equipment and the like).

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- The Contractor shall ensure all persons working in a confined space or managing entry to a confined space are appropriately trained.
- Compulsory - Continuous monitoring, trained rescue teams, radio communication & adequate ventilation.

20.5 BARRICADING

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- Barricading plans are to be presented by the Principal Contractor for any major operations involving site works for approval by Johannesburg Water SOC Ltd. Where areas are unsafe, they should be enclosed with barricading. Examples are people working overhead, welding splatter etc.
- Where there is a risk of injury, the area should be barricaded off with secure solid barricades.
- Barricading for the prevention of access into areas with a potential risk of injury shall as a minimum be constructed of a handrail, knee-rail and appropriately supported as to prevent any person from falling into the restricted/risk area.
- Appropriate signage shall be affixed to the barricade indicating the risk associated (i.e. deep excavation, lifting operations etc.) and the responsible Supervisor and contact details shall be displayed. All barricading shall have a "No Entry" signs on all sides and at each change of direction. Signage shall be placed at 20 m intervals where lengths exceed. All signage shall be a minimum size of 290 mm x 290 mm.
- Danger tape shall not be utilised to prevent personnel from entering into areas.
- Where no risk exists of injury to personnel such as stacking and storage areas, the use of wire for hand and knee rails netting shall be acceptable to demarcate the area.
- All barricades will have a dedicated entrance where it is required that personnel enter the areas.
- Appropriate signage shall be placed at the entrance indicating which Contractor has right of entry.
- It is the Contractor's responsibility to remove all redundant barricades directly after use. The Contractor's Safety Officers will maintain a marked-up site plan indicating where barricades are erected.
- It will be a requirement that the contractor protects employees against contact with exposed rebar and poles by the installation of rebar-caps on all exposed areas where there is a potential that an employee could be injured.

20.6 WORKING AT HEIGHTS

- A pre-emptive risk assessment will be required for any work to be carried out above **two metres** from the ground or any floor level. This work will be classified as "work in elevated positions".
- As far as is practicable, any person working in an elevated position will work from a platform, ladder or other device that is at least as safe as if he is working at ground level.
- Whilst working in this position he shall be wearing a single belt with lanyard to prevent the person falling from the platform, ladder or other device.
- This safety belt will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge.
- Alternatively, any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with suitable guard rails at two different heights as prescribed in the relevant South African National Standard for the design, erection, use and inspection of access scaffolding.
- Where the requirement in the paragraph above is not practicable, the person will be provided with a full body harness that will be worn at all times and shall be attached above the wearer's head at all times.
- The lanyard must be fitted with a shock-absorbing device or the person must be attached to a fall arrest system (anchorage connector; body wear; and connecting device) approved by Johannesburg Water SOC Ltd.
- Where the requirements in the paragraph above are not practicable, a suitable catch net must be erected.
- Employees working in elevated positions must be trained to work without risk to their health and safety or to the health and safety of others and be declared medically and psychologically fit to perform work at elevated positions.
- Where work on roofs is carried out, the risk assessment must take into account the possibility of persons falling through fragile material, i.e. skylights and openings in the roof.
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- Access scaffolding must be erected, used and maintained safely in accordance with Construction Regulations and relevant SA Bureau of Standards Code of Practice.
- Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. Sufficient material must be available to erect the scaffolding properly.
Scaffolding must only be erected, altered or dismantled by persons who have adequate training and experience and are competent in this type of work and under the continuous supervision of such a person.

20.7 SYMBOLIC SIGNAGE

Contractors shall use mandatory and prescribed symbolic safety signs at their lay down and site areas. The display of the following signs is mandatory:

- "Radio-Active Material" symbolic signs at radioactive storage areas.
- "Eye Protection" symbolic signs shall be displayed at all grinding machines and at any area where it is mandatory to wear eye protection or where there is danger of an eye injury being sustained.
- "Ear Protection" symbolic signs shall be displayed at all areas where there is a danger of noise induced hearing loss being sustained.
- Every separate room of a workplace shall be consecutively numbered.
- All toilets or urinals shall be marked in a conspicuous place with painted or stencilled letters to indicate the sex for which they are intended.
- The location of every first aid box is to be clearly indicated by means of a sign.
- In any room, cabinet or enclosure where flammable substances are used or stored shall be fixed a suitable and conspicuous sign prohibiting smoking or the use of naked flames in the area.
- At the entrance to premises where machinery is used
- Restricted access on "Authorised Person Only" signs on entry. "No person shall enter the workplace or premises without the permission of the employer or user of the machinery".
- At every place where machinery is used a notice (English & Pictograms) shall be posted.
- Explosive Power Tool shall have a sign warning people when it is in use.
- Electrical Control Gear. A notice shall be posted so as to warn against the re-closing of a switch of control gear whilst a person is working on such equipment.
- Emergency contact telephone numbers.
- Adequate scaffolding signs. (When applicable).
- Adequate fire fighting equipment signs.
- Speed limit signs.
- Warning notices at openings through which people may fall.
- Risk based signage depending on the task being performed e.g.: o "Men working above", "Men working below", "Road closed – detour", "Excavation in progress", "No walkway" etc.;
- No-entry signs to incomplete platforms

The Principal Contractor shall install a notification board indicating the following information at the site entrance:

- Johannesburg Water SOC Ltd project number;
- Principal Contractor identification details (name, telephone number)
- Name and contact details of Construction Supervisor;
- Name and contact details of site safety officer;
- Monthly compliance rating;
-

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- Lost Time Injury Rate;

The Principal Contractor will ensure that information on the notification board is kept up-to-date.

