



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

**CONTRACT NO.: DWS18-1120
WTE (WQ-1266GP)**

CONTRACT DOCUMENT

FOR THE

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

NOTE:

- The Functionality Scoring Criteria is on page 23 of this document
- The Form of Offer and Acceptance (C1.1), including the construction period, is on page 108 of this document
- The Summary Of Bill Of Quantities is on page 161 of this document

CONTRACTOR:

NAME :

ADDRESS :

Postal Code :

TELEPHONE :

FAX :

EMAIL :

PREPARED BY:

GIBB (Pty) Ltd

Johannesburg, 3rd Floor, Building 4 ...

19 Ninth Street, Houghton Estate.....

Rosebank, 2196.....

011 519 4600.....

011 807 5670.....

vnaidoo@gibb.co.za

DEPARTMENT OF WATER AND SANITATION
CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)
SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

GENERAL TENDER INFORMATION

TENDER ADVERTISED	:	20 May 2022
ESTIMATED CIDB CONTRACTOR GRADING	:	7 CE
CLARIFICATION MEETING	:	10H00, Tuesday 24 May 2022 (compulsory)
VENUE FOR CLARIFICATION MEETING	:	Near the Vaal Showgrounds - to the south-east of the R59 and Boy Louw Street crossing (Approximate GPS co-ordinates: 26°40'27.24"S; 27°54'49.88"E)
CLOSING DATE	:	Friday 3 June 2022
CLOSING TIME	:	11H00 am
CLOSING VENUE	:	The Tender Box at 15th floor Bothongo Plaza East Building 285 Francis Baard Street (Formerly Schoeman Street) Pretoria,0002
INSTRUCTIONS	:	Insert the large envelope containing the Tender Documents (completed in all respects) (including C.1.1 Form of Offer) plus any additional supporting documentation into the tender box.

PART A: INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE DEPARTMENT OF WATER AFFAIRS AND SANITATION					
BID NUMBER:	DWS18-1120 WTE (WQ-1266GP)	CLOSING DATE:	3 June 2022	CLOSING TIME:	11:00 am
DESCRIPTION	Sedibeng Regional Sanitation Scheme: Construction of A 1,3 km Long 710mm Diameter Gravity Main to Pump Station 2				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
The Tender Box at 15th floor, Bothongo Plaza East Building, 285 Francis Baard Street, Pretoria, 0002					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	Patrick Mabasa		CONTACT PERSON	Lusanda Dlamini	
TELEPHONE NUMBER	012 392 1320		TELEPHONE NUMBER	082 722 0143	
FACSIMILE NUMBER	N/A		FACSIMILE NUMBER	N/A	
E-MAIL ADDRESS	MabasaP@dws.gov.za		E-MAIL ADDRESS	Dlaminilu@dws.gov.za	
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] <input type="checkbox"/> Yes <input type="checkbox"/> No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT		[TICK APPLICABLE BOX] <input type="checkbox"/> Yes <input type="checkbox"/> No
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
SCHEDULE 1: ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		SCHEDULE 2: ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?		<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A BRANCH IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?			<input type="checkbox"/> YES <input type="checkbox"/> 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 BELOW.					

PART B TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**
- 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
- 1.4. **THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).**

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 VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
- 2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
- 2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
- 2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
- 2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
- 2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE.

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNED:

ENTERPRISE NAME

DATE

NAME

POSITION

(Proof of authority must be submitted e.g. company resolution)

SIGNATURE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Contents		
Number	Heading	Pages
The Tender		
Part T1: Tendering Procedures		
T1.1	Tender Notice And Invitation To Tender	5
T1.2	Tender Data	8
Part T2: Returnable Documents		
T2.1	List Of Returnable Documents	31
T2.2	Returnable Schedules	33
The Contract		
Part C1: Agreements and Contract Data		
C1.1	Form Of Offer And Acceptance	108
C1.2	Contract Data	113
C1.3	Performance Guarantee	120
C1.4	Adjudication	124
C1.5	Occupational Health And Safety Agreement	125
Part C2: Pricing Data		
C2.1	Pricing Instructions	128
C2.2	Bill Of Quantities	129
Part C3: Scope Of Work		
C3.1	Description Of The Works	164
C3.2	Engineering	166
C3.3	Procurement	168
C3.4	Construction	169
C3.5	Management	242
C3.6	Annexes	251
Part C4: Site Information		
C4.1	Geotechnical Investigation	334
C4.2	Other Reports	335

Part T1: Tendering Procedures

	<u>Page</u>
T1.1 Tender Notice And Invitation To Tender	5
T1.1.1 Locality Plan: Clarification Meeting Venue	6
T1.2 Tender Data	8
T1.2.1 Standard Conditions of Tender	8
T1.2.2 Variations to the Standard Conditions of Tender	18
T1.2.3 Additional Conditions of Tender	28

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

T1.1 TENDER NOTICE AND INVITATION TO TENDER

The Department Of Water And Sanitation invites tenders for Contract No.: DWS18-1120 WTE (WQ-1266GP) – SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2.

Tenderers must have a CIDB contractor grading designation of 7 CE or higher.

Only Tenderers who achieve the minimum score in the Functionality Scoring Criteria will be evaluated.

The physical address for collection of tender documents is:

The Tender Box at 15th floor
Bothongo Plaza East Building
285 Francis Baard Street
(Formerly Schoeman Street)
Pretoria, 0002

Documents may be collected during work days (Monday to Friday) between 10:00 - 15:00 from Friday, 20 May 2022.

No deposit is required for these documents.

Bidding procedure enquiries relating to the issues of these documents may be addressed to Patric Mabasa, 012 392 1320, Mabasap@dws.gov.za.

Technical enquiries relating to the issues of these documents may be addressed to Lusanda Dlamini, 082 722 0143, Dlaminilu@dws.gov.za.

A compulsory clarification meeting with representatives of the Employer and the Employer's Agent will be held on Tuesday 24 May 2022 commencing at 10H00 am Near the Vaal Showgrounds - to the south-east of the R59 and Boy Louw Street crossing (Approximate GPS co-ordinates: 26°40'27.24"S; 27°54'49.88"E).

The closing time for receipt of tenders is 11H00 am on Friday 03 June 2022.

Telephonic, telegraphic, telex, facsimile, e-mailed or late tender offers will **NOT** be accepted.