20.8 USE AND STORAGE OF FLAMMABLES

The Principal Contractor to ensure that:

- No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapours being present unless adequate precautions are taken;
- No flammable material is used or applied e.g. in spray painting, unless in a room or cabinet or other enclosure specially designed and constructed for the purpose unless there is no danger of fire or explosion due to the application of adequate ventilation;
The workplace is effectively ventilated. Where this cannot be achieved:
 - Employees must wear suitable respiratory equipment
 - No smoking or other source of ignition is allowed in the area ○ The area is conspicuously demarcated as “flammable”
- Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container, cage or room that is kept locked with access control measures in place. Sufficient fire fighting equipment is installed and fire prevention methods practiced. Proper housekeeping may achieve this;
- Flammables stored in a permanent flammable store are stored so that no fire or explosion is caused.
- Stored in a locked and well-ventilated reasonably fire resistant container, cage or room conspicuously demarcated as “Flammable Store – No Smoking or Naked Lights”
- The flammables store to be constructed of two-hour fire retardant walls and roof and separated from adjoining rooms or workplaces by means of a two-hour fire retardant fire wall
- Adequate and suitable fire fighting equipment installed around the flammables store and marked with the prescribed signs
- All electrical switches and fittings to be of a flameproof design
- Any work done with tools in a flammable store or work areas to be of a non-sparking nature
- No Class A combustibles such as paper, cardboard, wood, plastic, straw and the like to be stored together with flammables
- The flammable store to be designed and constructed such that in the event of spillage of liquids the store is able to contain the full quantity + 10% of the liquids stored
- A sign indicating the capacity of the store to be displayed on the door
- Only one day's quantity of flammable is to be kept in the workplace;
- Containers (including empty containers) to be kept closed to prevent fumes/vapours from escaping and accumulating in low lying areas;
- Metal containers to be bonded to earth whilst decanting to prevent build-up of static forces; and
- Welding and other flammable gases to be stored segregated according to the type of gas and empty and full cylinders.

20.9 HAZARDOUS CHEMICAL SUBSTANCES

The Principal Contractor must ensure that:

- Employees receive the necessary information and training to be able to use and store hazardous chemical substances safely;
- Employees obey lawful instructions regarding:

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- The wearing and use of protective equipment ○ The use and storage of hazardous chemical substances ○ The prevention of the release of hazardous chemical substances ○ The wearing of exposure monitoring and measuring equipment
- The cleaning up and disposal of materials containing hazardous chemical substances ○ Housekeeping, personal hygiene and the protection of the environment
- The risk assessments required in terms of Construction Regulation include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace;
- Suppliers provide the necessary information in the form of a material safety data sheet regarding a hazardous chemical substances required to ensure the safe use and storage of that substances;
- An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the hazardous chemical substances;
- Hazardous chemical substances containers be clearly marked with the contents and main hazardous category e.g. "Flammable" or "Corrosive" and the reference number of the hazardous chemical substances on the list indicated above;
- Hazardous chemical substances, for example asbestos dust, are not cleared by using compressed air but should be vacuumed;
- No person eats or drinks in a hazardous chemical substances workplace; and Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.
- MSDS's to be in 16 point format- available on site

20.10 FIRE PREVENTION AND PROTECTION

The Principal Contractor must ensure that:

- The risk of fire is avoided;
- Sufficient and suitable storage for flammables is provided;
- Sources of ignition are removed wherever flammable or highly combustible material is present in the workplace, for example:
 - Notices prohibiting smoking are displayed and enforced
 - Welding and flame cutting is only allowed under controlled conditions that includes written hot work permits
 - Only spark-free hand and power tools are used
 - No grinding, cutting and shaping of ferrous metals is allowed using electrically driven power tools that produce sparks
 - Flameproof switches and fittings are to be used in the flammable atmosphere
 - Good housekeeping is maintained to prevent the accumulation of unnecessary combustibles ○ Adequate ventilation is maintained
 - Adequate and suitable fixed and portable fire fighting equipment is provided and maintained in good working order.
- Maintenance must include:
 - Regular inspection of fire equipment by a competent person appointed in writing and keeping a register
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- Annual inspection and service by an accredited service provider
- All employees are instructed in the use of the fire fighting equipment and know how to attempt to extinguish a fire;
- A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;
- Employees are informed regarding emergency evacuation procedures and escape routes;
- Emergency escape routes are kept clear at all times and clearly marked;
- Evacuation assembly points are demarcated;
- Evacuation is practiced to ensure that all persons are evacuated timeously;
- Roll call is held after evacuation to account for all personnel and ensure that no-one has been left behind; and
- A siren or alarm is fitted which is clearly audible to all persons on site.

20.11 STACKING AND STORAGE

The Principal Contractor must ensure that:

- A competent person is appointed in writing to supervise all stacking and storage on a construction site;
 - Adequate storage areas are provided and demarcated;
 - The storage areas are kept neat and under control;
 - The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
 - The items in the lower layers can support the weight exerted by the top layers;
 - Cartons and other containers that may become unstable due to wet conditions are kept dry;
 - Pallets and containers are in good condition and no material is allowed to spill out;
 - The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector has been obtained to build the stacks higher with the aid of a machine. The operator of the machine must be protected against items falling from overhead off the stack and no items may overhang;
 - The articles that make up a single tier are consistently of the same size, shape and mass;
 - Structures for supporting stacks are structurally sound and able to support the mass of the stack;
 - No articles are removed from the bottom of the stack first but from the top tier first;
- Anybody climbing onto a stack must do it in a safe manner, taking reasonable safety precautions, and ensuring that the stack is stable and capable of supporting him or her

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- Stacks that are in danger of collapsing are broken down and restacked;
- Stability of stacks are not threatened by vehicles or other moving plant and machinery;
- Stacks are built in a header and stretcher fashion and that corners are securely bonded;
- Stacks are stepped back at least half the depth of a single container at least every fifth tier; and • Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations.
- Laydown area is allocated for Contractor-supplied items.
- At all times, the Contractor shall be responsible for the safe and adequate storage of all materials and equipment on site which he is to install, whether they are supplied by himself or others.
- The safe handling, unloading and loading of material receipts and dispatches at site or storage areas shall be the Contractors' responsibility.

The Contractor shall provide a suitable and adequate lock-up store for the storage of items of equipment and material, which would be damaged or pilfered if stored in the open. The Principal Contractor shall provide all facilities required for weather-proofing, dust proofing or vermin proofing.

The Contractor is responsible for the proper storage and maintenance of all equipment until issue of the Certificate of Practical Completion.

All equipment and materials will be stored on suitable wood poles or pallets which will not protrude more than a meter from any of the stored material. Safe access ways shall be maintained between all stored items preventing employees from having to climb over or under equipment to retrieve the necessary.

20.12 HOUSEKEEPING

The Principal Contractor to ensure that:

- Housekeeping is continuously implemented and maintained;
- Materials and equipment are properly stored;
- Scrap, waste and debris is removed regularly;
- Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and vehicular traffic;
- Waste and debris not to be removed from heights by throwing but rather by chute or crane;
- Where practicable, construction sites are fenced off to prevent entry of unauthorised persons;
- Catch platforms or nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects;
- An unimpeded work space is maintained for every employee;
- Every workplace is kept clean, orderly and free of tools, materials and the like that are not required for the work being done;
- As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skidfree and free of obstruction, waste and materials;
- The walls and roof of every indoors workplace sound and leak-free; and
- Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling.

20.13 TRAFFIC MANAGEMENT

- Where activities are performed close to public routes, the Principal Contractor will establish a traffic management plan incorporating the requirements of relevant by-laws.

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- At a minimum, barricading, warning signage and flagmen will be provided to ensure the protection of workers from vehicles in transit.
- Where required, the Principal Contractor will interact with the local traffic department to establish minimum requirements to be implemented on public routes.

20.14 HAND TOOLS

The Principal Contractor must inspect all hand tools before it is brought onto the site.

- As far as possible all hand tools must be numbered and placed on register to be inspected monthly by a person designated to do so.
- Any tools found to be in an unsafe condition must immediately be removed from service and either discarded or rectified.
- No chisels with “mushroomed” heads must be used.
- No hammer shall be used with a cracked or damaged handle.
- All files must be fitted with handles.
- All trolleys, pushcarts, etc. used on site must be identifiable, placed on register and inspected at least once every month.
- Non-sparking tools must be used in areas where the risk of fire or explosion is present.
- No homemade hand tools are allowed on the project.
- All tools shall be attached to a suitable lanyard when utilised in elevated positions

20.15 PORTABLE ELECTRICAL EQUIPMENT

Portable electrical tools and equipment includes every unit that takes electrical power from a 15 ampere plug point and is moved around for use in the workplace for example; drills, saws, grindstones, portable lights, etcetera. Other electrical appliances such as fridges, hotplates, heaters, and etcetera must be inspected and maintained to the same standards as portable electrical tools and appliances.

The use, inspection and maintenance of portable electrical tools and equipment shall be as follows:

- Periodical inspections must be carried out by a competent person appointed in writing;
- Inspection results must be recorded in a register;
- Only competent authorised persons are allowed to use portable electrical tools and equipment; and
- The correct protective equipment must be worn or used whilst operating portable electrical tools and equipment.

This equipment:

- Must be maintained in good condition at all times to prevent an electrical shock to the user;
- The main power source should incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such; and
- All equipment must be fitted with a switch to allow for safe and easy starting and stopping.

The following requirements apply to portable lights:

- Must be fitted with a robust non-hygroscopic non-conducting handle;
- Live metal parts or parts which may become live must be protected against contact;
- The lamp must be protected by a strong guard;
- The cable lead-in must withstand rough handling;
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- Inspections must be undertaken that concentrate on plug, cord, switch and any obvious faults;
- A register be kept for each piece of equipment with findings of regular inspections undertaken to evaluate the condition of these lights; and
- When used in wet/damp/metal container conditions, the lamp must be protected.

20.16 LADDERS

The following requirements for ladders will apply:

- All ladders used on the site shall be constructed and used in compliance with the OH&S Act and Regulations.
- Ladders, which provide access to a working platform, shall extend one metre above the platform where it provides access, and shall be secured to prevent slipping.
- Timber ladders shall not be painted other than with clear preserving oils, clear varnishes or clear plastics. Ladders, which are in a damaged condition, shall not be used and shall be labelled accordingly and removed from the Premises.
- All Ladders shall be numbered, logged in a register, and inspected monthly.
- A ladder in use shall be held by an assistant and/or properly tied down in position.
- Only ladders that do not conduct electricity shall be used in live electrical sub-stations and switching rooms.
- Ladders shall be removed after use and stored in an appropriate facility as to not expose them unnecessarily to the elements or potential damage by surrounding activities.

20.17 CONSTRUCTION VEHICLES AND MOBILE PLANT

Johannesburg Water SOC Ltd will inspect construction vehicles and mobile plant prior to being allowed on a project site. Suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the Occupational Health and Safety Act (Act no. 85 of 1993) and Regulations.

Construction vehicles and mobile plant to be:

- Of acceptable design and construction;
- Maintained in good working order;
- Used in accordance with their design and intention for which they were designed;
- Operated and/or driven by trained, competent and authorised operators/drivers. No unauthorised persons are to be allowed to drive construction vehicles and mobile plant;
- Provided with safe and suitable means of access;
- Fitted with adequate signalling devices to make movement safe including reversing;
- Provided with roll-over protection (where applicable);
- Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/log book;
- Fitted with two head and two tail lights that are in good working condition and must be used whilst operating under poor visibility conditions;
- When used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported.

Operators and drivers of construction vehicles and mobile plant must be in possession of a valid medical certificate declaring the operator and/or driver physically and psychologically fit to operate or drive construction vehicles and mobile plant.

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No loose tools, materials etc. are allowed in the driver and/or operators compartment/cabin or in the compartment in which any other persons are transported.

No person shall ride on any construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose. Employees shall only be transported if provision for seating and safety belts has been provided with an adequate canopy or rollover protection.