Tenders may only be submitted on the tender documentation that has been issued.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

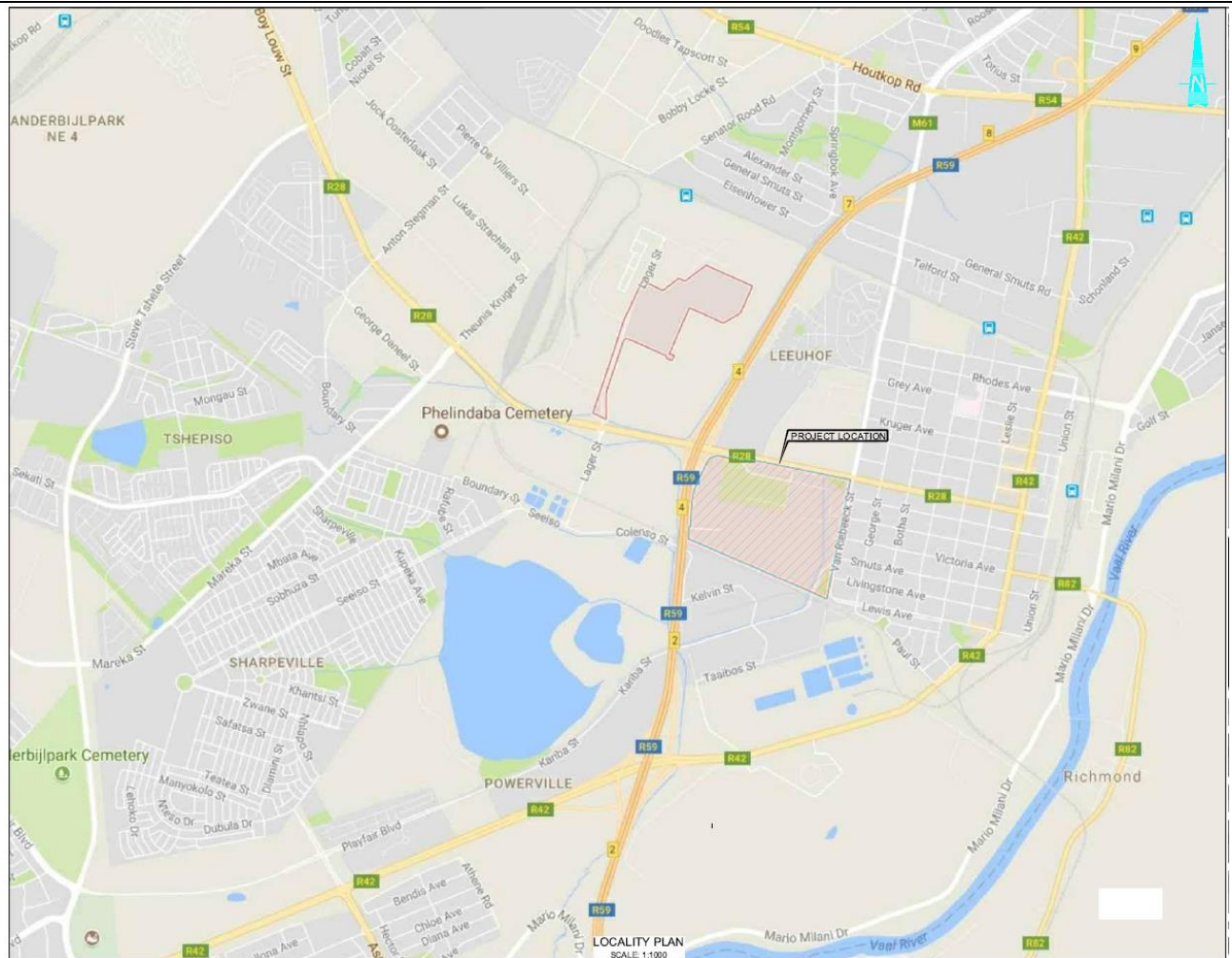
SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

T1.1.1 LOCALITY PLAN: CLARIFICATION MEETING VENUE

The location of the proposed works within Emfuleni Local Municipality, near the Vaal Showgrounds, to the south-east of the R59 and Boy Louw Street crossing at approximately Latitude 26°40'30"S and Longitude 27°54'32"E.

The compulsory clarification meeting will take place at the location stated above and indicated in the drawings below.





DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

T1.2 TENDER DATA

Tender data is covered in two sections. T1.2.1 refers to the Standard Conditions of Tender while T1.2.3 sets out Additional Conditions of Tender.

T1.2.1 Standard Conditions of Tender

The conditions of tender are the Standard Conditions of Tender as contained in Standard Conditions of Tender Government Gazette No 42622 of 08 August 2019, Construction Industry Development Board (CIDB) Standard for Uniformity in Engineering and Construction Works Contracts issued in terms of sections 4(f), 5(3)(c) and 5(4)(b) of the Construction Industry Development Board Act 38 of 2000 read with Regulation 24 of the Construction Industry Development Regulations (as amended) issued in terms of section 33. (see www.cidb.org.za). This notice is reproduced without amendment or alteration for the convenience of tenderers. (See pages 8 - 16)

Standard Conditions of Tender

C.1 GENERAL

C.1.1. Actions

C.1.1.1. *The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.*

C.1.1.2. *The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict, and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.*

Note:

1) *A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.*

2) *Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.*

C.1.1.3. *The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.*

C.1.2. Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

C.1.3. Interpretation

C.1.3.1. *The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.*

C.1.3.2. *These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.*

C.1.3.3. For the purposes of these conditions of tender, the following definitions apply:

- a) **conflict of interest** means any situation in which :
 - i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
 - ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
 - iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.
- b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
- c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;
- d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;

C.1.4. Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

C.1.5. Cancellation and Re-invitation of Tenders

C.1.5.1. An employer may, prior to the award of the tender, cancel a tender if:

- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation; or
- b) funds are no longer available to cover the total envisaged expenditure; or
- c) no acceptable tenders are received;
- d) there is a material irregularity in the tender process.

C.1.5.2. The decision to cancel a tender must be published in the same manner in which the original tender invitation was advertised.