All construction vehicles and mobile plant left unattended at night, adjacent to a freeway in normal use or adjacent to construction areas where work is in progress, must have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant.

Bulldozers, scrapers, loaders, and other similar mobile plant must, when being repaired or when not in use, be fully lowered or blocked with controls in a neutral position, motors stopped and brakes set.

Self-Propelled Mobile Machinery

All Self-Propelled Mobile Machinery must be inspected daily and the findings recorded in a register. Pre-use inspection checklist shall identify critical items that would stop the operator from operating machinery should a defect be detected.

All operators shall be tested on their ability to operate machinery and equipment inspected prior to be used on any of the premises by the Johannesburg Water SOC Ltd Project Inspectors and Responsible Engineer. Relief drivers shall be made available for mobile machinery where there is a need for on-going operations and the contractor shall establish a rotation schedule.

All Drivers/Operators shall be appointed under the applicable legislation prior to operating any type of mobile equipment or machinery:

- If Driver/Operator does not adhere to the rules and regulations his appointment as operator shall be cancelled and he shall not be able to carry on with his duty.
- No Driver/Operator shall be appointed without proof of training, driver's licence or letter of competency.
- No training of Drivers/Operators on Site.
- No passengers on dump truck, Loaders or Excavators.
- No eating or drinking allowed while operating equipment.
- No vehicle shall be left unattended with engine running or key in ignition.
- Drivers may use no cellular phones during operations.

Equipment Approval

Authorization for the use of equipment shall be given in writing only after the following minimum requirements and documentation have been verified and shall as a minimum include the following:

- Minimum two lights in front and rear of vehicle
- Communications system (where required);
- Reflective Taping;
- First-aid kit, fire-fighting equipment and emergency roadside triangles;
- Tyres in good condition;
- Windscreen clear of cracks;
- Safety belts fitted for all occupants;
- Signage for clear identification;
- Windscreen wipers;
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- Warning hooter and reverse alarm;
- Rotating warning lights (where applicable);
- Maximum number of persons indicated;
- Equipment free of oil and other leaks;
- Maintenance/Service & Equipment manuals available;

Operator Approval

Authorization for operators for the use of equipment shall be given in writing only after the following minimum requirements and documentation have been verified and shall as a minimum include the following:

- Operator's Certificate (accredited training organisation);
- Operators Licence appropriate to the nature of the Mobile equipment;
- Operator's knowledge tested and familiar with the controls for the vehicle; • Public driver's permit where required;
- Medical fitness certificate.

20.18 Horizontal Drilling

- All HDD work shall be carried out under the supervision of a competent person.
- All employees involved in HDD shall be trained.
- A risk assessment as well as a method statement for the HDD shall be compiled and submitted for approval by the Client.
- Contractor will submit specifications on directional boring equipment to be used to ensure that the equipment will be adequate to complete the project. Spares inventory shall be included
- The directional boring equipment shall consist of a directional boring rig of sufficient capacity to perform the bore and pullback the pipe, a boring fluid mixing & delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system.
All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.
The directional boring machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guideable drill (bore) head.
- The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing.
- The hydraulic power system shall be self-contained with sufficient pressure and volume to power boring operations.
- Hydraulic system shall be free of leaks.
- Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations.
- The rig shall be grounded during boring and pull-back operations.
- Sufficient spares shall be kept on hand for any break-downs which can be reasonably anticipated.
- The Guidance System shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system.
- The Operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.
- The Engineer must be notified 48 hours in advance of starting work.
- The Directional Bore shall not begin until the Engineer is present at the job site and agrees that proper preparations for the operation have been made.

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- The Engineer approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract.
- It shall be the responsibility of Engineer to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Contractor.

20.19 Working in proximity to Eskom / City Power power lines

- No mechanical equipment, including mechanical excavators, may be used under or in close proximity to Eskom's services without the prior approval of Eskom's authorized representatives. No excavations may be executed closer than 3 meters from any of Eskom underground electric power cables and 10 meters from Eskom overhead electrical power lines unless Eskom authorized representative is on site.
- No excavations may take place closer than 5m from any overhead line infrastructure (poles and stays and only excavation by hand will be allowed. Only excavation by hand will be allowed on the same route and in close proximity to the Eskom's 132 kV cables.
- The use of explosives of any type within 500 meters of Eskom's services shall only occur with Eskom's previous written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process.
- The contractor shall be liable for any death or injury to any person or for the loss of or damage to any property caused in whatsoever manner by the contractor, his employees, agents or sub-contractors. The contractor's attention is drawn to section 27(3) of the Electricity Act 1987.
- The contractor is advised to negotiate a proper route with the CNC (Customer Network Centre. Lat Long coordinates of all proposed routes to be provided on site and during the application process. The contractor is required to provide the same to the CNC on site during the signing of the Stakeholder On-Site Risk Identification Form.
- Parallel encroachment into overhead power line servitudes is limited to one meter from the boundary of the servitude. (Where applicable for underground pipelines only.)
- All Eskom servitudes to be kept clear of any obstacles and other services. No dumping, manholes and illegal structures whether occupied by equipment or humans, shall be allowed directly underneath or within Eskom servitude areas.
- Eskom Overhead Lines, Cables and Eskom Plant to be adequately protected against other services and water sources.

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- Adequate protection fence should be installed around all Eskom Overhead Structures. The type of fence will be proposed and approved by Eskom CNC / Engineering as listed above.
- Interlocking bricks to be used along all roads and reserves as to ensure Eskom cables could be easily accessed for maintenance and repair / emergency purposes. No roads should be tarred with Eskom cables within the road.
- For developer projects and other works that might affect access to Eskom mini-sub, an appropriate fence with access / gate as approved by the CNC should be installed on street front side.
- The applicant shall ensure that the existing natural ground level is maintained within the Eskom servitude area and where Eskom cables are affected. Should there be a need for the lifting of lines and / or replacement of existing structures / cables and application should be made via **Eskom Customer Services**.
- The vertical clearance required between the road surface and the 11kV / 22kV power-lines shall be at least 6.4m. (Where applicable.)
- Eskom Plant and Cables to be protected from proposed landscaping i.e. no big trees and large plants / scrubs (large roots.) to be planted in close proximity to Eskom services.
- Construction / Amendment of boundary wall/s / fences to be closely monitored with guidance from the CNC – where walls / fences are in close proximity of Eskom Plant.
- At all entrances and road crossings, corrosion-free sleeves must be installed at least 600 mm below undisturbed ground level to provide for existing and future installation of Eskom cables. (Where applicable.)
- Cross trenches by hand need to be done for each road crossing on both sides of the road before the services are installed, to ensure Eskom services do not get damaged during drilling operations. For installations where the service will be installed parallel to Eskom services, cross trenches need to be done by hand at regular intervals, which is to be determined by site conditions and the Eskom PPM cables representative.
- The contractor must inform and update Eskom PPM cables on a weekly basis of the on-site work being planned and performed.
- Equipment shall be regarded electrically live and therefore dangerous at all times.
- Eskom may stipulate any additional requirements to illuminate any possible exposure to Customers or Public to coming into contact or be exposed to any dangers of Eskom plant.
- Security must be on-site 24/7 when trenching and working in close proximity to the Eskom 132 kV cables
- Extra care must be taken when working in close proximity to the 132 kV cables. (Eskom's PPM cables can assist in identifying these cables on-site.)
- The contractor in charge of the construction or maintenance work on site must at all times be in possession of the Approved Wayleave letter of the affected Eskom services, as well as all plans related to the wayleave application. This should be available upon the request of any Eskom and Municipal official, during site visits. If no approval is presented, then the Eskom Official(s) can order that all work to be ceased until approval can be presented.

20.20 WATER ENVIRONMENTS

- The contractor must ensure that where construction work is done over or in close proximity to water, provision is made for—
 - preventing persons from falling into water; and
 - the rescuing of persons in danger of drowning.

The contractor must ensure that where a person is exposed to the risk of drowning by falling into the water, the person is provided with and wears a lifejacket

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20.21 Welding, flame cutting, soldering and similar operations

1. No contractor shall require or permit welding or flame cutting operations to be undertaken, unless -
 - the person operating the equipment has been fully instructed in the safe operation and use of such equipment and in the hazards which may arise from its use;
 - effective protection is provided and used for the eyes and respiratory system and, where necessary, for the face, hands, feet, legs, body and clothing of persons performing such operations, as well as against heat, incandescent or flying particles or dangerous radiation;
 - leads and electrode holders are effectively insulated; and
 - the workplace is effectively partitioned off where practicable and where not practicable all other persons exposed to the hazards contemplated in bullet two are warned and provided with suitable protective equipment.
2. No contractor shall require or permit welding or flame cutting operations to be undertaken in a confined space, unless:
 - effective ventilation is provided and maintained; or
 - masks or hoods maintaining a supply of safe air for breathing are provided and used by the persons performing such operations.
3. No contractor shall require or permit electric welding to be undertaken in wet or damp places, inside metal vessels or in contact with large masses of metal, unless --
 - the insulation of the electrical leads is in a sound condition;
 - the electrode holder is completely insulated to prevent accidental contact with current-carrying parts;
 - the welder is completely insulated by means of boots, gloves or rubber mats; and
 - at least one other person who has been properly instructed to assist the welder in case of an emergency is and remains in attendance during operations: Provided that the provisions of this sub-regulation shall not apply to a welding process where the maximum voltage to earth does not exceed 50 volts.
4. No contractor shall require or permit welding, flame cutting, grinding, soldering or similar work to be undertaken in respect of any tube, tank, drum, vessel or similar object or container where such object or container --
 - is completely closed, unless a rise in internal pressure cannot render it dangerous; or
 - contains any substance which, under the action of heat, may -- (i) ignite or explode; or
(ii) react to form dangerous or poisonous substances,

unless a person who is competent to pronounce on the safety thereof has, after examination, certified in writing that any such danger has been removed by opening, ventilating or purging with water or steam, or by any other effective means.

(5) Where hot work involving welding, cutting, brazing or soldering operations is carried out at places, other than workplaces which have been specifically designated and equipped for such work, the employer shall take steps to ensure that proper and adequate fire precautions are taken.

20.22 Noise

Where noise is identified as a hazard the requirements of the NIHL regulations must be complied with and the following must be included / referred to in the Health and Safety Plan.

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- Proof of training with regards to these regulations.
- That monitoring carried out by an AIA and done according to SABS 083.
- Medical surveillance programme is established and maintained for the necessary employees.
- Control of noise by means of:
 - Engineering methods considered
 - Admin control considered ○ Personal protective equipment considered/decided on ○ Describe how records are going to be kept for 40 years.

22. Monthly reporting

- The Principal Contractor is required to provide Johannesburg Water SOC Ltd. with a monthly report in the format provided on the last working day of the month.
- The report will include the monthly man-hours, incidents, training, inductions, audits, etc

23. Project close out

- Upon completion of the project, the contractor is required to hand over a consolidated project file to the Client with all the working documents for retention.