C.1.5.3. An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6. Procurement procedures

C.1.6.1. General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2. Competitive negotiation procedure

C.1.6.2.1. Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2. All responsive tenderers, or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited to enter into competitive negotiations, based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification,

fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3. *At the conclusion of each round of negotiations, tenderers shall be invited by the employer to revise their tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.*

C.1.6.2.4. *The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.*

C.1.6.3. Proposal Procedure Using The Two-Stage System

C.1.6.3.1. Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

C.1.6.3.2. Option 2

C.1.6.3.2.1. *Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.*

C.1.6.3.2.2. *The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.*

C.2 TENDERER'S OBLIGATIONS

C.2.1. Eligibility

C.2.1.1. *Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with the employer.*

C.2.1.2. *Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.*

C.2.2. Cost of Tendering

C.2.2.1. *Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.*

C.2.2.2. *The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents*

C.2.3. Check Documents

Check the tender documents on receipt for completeness and notify the Employer of any discrepancy or omission.

C.2.4. Confidentiality and Copyright of Documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the Employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

C.2.5. Reference Documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

C.2.6. Acknowledge Addenda

Acknowledge receipt of addenda to the tender documents, which the Employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

C.2.7. Clarification Meeting

Attend, where required, a clarification meeting at which tenderers may familiarise themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

C.2.8. Seek Clarification

Request clarification of the tender documents, if necessary, by notifying the Employer at least five (5) working days before the closing time stated in the tender data.

C.2.9. Insurance

Be aware that the extent of insurance to be provided by the Employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the Contract Data. The tenderer is advised to seek qualified advice regarding insurance.

C.2.10. Pricing the Tender Offer

C.2.10.1. *Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (14) days before the closing time stated in the tender data.*

C.2.10.2. *Show VAT payable by the Employer separately as an addition to the tendered total of the prices.*

C.2.10.3. *Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the Contract Data.*

C.2.10.4. *State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the Contract Data may provide for part payment in other currencies.*

C.2.11. Alterations to Documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the Employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

C.2.12. Alternative Tender Offers

C.2.12.1. *Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.*

C.2.12.2. *Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.*

C.2.12.3. *An alternative tender offer must only be considered if the main tender offer is the winning tender.*

C.2.13. Submitting a Tender Offer

C.2.13.1. *Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the Contract Data and described in the Scope of Works, unless stated otherwise in the tender data.*

C.2.13.2. *Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.*

C.2.13.3. *Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.*

C.2.13.4. *Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.*

- C.2.13.5.** Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the Employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.6.** Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the Employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.7.** Seal the original tender offer and copy packages together in an outer package that states on the outside only the Employer's address and identification details as stated in the tender data.
- C.2.13.8.** Accept that the Employer shall not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- C.2.13.9.** Accept that tender offers submitted by facsimile or e-mail will be rejected by the Employer, unless stated otherwise in the tender data.
- C.2.14. Information and Data to be completed in all Respects**
- Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the Employer as non-responsive.
- C.2.15. Closing Time**
- C.2.15.1.** Ensure that the Employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.
- C.2.15.2.** Accept that, if the Employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.
- C.2.16. Tender Offer Validity**
- C.2.16.1.** Hold the tender offer(s) valid for acceptance by the Employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.
- C.2.16.2.** If requested by the Employer, consider extending the validity period stated in the tender data for an agreed additional period, with or without any conditions attached to such extension.
- C.2.16.3.** Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the Employer's Agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the Employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).
- C.2.16.4.** Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".
- C.2.17. Clarification of Tender Offer after Submission**
- Provide clarification of a tender offer in response to a request to do so from the Employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.
- Note: Subclause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.
- C.2.18. Provide other Material**
- C.2.18.1.** Provide, on request by the Employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarised joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the Employer 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 Employer's request, the Employer may regard the tender offer as non-responsive.

C.2.18.2. *Dispose of samples of materials provided for evaluation by the Employer, where required.*

C.2.19. *Inspections, Tests and Analysis*

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

C.2.20. *Submit Securities, Bonds, Policies, etc.*

If requested, submit for the Employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the Contract Data.

C.2.21. *Check Final Draft*

Check the final draft of the contract provided by the Employer within the time available for the Employer to issue the contract.

C.2.22. *Return of Other Tender Documents*

If so instructed by the Employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.

C.2.23. *Certificates*

Include in the tender submission or provide the Employer with any certificates as stated in the tender data.

C.3 *THE EMPLOYER'S UNDERTAKINGS*

C.3.1. *Respond to Requests from the Tenderer*

C.3.1.1. *Unless otherwise stated in the Tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.*

C.3.1.2. *Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to pre-qualify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:*

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;*
- b) the new partners to a joint venture were not pre-qualified in the first instance, either as individual firms or as another joint venture; or*
- c) in the opinion of the Employer, acceptance or the material change would compromise the outcome of the prequalification process.*

C.3.2. *Issue Addenda*

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 three (3) working 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.3.3. *Return Late Tender Offers*

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

C.3.4. *Opening of Tender Submissions*

C.3.4.1. *Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.*

C.3.4.2. *Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of*

his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

C.3.4.3. *Make available the record outlined in C.3.4.2 to all interested persons upon request.*

C.3.5. Two-envelope system

C.3.5.1. *Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.*

C.3.5.2. *Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.*

C.3.6. Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

C.3.7. Grounds for Rejection and Disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

C.3.8. Test for Responsiveness

C.3.8.1. *Determine, after opening and before detailed evaluation, whether each tender offer properly received:*

- a) complies with the requirements of these Conditions of Tender,*
- b) has been properly and fully completed and signed, and*
- c) is responsive to the other requirements of the tender documents.*

C.3.8.2. *A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:*

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,*
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or*
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.*

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

C.3.9. Arithmetical Errors, Omissions and Discrepancies

C.3.9.1. *Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.*

C.3.9.2. *Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:*

- a) the gross misplacement of the decimal point in any unit rate;*
- b) omissions made in completing the pricing schedule or bills of quantities; or*
- c) arithmetic errors in:*
 - i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or*
 - ii) the summation of the prices.*

C.3.9.3. Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

C.3.9.4. Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

- a) 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.
- b) 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 asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10. Clarification of a Tender Offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11. Evaluation of Tender Offers

The Standard Conditions of Tender standardise the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the Employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require Employers to conduct the process of offer and acceptance in terms of a set of standard procedures

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	Qualitative interpretation of goal
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the Employer, lack of capability, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardised with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete
- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred tenderer
- g) Prepare a tender evaluation report
- h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1. General

The Employer must appoint an evaluation panel of not less than three persons conversant with the proposed Scope of Works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.12. Insurance Provided by the Employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the Contract Data, require the Employer to provide.