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Returnable Annexure A: Acknowledgement of SHE Specification & Annexures

CONTRACTOR:	

I, the undersigned, hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and the consequences of non-compliance. The Contractor furthermore reiterates its commitment to compliance of the requirements contained within the following provided documentation:

- Johannesburg Water SOC Ltd, Safety, Health & Environmental (SHE) Specification, Volume 2;
- Annexure 1: List of possible hazards emanating from projects and activities conducted for or on behalf of Johannesburg Water SOC Ltd;

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

CONTRACT MANAGER			
NAME	DESIGNATION	DATE	SIGNATURE
CONTRACT SUPERVISOR			
NAME	DESIGNATION	DATE	SIGNATURE
WITNESS (1)			
NAME	DESIGNATION	DATE	SIGNATURE
WITNESS (2)			
NAME	DESIGNATION	DATE	SIGNATURE

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BASELINE RISK ASSESSMENT



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

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ACTIVITY: TRANSPORTATION OF MATERIALS TO SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Transportation of material to site	Unsafe road conditions Un-road worthy vehicles Equipment and material not safely secured Incompetent drivers Driving under the influence of alcohol Inclement weather Speeding Slippery road	Overturning vehicles Vehicle collisions Bumping pedestrians / employees	Injuries Property damages Third party liability	M	Adherence to the speed limit Only competent/ authorised drivers should operate the vehicle Inspection of vehicles Equipment and material to be properly secured Alcohol testing to be done The road to be paved to prevent accidents Traffic control to be implemented to avoid collisions

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Offloading of material	Faulty lifting machinery & equipment Suspended load Poor housekeeping	Malfunctioning Falling on employees Obstructed walkways by materials	Injuries	M	Inspect lifting equipment prior to use. Ensure the safe working load prior to use Train the employees in manual lifting Ensure proper housekeeping The correct PPE must be worn Designate the stacking areas and put signs Stacking and storage inspector must be appointed and in charge

ACTIVITY: SITE ESTABLISHMENT					
Task	Hazard	Risk	Consequence	Rating	Controls



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Site establishment	Sharp objects/ wires Uneven surface Faulty connection Poor ergonomics Falling objects Inadequate security services Not enough ablution facilities	Cuts Slips and trips Damage to services Using the environment as ablution facilities	Injuries Back strains and injuries Crime, theft, fights Contracting of communicable diseases Soil, water pollution	M	Supervisors to plan during site set up and induct employees A competent electrician must be appointed to connect electrical wires to the site offices and Distribution Board. Ensure there are welfare facilities on site for health and hygiene purposes Awareness on hygiene and use of ablution facilities Detailed Risk Assessment must be drawn before any work commences on site.
Installing containers	Using lifting equipment Faulty equipment Faulty slings / chains	Wind Incompetent personnel Heavy load Failing of lifting equipment	Serious injuries Property damage	H	Check wind speed prior to using the crane. Inspect the crane, slings and chains before use. Load test the crane before use Only carry loads certified to be carried by the crane
Entry and exit	No access control	Unauthorised entry into the construction site	Injuries Theft	M	Appoint a full time, registered security guard on site



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ACTIVITY: SITE ESTABLISHMENT

Task	Hazard	Risk	Consequence	Rating	Controls
Electrical installation	Electricity Incompetent personnel Wrong tools Damaged cables	Contact with live electricity Incompetent person connecting electricity Electric shocks	Electrocution Serious injuries	H	Follow lock out procedure Ensure that equipment are earthed to an approved earthing point Ensure a zero potential test is performed for electricity is isolated Inspect all tools Use correct tools for the job Appoint a competent electrician/ technician Wear task specific PPE Ensure that there are no exposed wires on the cables



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Stacking and storage	Unsafe stacks of materials	Falling of pallets and material on employees	Injuries Property damage	L	Supervision of all stacking of materials on site Materials of same base and heights stacked together Barricade the stacking area Unsafe stacks to be removed immediately Never stack materials during knocking off time or late at night Use task specific PPE

ACTIVITY: CONTACT WITH UNDERGROUND SERVICES

Task	Hazard	Risk	Consequence	Rating	Controls



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Working close to Eskom line	High voltage	Electrocution	Fatalities Power cuts Property damages	H	Proper scanning of services prior to starting with excavations Obtain wayleaves from Eskom prior to starting with work Do not use lifting equipment in close proximity to power lines unless authorized to do so. Appoint an OHRVS to supervise all work done in close proximity to power lines Contact Eskom if services are identified for isolation Develop a method statement and risk assessment Train employees in the method statement as well as risk assessment Develop emergency response procedures for explosions
Working close to gas lines	Gas leaks	Explosion Suffocation Inhalation	Fatalities Property damages		Proper scanning of services prior to starting with excavations Obtain wayleaves from service provider prior to starting with work Develop a method statement and risk assessment Develop emergency response procedures for leaks and explosions



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PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ACTIVITY: PIPE LAYING & METER INSTALLATION

Task	Hazard	Risk	Consequence	Rating	Controls
Excavation	Deep excavations	Collapse Falling Unsafe entry and exit Spoil material	Serious injuries	M	Geotechnical surveys to be conducted prior to construction Shoring of the excavation No unauthorised entry into the project site. Full time security on site to monitor entry and exit. Safe method of entry and exit to be provided for employees Spoil material to be stored at least 2m away from the excavation Signage to be displayed indicating deep excavations
	Excavator	Incompetent operator Faulty excavator Contact with underground services	Serious injuries Electrocution	M	Only competent personnel are allowed to operate the excavator All excavators must be inspected prior to use All underground services to be identified prior



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427A
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	Use of hand tools	Unsafe use of hand tools Damaged tools	Injuries	L	Adherence to the hand tool procedure Report damaged tools Use the right tool for each job Appoint hand tool supervisor Safe working method must be implemented Supervision Correct PPE must be worn

ACTIVITY: PIPE LAYING & METER INSTALLATION

Task	Hazard	Risk	Consequence	Rating	Controls
Pipe & meter installation	Handling	Poor lifting techniques Falling material	Injuries Back pain	L	Training in proper lifting Provide correct PPE to employees and enforce usage thereof
Pipe laying	Use of cutting tool Flooding of excavation with water	Exposure to excessive noise Falling inside	Noise induced hearing loss Injuries	M	Only employees involved in the cutting of pipe to be allowed close to the process Trenches to be dewatered prior to employees working inside. Trenches to be inspected prior to entering
Storage of meters on site	Poor stacking and storage	Trips and falls	Injuries	L	Proper stacking storage of meters at designated places.



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

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	Unprotected meters	Exposure to criminal activities	Theft	M	Appoint PSIRA accredited security guard. Store meters away from the public eye. Use shaded netting to prevent passers 'by from seeing what is inside the camp.
Tie-in to existing pipeline	Pressure on the existing pipes	Failure of existing pipeline under pressure	Injury from high pressure	M	Use PPE. Ensure adjacent stop valves are operational / closed. Secure adjacent valves against movement. Relieve pressure in system.
Reconnecting house services	High pressure water	High pressured water splashing on employees	Injuries	M	Use PPE. Relieve pressure in system. Develop and follow an SOP
Restoration of site	Backfilling	Dust generation	Inhalation of dust	L	Wear dust mask

ACTIVITY: PIPE LAYING & METER INSTALLATION

Task	Hazard	Risk	Consequence	Rating	Controls
	Inadequate compaction	Public hazard	Injuries	L	Compaction to specified standard.
	Paving	Inadequate handling of paving material	Injuries	L	Pave according to specification Handle material with care Wear job specific PPE

 Johannesburg Water	OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT				
	PROJECT NUMBER:	JW 14427A			
	PROJECT LOCATION:	Orange Farm			
	PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal			

	Housekeeping	Slip, trip, falls	Injuries	L	Maintain proper housekeeping on site Remove waste on a regular basis from site
House visits	Unhappy residents	Attacking the technicians	Injuries	M	JMPD services to be sought where challenges are experienced.

ACTIVITY: OPERATING CONSTRUCTION VEHICLES					
Task	Hazard	Risk	Consequence	Rating	Controls
Operating construction vehicles and mobile plant	Moving bucket / arm	Hitting employees	Injuries	M	Workers to stand clear of the path of the construction vehicles and mobile plant Rigger to direct the loading and offloading activities
	Incompetent operator	Hitting employees; Bumping vehicles and properties	Injuries Property damages	M	Only trained, competent and appointed operators may operate a concrete truck Flagman to be posted to direct the operator
	Unhealthy operator	Collapsing whilst operating	Fatalities Injuries to other people Property damages	H	All operators to undergo annual medical examinations prior to resumption of duties All sick employees must report to their supervisors, and not be allowed to operate construction vehicles and mobile plant.

OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

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	Speeding	Hitting employees; Bumping vehicles and properties	Injuries Property damages	M	Site speed limits to be adhered to at all times
Parking	No visibility Parking on a blind spot Uncontrollable movement	Collision with other vehicles Bumping into people	Fatalities Property damages	H	Ensure that construction vehicles are parked at safe areas while conducting operations Use signage where trucks are parked in / near the road Place stop blocks to prevent any movement. Ensure that the key is removed from the ignition when parked.



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PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm STS Prepayment Water Meters and Retrofitting

ACTIVITY: HDD

Task	Hazard	Risk	Consequence	Rating	Controls
Inserting the drilling rig	Underground services such as gas or electricity	Explosion Damages	Fatalities	H	Proper scanning of services prior to starting with excavations Obtain wayleaves from all utilities prior to starting with work Develop a method statement and risk assessment Train employees in the method statement as well as risk assessment Develop emergency response procedures for explosions
Inserting the drilling rig	Vibration	Road collapse	Fatalities Property damages	H	Only experienced service providers for pipe cracking should be appointed. Check Geotech conditions prior to starting with HDD Ensure that the correct depth is used for HDD HDD from JRA are always valid, and are complied with.
	Vibration	Exposure to excessive vibration	Raynaud's syndrome	M	Provide employees with sufficient rest periods for every 1hr worked.
Insertion	Improper handling	Hands getting caught Pipe slipping from hands	Injuries	L	Only trained employees may perform that task Training in the correct handling and connecting of bursting head



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
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	Machinery	Exposure to excessive noise above 85dB(A)	Noise-induced hearing loss	M	Provide employees with hearing protection Regular servicing and maintenance of equipment Have a barrier wall where possible to shield the community from the noise.

ACTIVITY: USE OF GENERATOR ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Transporting the generator to site	Lifting	Improper lifting	Back pain	M	Training in proper lifting techniques Provide proper PPE
Fueling	Spillages	Slips, trips, falls	Injuries	L	Prevent spillages Use drip trays Use funnels for fueling
	Fuel	Fire	Injuries	M	No smoking allowed near the generator
	Diesel fumes	Inhalation	Respiratory problems	L	Provide employees with respirators
	Fuel	Skin contact	Skin irritation	L	Provide employees with gloves, safety boots and overalls



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PROJECT NUMBER:	JW 14427
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PROJECT DESCR:	Greater Orange Farm STS Prepayment Water Meters and Retrofitting

	Running engine	Explosion	Injuries	M	Switch engine off before refueling and make sure fuel cap is replaced. No smoking allowed near the generator
Running the engine	Noise	Over-exposure	Noise-induced hearing loss	M	Provide employees with hearing protection Provide rest periods for employees
	Vibration	Over exposure	Raynaud's Syndrome	L	Provide employees with vibration gloves. Rotate employees or provide rest periods.
	Fumes	Inhalation	Respiratory problems	L	Provide employees with respirators Never use indoors

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls



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PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
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Traffic Management	Moving vehicles and pedestrians Improperly placed signage Incorrect signage displayed Poor communication between flagmen	Road accidents People getting knocked down by cars	Fatalities Serious injuries Property damages	H	Adhere to traffic management procedures Ensure good communication between flagmen Display correct road signage Employees should wear reflective PPE Keep area clean & clear of obstacles.
Reinstatement	Inadequate compaction Construction refuse Inadequate resurfacing High Ground collapse Hydraulic / pneumatic pressures	Uneven surfaces	Injuries	L	Compaction to specified standard. Site cleared of debris and refuse. Re-surface appropriately. Do not leave gaps in turf or leave uneven surface. Erect fence around hazardous areas until restored and safe. Ensure plugs and compressors are installed and secured against movement. Release air before removing plugs. Clear area of pipe ends being tested.