C.3.13. Acceptance of Tender Offer

Accept the tender offer, if in the opinion of the Employer, it does not present any risk and only if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the Employer's procurement;*
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,*
- c) has the legal capacity to enter into the contract,*
- d) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities, or is subject to legal proceedings in respect of any of the foregoing;*
- e) complies with the legal requirements, if any, stated in the tender data; and*
- f) is able, in the opinion of the Employer, to perform the contract free of conflicts of interest.*

C.3.14. Prepare Contract Documents

C.3.14.1. *If necessary, revise documents that shall form part of the contract and that were issued by the Employer as part of the tender documents to take account of:*

- a) addenda issued during the tender period,*
- b) inclusion of some of the returnable documents, and*
- c) other revisions agreed between the employer and the successful tenderer.*

C.3.14.2. *Complete the Schedule of Deviations attached to the Form of Offer and Acceptance, if any.*

C.3.15. Complete Adjudicator's Contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

C.3.16. Registration of the Award

An Employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works is accepted in writing by the Employer, register and publish the award on the CIDB Register of Projects.

C.3.17. Provide Copies of the Contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the Form of Offer and Acceptance.

C.3.18. Provide Written Reasons for Actions Taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender, but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

Alpha-numeric associated with the Contractor Grading Designations

TABLE 8: CONTRACTOR GRADING DESIGNATIONS AND ASSOCIATED PARAMETERS

Contractor Grading Designation	Tender Value Range designation	Maximum Value of Contract that a Contractor is considered capable of performing (R)
1 (class of construction works)	1	500 000
2 (class of construction works)	2	1 000 000
3 (class of construction works)	3	3 000 000
4 (class of construction works)	4	6 000 000
5 (class of construction works)	5	10 000 000
6 (class of construction works)	6	20 000 000
7 (class of construction works)	7	60 000 000
8 (class of construction works)	8	200 000 000
9 (class of construction works)	9	N/A

T1.2.2 Variations to the Standard Conditions of Tender

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall take 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.

The following variations, amendments and additions to the Standard Conditions of Tender shall apply to this tender.

Clause No. Variation, Amendment or Addition

C.1 General

C.1.1 Actions

Add the following:

The Employer is **DEPARTMENT OF WATER AND SANITATION**, represented by Patric Mabasa, 012 392 1320, Mabasap@dws.gov.za and Lusanda Dlamini, 082 722 0143, Dlaminilu@dws.gov.za.

C.1.2 Tender Documents

Add the following:

The following documents form part of this tender:

VOLUME 1: The General Conditions of Contract for Construction Work (Third Edition) 2015 as published by the South African Institution of Civil Engineering. This publication is available and tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel (011) 805 5947, Fax: (011) 805 5971, email: civilinfo@saice.org.za.

VOLUME 2: The SANS Standardised Specifications for Civil Engineering Construction prepared by Standards South Africa. These publications are available and tenderers must obtain copies at their own cost from Standards South Africa, Private Bag X191, PRETORIA, 0001.]

Volumes 1 and 2 may also be inspected, by appointment, at the offices of GIBB (Pty) Ltd during normal office hours.

The tender documents issued by the Employer comprise:

VOLUME 3: The Tender Document (this document), in which is bound:

The Tender

Part T1: Tendering Procedures

T1.1 Tender Notice And Invitation To Tender

T1.2T1.2 Tender Data

Part T2: Returnable Documents

T2.1 List Of Returnable Documents

T2.2 Returnable Schedules

The Contract

Part C1: Agreements and Contract Data

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 Performance Guarantee

C1.4 Adjudication

C1.5 Occupational Health And Safety Agreement

Part C2: Pricing Data

C2.1 Pricing Instructions

C2.2 Bill Of Quantities

Part C3: Scope Of Work

C3.1 Description Of The Works

C3.2 Engineering

C3.3 Procurement
C3.4 Construction
C3.5C3.5 Management
C3.6C3.6 Annexes

Part C4: Site Information

C4.1 Geotechnical Investigation

VOLUME 4: Drawings (listed in C3.6.7: Drawings and Photographs)

Volume 3 is deemed the "Returnable Documents" which must be returned to the Employer in terms of submitting a tender offer.

Add the following additional clause:

Tender and/or Document Deposit

No deposit is required for these documents.

C.1.4 Communication and employer's agent

Add the following:

Attention is drawn to the fact that verbal information, given by the Employer's Agent during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer. Only information issued formally by the Employer in writing to tenderers will be regarded as amending the Tender Documents.

The Employer's Agent is:
GIBB (Pty) Ltd
Johannesburg, 3rd Floor, Building 4
19 Ninth Street, Houghton Estate
Rosebank, 2196
Telephone No. 011 519 4600
Fax No. 011 807 5670
Email vnaidoo@gibb.co.za

C.2 Tenderer's obligations

C.2.1 Eligibility

Add the following after C.2.1.2:

Only those tenderers who satisfy the following criteria are eligible to submit tenders:

A. Construction Industry Development Board (CIDB) Registration

Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to 7CE or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations, for a class of construction work, are eligible to have their tenders evaluated.

B. Joint ventures are eligible to submit tenders provided that:

1. Every member of the joint venture is registered with the CIDB;
2. The lead partner has a contractor grading designation in the 7 CE class of construction work; or not lower than one level below the required grading designation in the class of works construction works under considerations and possess the required recognition status.
3. The combined contractor grading designation calculated in accordance with the Construction Industry Development Board Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 7 CE class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations; and
4. Page 17 reflects the alpha-numeric associated with the contractor Grading Designations.

C.2.7 Clarification Meeting

Add the following:

The arrangement for a compulsory clarification meeting is as stated in the Tender Notice and Invitation to Tender.

Tenderers should be represented at the clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.

C2.10.3 This tender is **NOT** subject to contract price adjustments.

C.2.12 Alternative Tender Offers

Alternative Tenders will not be considered.

C.2.13 Submitting a Tender Offer

A. *Add the following at the end of C.2.13.3:*

Parts of each tender offer communicated on paper shall be submitted as an original, plus 0 (nought) copies.

B. *Add the following after the first sentence of C.2.13.4:*

The tender shall be signed by a person duly authorised to do so. Tenders submitted by joint ventures of two or more firms shall be accompanied by the document of formation of the joint venture, authenticated by a notary public or other official deputed to witness sworn statements, in which is defined precisely the conditions under which the joint venture will function, its period of duration, the persons authorised to represent and obligate it, the participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning.

C. *Add the following after the first sentence of C.2.13.5:*

The employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:

Location of tender box	: Tender Box, 15 th floor
Physical address	: 285 Francis Baard Street, Bothongo Plaza East, Pretoria, 0002
Identification details	: Tender number - DWS18-1120 WTE (WQ-1266GP) Contract No. DWS18-1120 WTE (WQ-1266GP) SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Sealed tenders with the Tenderer's name and address and the endorsement "TENDER NO. DWS18-1120 WTE (WQ-1266GP) for CONTRACT NO. DWS18-1120 WTE (WQ-1266GP) - SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2" on the envelope, must be placed in the appropriate official tender box at the abovementioned address.

D. *Add the following after C.2.13.6:*

A two-envelope procedure as described in C.3.5 will **NOT** be followed.

C.2.15 Closing Time

C.2.15.1 *Add the following:*

The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender. Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.

C.2.16 Tender Offer Validity

C.2.16.1 *Add the following:*

The tender offer validity period is 12 weeks (84 days).

C.2.17 Clarification of Tender Offer after Submission

Add the following:

A tender may be rejected as non-responsive if the tenderer fails to provide any clarification requested by the employer, or confirmation of registration with CIDB within the time for submission stated in the employer's written request for such clarification or confirmation. A tender may be rejected if the unit rates or lump sums

for some of the items in the bills/schedules of quantities are, in the opinion of the Employer, unreasonable or out of proportion, and the tenderer fails, within the time stated in writing by the Employer to justify any specific rates or lump sums (i.e. to provide a financial breakdown of how such rates or sums were obtained) or to adjust the unit rates or lump sums for such items while retaining the total of the prices unchanged. **The Contractor will not be permitted to have unpriced items in the Preliminary section of the Bill of Quantities. Any item listed as "included" in the Preliminary section may lead to the Tender being rejected as non-responsive.**

C.2.23 Certificates

Add the following:

The tenderer is required to submit the following certificates with the tender:

A. Certificate of Contractor Registration (CIDB)

Certificate of Contractor Registration issued by the Construction Industry Development Board. 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. (Document B1 in Part T2, page 103).

B. Tax Clearance Certificate

Tenderers shall be registered and in good standing with the South African Revenue Services (SARS) and shall submit/append documentary evidence/proof in the form of an original or certified copy of valid Tax Clearance Certificate issued by SARS. Failure to provide a valid Tax Clearance Certificate will result in the tender being rejected. (Document B2 in Part T2, page 104).

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate.

C. Bargaining Council Certificates

Where applicable, a certificate of compliance issued by the relevant Bargaining Council.

Each party to a Consortium/Joint Venture shall submit separate certificates in the above regard.

D. Tenders exceeding R10 million

Where the tendered amount inclusive of VAT exceeds R10 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;
- ii) a certificate certifying that the tenderer 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;
- iii) particulars of any contracts awarded to the tenderer 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;
- iv) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.

Each party to a Consortium/Joint Venture shall submit separate certificates/statements in the above regard. (Document B2 in Part T2, page 104).

C.3 The Employer's Undertakings

C.3.1 Respond to Requests from the Tenderer

C.3.1.1 Respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

C.3.4 Opening of Tender Submissions

C.3.4.1 Add the following:
The time and location for opening of the tender offers is:
To be Confirmed by Employer

C.3.8 Test for Responsiveness

Add the following after C.3.8.2:

Tenders will be considered non-responsive if:

- The tender is not in compliance with the Scope of Work;
- The tenderer has not completed and/or signed the Offer portion of C1.1 Form of Offer and Acceptance.
- The tenderer does not comply with the Contractor's CIDB grading designation specified in C.2.1.1 above.

- The tenderer has failed to clarify or submit any supporting documentation within the time for submission stated in the employer's written request.
- The Tenderer will not be permitted to have unpriced items in the Preliminary section of the Bill of Quantities. Any item listed as "included" in the Preliminary section may lead to the Tender being rejected as non-responsive.
- The tenderer has failed to tender a Contract Participation Goal in respect of Targeted Labour (CPG₂) of at least the minimum percentage specified (if so specified).

C.3.11 Evaluation of Tender Offers

Add the following:

Tenders will be evaluated according to the Preferential Procurement Policy Regulations, 2017.

The evaluation shall follow a two stage process viz. Stage 1 is the functionality evaluation and Stage 2 is the price and B-BBEE evaluation.

At Stage 1 of the process all acceptable tenders will be awarded adjudication points for the tendered functionality and quality compliance.

A total minimum of 65 points out of 100 for PART A: TECHNICAL / FUNCTIONALITY EVALUATION as set out below must be achieved. Tenderers who score less than 65 points for PART A will not be considered further. This is required so that there is a level of comfort that the Tenderer can deliver the project with the required professionalism and quality necessary for a project that is under intense scrutiny due to the ongoing pollution of the Vaal River.

As part of the evaluation criteria, the Employer/Employer's agent will visit at least one (1) of the completed projects as per the Completion Certificates submitted for consideration for Company Experience under Part A. A total minimum of 55 points out of 100 for PART B: RISK EVALUATION, SITE VISIT FOR VERIFICATION OF WORK EXPERIENCE as set out below must be achieved. Tenderers who score less than 55 points for PART B will not be considered further. This is required so that there is a level of comfort that the potential service provider can deliver the project with the required professionalism and quality.

Therefore, a less than minimum score for either PART A (of 65 points) or PART B (of 55 points) of functionality evaluation will lead to an automatic rejection of the Tender and the Tender will not be considered further.

Furthermore, the Tenderer must also score the minimum score for each criterion as set out below. A less than minimum score in any criterion, in either Part A or Part B, will lead to an automatic rejection of the Tender and the Tender will not be considered further. Notwithstanding the fact that scoring the minimum score in each category will result in a score of 51 points out of 100 for PART A: TECHNICAL / FUNCTIONALITY EVALUATION, only Tenderers scoring 65 points or above as stated previously will be considered as having passed the Functionality Evaluation as set out below.

At Stage 2 of the process all acceptable tenders who passed Stage 1 will be awarded adjudication points for the tendered price and additional points may be awarded for the B-BBEE status level of the Tenderer.

Where the procurement value is below R50 000 000 (INCL. VAT) the 80/20 preference point system will apply. The following table will be used to calculate the score out of 10 for B-BBEE:

B-BBEE Status Level of Contributor	Number of Points
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

Points will ONLY be awarded where DEPARTMENT OF WATER AND SANITATION is fully satisfied that the business enterprise meets the relevant criteria.