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PROJECT NUMBER:	JW 14427
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm STS Prepayment Water Meters and Retrofitting

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Working on site	Unhappy community Criminals	Community coming to site Violence against employees	Property damages Serious injuries	H	Develop an emergency response procedure Meet with the community and all stakeholders prior to commencement of the project Keep all gates locked at all times Have the contact details of the nearest police station / JMPD offices Liaise with CLO, ward governance and councilor Stop work and evacuate employees where possible Have 24/7 security on site
	Unfavourable weather conditions	Exposure to temperature extremes	Heat exhaustion Frost bite	M	Provide employees with water for cooling down. Provide employees with warm jackets during winter and gloves Provide 5-minute rest periods for every 30 minutes of exposure to temperature extremes.
	Housekeeping	Trips and falls	Injuries	M	Ensure that proper housekeeping is maintained on site at all times.
Storage of HCS	Burning or fires on site Improper labelling of chemical containers	Property damage Accidental consumption of flammable liquids	Serious injuries Illnesses	M	A well ventilated cage may be used for storage of all the HCS and flammables HCS supervisor must record all quantities on a register. Label containers correctly Display HCS signage



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PROJECT NUMBER:	JW 14427
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PROJECT DESCR:	Greater Orange Farm STS Prepayment Water Meters and Retrofitting

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
Working on site	Unhappy community	Community coming to survey site Violence against employees	Property damages Serious injuries	H	Develop an emergency response procedure Meet with the community and all stakeholders prior to commencement of the project Have the contact details of the nearest police station / JMPD offices
	Unfavourable weather conditions	Exposure to temperature extremes	Heat exhaustion Frost bite	M	Provide employees with water for cooling down. Provide employees with warm jackets and gloves during winter Provide 5-minute rest periods for every 30 minutes of exposure to temperature extremes. No work to be undertaken in rainy conditions
	Housekeeping	Trips and falls	Injuries	M	Ensure that proper housekeeping is maintained on site at all times.
Working near open spaces	Snakes	Bites Poisoning	Fatalities Serious injuries	H	Inspect the area for snakes prior to entering Conduct snake awareness training Know the do's and don'ts of what to do when coming across snakes



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
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	Bees	Bites	Allergic reaction	M	Inspect the area for bees / wasps prior to entering Conduct bees awareness training Know the do's and don'ts of what to do when coming across bees
	Sharp objects	Getting pricked by sharp objects	Tetanus Injuries	M	All employees to get Tetanus vaccination. Provide employees with proper safety boots

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls
	Criminals	Getting mugged	Loss of personal possession	M	Personal belongings such as phones and car keys to be safely put in pockets while working. Employees to report any suspicious activities to the local police. Equipment to be safely stored while not in use
	Criminals	Employees being attacked	Injuries Fatalities	H	Ensure that employees do not work in isolation. Employees to report any suspicious activities to the local police. Develop an emergency response procedure



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:	JW 14427
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	Open excavations (other works)	Falling inside	Injuries	M	Employees to be vigilant while working on site
	Water bodies	Falling inside	Serious injuries Fatalities	H	Employees to be vigilant while working on site Emergency procedures to be developed
	Rotating equipment	Entrapment Getting caught by	Serious injuries Fatalities	H	Ensure that machinery is isolated or locked out while working on it.
	Raw sewer	Skin contact Ingestion Splashing into eyes	Waterborne diseases	H	Provide employees with proper PPE, and ensure that the mouth, nose and eyes are covered. Vaccinate employees and ensure that they are medically fit to work in confined spaces.

ACTIVITY: GENERAL ACTIVITIES ON SITE

Task	Hazard	Risk	Consequence	Rating	Controls



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Use of ablution facilities	Infrequent collection and disposal	Unhygienic toilet	Illnesses	M	Ensure that a proper toilet with a closing door is made available for personnel on site. Where there are employees of different genders, two separate toilets will be sourced to be used by both males and females. Ensure that the toilet is collected and emptied frequently by a registered service provider. Ensure that disposal certificates are obtained from service provider. Ensure that toilet is cleaned daily, and provision for toilet paper and washing of hands is made.

RISK ASSESSMENT MATRIX

Likelihood	Consequences				
	Insignificant (minor problem easily handled by normal day to day processes)	Minor (Some disruption possible e.g., damage equal to R150k)	Moderate (significant time / resources required. E.g., damage equal to R500k)	Major (Operations severely damaged. E.g., damages equal to R1m)	Catastrophic (business survival is at risk. Damage equal to R5m – 10m)



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PROJECT NUMBER:	JW 14427
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Almost certain (90% chance)	High	High	Extreme	Extreme	Extreme
Likely (between 50-90%)	Moderate	High	High	Extreme	Extreme
Moderate (between 10-50%)	Low	Moderate	High	Extreme	Extreme
Unlikely (between 3-10%)	Low	Low	Moderate	High	Extreme
Rare (<3%)	Low	Low	Moderate	High	High



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION

PROJECT NUMBER:	JW14427D
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ANNEXURE 1: BASELINE RISK ASSESSMENT



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION

PROJECT NUMBER:	JW14427D
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ANNEXURE 2: MEDICAL SCREENING POLICY



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION

PROJECT NUMBER:	JW14427D
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ANNEXURE 3: SIGN OFF FORM



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION

PROJECT NUMBER:	JW14427D
PROJECT LOCATION:	Orange Farm
PROJECT DESCR:	Greater Orange Farm Phase 3 Package 1 Water Infrastructure Upgrade and Renewal

ANNEXURE 4: ENVIRONMENTAL MANAGEMENT PLAN



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION

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ANNEXURE 5:

JW 6.4 (RETURNABLE ANNEXURE A)