PART A: TECHNICAL / FUNCTIONALITY POINTS

CRITERION 1: TENDERER'S FINANCIAL STANDING

Documentation to be provided by Tenderer:

- a) Tenderers must provide a current bank rating certificate from their banking institution and attach it to the returnable schedule A32: TENDERER'S FINANCIAL STANDING.

Scoring	Points	Tenderer's Financial Standing
	0	D - G Bank Rating
Minimum	3	C Bank Rating
	4	B Bank Rating
	5	A Bank Rating
Total Max Points	5	Minimum points = 3

A minimum score of 3 is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

CRITERION 2: COMPANY EXPERIENCE (CIVIL)

Documentation to be provided by Tenderer:

- a) Tenderers must provide details of their previous relevant experience in the construction of large diameter (> 700mm Ø) gravity pipelines in returnable schedule A5 SCHEDULE OF WORK EXPERIENCE OF TENDERER Schedule Of Work Experience Of Tenderer.
- b) In the event that the tenderer wishes to sub-contract a large (or specialised) portion of the contract:
- The experience of the designated sub-contractor as described in a) above must also be provided in returnable schedule A5 SCHEDULE OF WORK EXPERIENCE OF TENDERER Schedule Of Work Experience Of Tenderer.
 - The company details and proof of CIDB contractor grading of the designated sub-contractor must be provided in schedule B4: Additional Functionality Documents.
- c) Tenderers must provide an appointment letter, referral letter from the employer/employer's agent and Completion Certificates (only for completed projects) for each project, signed by the relevant organ of state (i.e. municipality or government) in returnable schedule B4: Additional Functionality Documents.

Scoring	Points	Company Experience
	0	The tenderer has not provided any proof of completing large diameter gravity pipelines.
	10	Tenderer has proven relevant experience in large diameter gravity pipelines on at least 1 of each similar projects in the last 15 years.
Minimum	15	Tenderer has proven relevant experience in large diameter gravity pipelines on at least 2 similar projects in the last 15 years.
	25	Tenderer has proven relevant experience in large diameter gravity pipelines on at least 3 similar projects in the last 15 years.
	35	Tenderer has proven relevant experience in large diameter gravity pipelines on at least 4 similar projects in the last 15 years.
Total Max Points	35	Minimum points = 15

A minimum score of 15 is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

CRITERION 3: PROGRAMME

Documentation to be provided by Tenderer:

- a) Tenderers must provide a preliminary implementation programme in returnable schedule B4: Additional Functionality Documents.
- i) The programme is to address all construction elements and show the planned time for completion of each construction task.
 - ii) The programme is to show the critical path.
 - iii) The tenderer is to allocate and link resources to each construction task.

Scoring	Points	Programme
	0	Programme is poor/unlikely to satisfy project objectives and does not cover any of the required aspects. The tenderer may have misunderstood certain aspects of the scope of works.
	1	Programme address the specific project objectives, and covers only one of the three required aspects sufficiently.
Minimum	3	Programme address the specific project objectives, and covers only two of the three required aspects sufficiently.
	5	Programme address the specific project objectives, and covers all three required aspects sufficiently.
Total Max Points	5	Minimum points = 3

A minimum score of 3 is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

CRITERION 4: TECHNICAL APPROACH AND METHODOLOGY

Documentation to be provided by Tenderer:

- a) Tenderers must provide a methodology as to how your company will complete the works in returnable schedule B4: Additional Functionality Documents. The Methodology must include the following aspects:
- i) A Detailed Technical Approach plan must be provided which covers all major aspects of the work to be performed.
 - ii) Safety Aspects must be addressed and the tenderer must provide ways in which typical safety hazards will be mitigated.
 - iii) Environmental Aspects must be addressed the tenderer must provide ways in which typical environmental hazards will be mitigated.
 - iv) The work which the tenderer wishes to sub-contract (if any) must be detailed and if the sub-contractor's work is very specialised, a methodology of the subcontractor's work based on the items above must also be provided.
 - v) Risk identification and how these risks will be mitigated or managed.

Scoring	Points	Technical Approach and Methodology
	0	Methodology is poor/unlikely to satisfy project objectives. The tenderer may have misunderstood certain aspects of the scope of works. The Tenderer does not deal with the critical aspects.
	5	Methodology is generic and not tailored to address the specific project objectives. Does not adequately deal with the critical characteristics of the project. The quality plan, manner in which risk is to be managed is too generic.
Minimum	15	Methodology is specifically tailored to address the specific project objectives and methods of work. Is sufficiently flexible to accommodate changes that may occur during execution. The quality plan and approach to managing risk is specifically tailored to the critical characteristics of the project.
	25	The most important issues are exceptionally approached in an innovative and efficient way. Approach paper details ways to improve the project outcomes and the quality of the outputs. Risks are identified and management and mitigation measures are discussed.
Total Max Points	25	Minimum points = 15

A minimum score of 15 is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

CRITERION 5: PROJECT TEAM COMPILATION

Documentation to be provided by Tenderer:

The following members of the Project team, as set out in returnable schedule A10: Details Of Experience Of Contract Director, Site Agent And General Foreman , are required to submit their CVs and certified copies of qualifications in the tender document in returnable schedule B4: Additional Functionality Documents:

- 5.1) Contract Director
- 5.2) Site Agent
- 5.3) General Foreman

Note that all personnel stated at tender stage can only be replaced on site with someone of equivalent or greater qualification and experience after approval from the Employer.

5.1) Contract Director

Scoring	Points	Contract Director
	0	1 year or less of relevant construction experience
	1	Between 2 to 4 years of relevant construction experience
Minimum	5	Between 5 to 7 years of relevant construction experience (1 point), NQF level 5 on LIC (1 point) and BEng Degree (Civil Engineer) or BTech Degree (Civil Technologist) (1 point)
	10	8 years or more of relevant construction experience (3 points), NQF level 5 on LIC (1 point) and BEng Degree (Civil Engineer) or BTech Degree (Civil Technologist) (1 point)
Total Max Points	10	Minimum points = 5

A minimum score of 5 for each project team member is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

5.2) Site Agent

Scoring	Points	Site Agent
	0	1 year or less of relevant construction experience
	1	Between 2 to 4 years of relevant construction experience
Minimum	5	Between 5 to 7 years of relevant construction experience (1 point), NQF level 5 on LIC (1 point) and National Diploma (Civil Technician) (1 point)
	10	8 years or more of relevant construction experience (3 points), NQF level 5 on LIC (1 point) and National Diploma (Civil Technician) (1 point)
Total Max Points	10	Minimum points = 5

A minimum score of 5 for each project team member is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

5.3) General Foreman

Scoring	Points	General Foreman
	0	1 year or less of relevant construction experience
	1	Between 2 to 4 years of relevant construction experience
Minimum	5	Between 5 to 7 years of relevant construction experience
	10	8 years or more of relevant construction experience
Total Max Points	10	Minimum points = 5

A minimum score of 5 for each project team member is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

PART B: RISK EVALUATION, SITE VISIT FOR VERIFICATION OF WORK EXPERIENCE (COMPLETED PROJECTS)

CRITERION 6: QUALITY

Documentation to be provided by Tenderer:

- a) The Completion Certificates submitted for consideration under Company Experience will be verified and evaluated through site visits and consultation with the Employers mentioned on the completion certificates for quality of work. The quality will be evaluated as follows:

Scoring	Points	Quality
	0	Completed infrastructure not in use due to unacceptable construction standards
	5	Completed infrastructure in use, but high maintenance costs due to unacceptable construction standards
Minimum	25	Completed infrastructure has met minimum quality requirements
	40	Completed infrastructure has met quality requirements, reducing maintenance costs
Total Max Points	40	Minimum points = 25

A minimum score of 25 is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

CRITERION 7: TIME FRAMES

Documentation to be provided by Tenderer:

- a) The Completion Certificates submitted for consideration under Company Experience will be verified and evaluated through site visits and consultation with the Employers mentioned on the completion certificates for timeframes required to complete the project. The timeframes will be evaluated as follows:

Scoring	Points	Time Frames
	0	Project completed 12 months or later than the permissible time period
	15	Project completed 5-11 months after the permissible time period
Minimum	30	Project completed 1-4 months after the permissible time period
	45	Project was completed within the permissible time period
	60	Project was completed before the permissible time period
Total Max Points	60	Minimum points = 30

A minimum score of 30 is required for the bid to be considered further. A less than minimum score will lead to an automatic rejection of the tender.

C.3.13 Acceptance of Tender Offer

A. Add the following:

Tender offers will only be accepted if:

- the tenderer has in his or her possession an original valid Tax Clearance Certificate issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations;
- the tenderer is registered with the CIDB with an appropriate category of registration;
- the tenderer or any of its directors 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;
- the tenderer has not:
 - abused the Employer's Supply Chain Management System; or
 - failed to pay municipal rates and taxes or service charges and such rates, taxes and charges are in arrears for more than three months;
 - failed to perform on any previous contract and has been given a written notice to this effect;
- 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.

Notification of Decision and Appeal Period

If the Supply Chain Management Tender Adjudication Committee has resolved that a tender be accepted, the successful and unsuccessful tenderers shall be notified in writing of this decision.

Section 62 of the Local Government Municipal Systems Act 2000 (No. 32 of 2000) gives any person whose rights have been affected by such a decision, the right to appeal such decision within 21 days of notification of the decision.

Any tenderer wishing to exercise this right, must submit their appeal in writing to Lusanda Dlamini / Project Manager,. The format of the appeal must:

- set out the reasons for the appeal;
- state in which way the appellant's rights have been affected by the decision;
- state the remedy sought, and
- be accompanied by a copy of the notification advising the tenderer of the decision of the Supply Chain Management Tender Adjudication Committee.

Tenderers are hereby informed also of their right to request reasons for the decision in terms of the Promotion of Administrative Justice Act (No. 3 of 2000).

The notification of the decision sent to the successful tenderer is **not** acceptance of the tender and no rights shall accrue to the successful tenderer in terms of this notification. The successful tenderer will be notified in writing after 21 days of the notification of any final decision (i.e. Acceptance) or of any developments with respect to the appeal process, and if applicable, procedures for the commencement of the work.

The consideration of appeals and if necessary, the invalidation of any decision made, shall be dealt with in terms of the appeals process.

C.3.17 Provide Copies of the Contracts

Add the following:

The number of paper copies of the signed contract to be provided by the employer is one.

T1.2.3 Additional Conditions of Tender

The additional conditions of tender are:

T.1.2.3.1 Compliance with Occupational Health and Safety Act 1993

Tenderers are to note the requirements of the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2014 issued in terms of Section 43 of the Act. The tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

Tenderers are to note that the Contractor is required to ensure that all sub-contractors or others engaged in the performance of the contract also comply with the above requirements.

The Contractor shall prepare and maintain a Health and Safety File in respect of the project, which shall be available for inspection on Site at all times and handed over to the Employer on Final Completion of the project. The Contractor's Health and Safety Agent must be SACPCMP accredited.

The Contractor is required to submit to the Employer the Occupational Health and Safety Agreement (included in C1.5 of the Contract Document) and a letter of good standing from the Compensation Commissioner, or a licensed compensation insurer, within 14 days after the Commencement Date of the contract.

T.1.2.3.2 Eligibility with Respect to Expanded Public Works Programme

This Contract does **NOT** qualify for consideration as an Expanded Public Works Programme project.

T.1.2.3.3 Claims Arising after Submission of Tender

No claim for any extras arising out of any doubt or obscurity as to the true intent and meaning of anything shown on the Contract Drawings or contained in the Conditions of Contract, Scope of Work and Pricing Data, will be admitted by the Employer/Employer's Agent after the submission of any tender and the Tenderer shall be deemed to have:

- 1) inspected the Contract Drawings and read and fully understood the Conditions of Contract.
- 2) read and fully understood the whole text of the Scope of Work and Pricing Data and thoroughly acquainted himself with the nature of the works proposed and generally of all matters which may influence the Contract.
- 3) visited the site of the proposed works, carefully examined existing conditions, the means of access to the site, the conditions under which the work is to be done, and acquainted himself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials and plant to and from the site and made the necessary provisions for any additional costs involved thereby.
- 4) requested the Employer or his duly authorised agent to make clear the actual requirements of anything shown on the Contract Drawings or anything contained in the Scope of Work and Pricing Data, the exact meaning or interpretation of which is not clearly intelligible to the Tenderer.

Before submission of any tender, the Tenderer should check the number of pages, and if any are found to be missing or duplicated, or the figures or writing indistinct, or if the Pricing Data contain any obvious errors, the tenderer must apply to the Employer/Employer's Agent at once to have the same rectified, as no liability will be admitted by the Employer/Employer's Agent in respect of errors in any tender due to the foregoing.

T.1.2.3.4 Imbalance in Tendered Rates

In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it because they are either excessively low or high or not in proper balance with other rates or lump sums, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.

The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the Contract Price.

Should the Tenderer fail to amend the Tender in a manner acceptable to the Employer, the Employer may reject the Tender.

T.1.2.3.5 Community Liaison Officer

A Community Liaison Officer (CLO) must be provided by the local authority, or as confirmed by the Employer.

T.1.2.3.6 Labour Intensive Construction/Use of Local Labour

Not Applicable, or as to be confirmed by the Employer.

T.1.2.3.7 Invalid Tenders

Tenders shall be considered invalid and shall be endorsed and recorded as such in the tender opening record, by the responsible official who opened the tender, in the following circumstances:

- a) if the tender offer is not submitted on the Form of Offer and Acceptance bound into this tender document (form C1.1 Form of Offer and Acceptance);
- b) if the tender is not completed in non-erasable ink;
- c) if the offer has not been signed;
- d) if the offer is signed, but the name of the tenderer is not stated or is indecipherable.

T.1.2.3.8 Negotiations with Preferred Tenderers

The Employer may negotiate the final terms of a contract with tenderers identified through a competitive tendering process as preferred tenderers provided that such negotiation:

- a) does not allow any preferred tenderer a second or unfair opportunity;
- b) is not to the detriment of any other tenderer; and
- c) does not lead to a higher price than the tender as submitted.

Minutes of any such negotiations shall be kept for record purposes.

T.1.2.3.9 General Supply Chain Management Conditions Applicable To Tenders

Any alterations to be clarified by Employer.

T.1.2.3.10 Combating Abuse of the Supply Chain Management Policy

Any alterations to be clarified by Employer.

T.1.2.3.11 UIF Payments

The Tenderer shall submit to the Employer a letter from the Department of Labour indicating his/her good standing with regard to UIF payments upon being requested to do so.

T.1.2.3.12 Registration with Bargaining Council

Tenderers must be registered with a relevant Bargaining Council (if such be in place) and provide the applicable Certificate of Compliance in terms of the relevant Government Gazette.

T.1.2.3.13 Price Variations

Refer to Clause 6.8.2 and Clause 6.8.3 of Contract Data to ascertain whether Contract Price adjustment will apply to this contract.

Part T2: Returnable Documents

		<u>Page</u>
T2.1	List Of Returnable Documents	31
T2.2T2.2	Returnable Schedules	33

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

T2.1 LIST OF RETURNABLE DOCUMENTS

The tenderer must complete and return documents A1 to A32; B1 to B4; C1.1 and C2 as listed below as part of his/her tender submission:

SCHEDULE	DESCRIPTION	PAGE
	Returnable documents required for tender evaluation purposes	
Schedule A	Documents incorporated in this tender document that must be completed and signed by all tenderers	
A1	Authority To Sign Documents	34
A2	Letter Of Good Standing With Workmen's Compensation Commissioner	35
A3	Clarification Meeting Certificate	36
A4	Certificate Of Authority For Joint Ventures (only if Tenderer is a JV)	37
A5	Schedule Of Work Experience Of Tenderer	38
A6	Current And Recent Projects For Department Of Water And Sanitation	40
A7	Schedule Of Construction Plant	41
A8	Schedule Of Estimated Monthly Expenditure	43
A9	Schedule Of Subcontractors	44
A10	Details Of Experience Of Contract Director, Site Agent And General Foreman	46
A11	Compulsory Enterprise Questionnaire	48
A12	Alterations/Amendments By Tenderer	50
A13	Adjudication Of Tenders On Points Basis	51
A14	Schedule Of Daywork Rates	53
A15	Record Of Addenda To Tender Documents	55
A16	Size Of Enterprise And Current Workload	56
A17	Staffing Profile	57
A18	Proposed Key Personnel	58
A19	Financial Ability To Execute The Project	60
A20	Joint Venture Disclosure Form	61
A21	Details Of Alternative Tenders Submitted	69
A22	Amendments And Qualifications By Tenderer	70
A23	Declaration Of Interest (Sbd 4)	71
A24	Declaration For Procurement Above R10 Million (Vat Included)	74
A25	Certificate Of Independent Tender Determination (Sbd 9)	76
A26	Form Concerning Fulfilment Of The Construction Regulations	79
A27	Tender Document	81
A28	General Information (Procurement)	86
A29	Specific Goals	89
A30	Declaration Certificate For Local Production And Content (Sbd 6.2)	92
A31	Preference Points Claim Form In Terms Of The Preferential Procurement Regulations 2017 (Sbd 6.1)	95
A32	TENDERER'S FINANCIAL STANDING	99
A1	TENDERER'S PRICING SCHEDULE	100
A34	BIDDER'S DISCLOSURE	101
Schedule B	Additional Documents to be provided by the Tenderer and attached to his/her tender	
B1	Cidb Contractor Registration Certificate	103

SCHEDULE	DESCRIPTION	PAGE
	Returnable documents required for tender evaluation purposes	
B2	Tax Clearance Certificate And Financial Statements	104
B3	Preliminary Programme	105
B4	Additional Functionality Documents Refer to Clause 4.3 of Government Gazette – 1 February 2008 for clarification on this issue	106
*	Joint Venture agreement (if applicable) - append to Schedule A4	
*	A Certificate of Contractor Registration issued by the Construction Industry Development Board - append to Schedule B1.	
*	[Where the contract is expected to exceed R10 million including VAT, further documents are required – append to Schedule B2]	
Schedule C	Other Documents that will form part of The Contract	
C1.1	Form Of Offer And Acceptance	108
C1.2	Contract Data	113
C1.3	Performance Guarantee	120
C1.4	Adjudication	124
C1.5	Occupational Health And Safety Agreement	125
C2	Pricing Data and Bill of Quantities	127
C3	Scope of Work	163
C4	Site Information	333

NB: TENDERERS MUST COMPLETE THESE DOCUMENTS / DATA SHEETS / FORMS IN BLACK INK

T2.2 RETURNABLE SCHEDULES

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A1. AUTHORITY TO SIGN DOCUMENTS

I/We*, the undersigned, am/are* duly authorised to sign the form of tender on behalf of

by virtue of the Articles of Association/Resolution of the Board of Directors*, of which a certified copy is attached, or

*Delete whichever is inapplicable

1.

--

NAME

--

SIGNATURE

--

DATE

2.

--

NAME

--

SIGNATURE

--

DATE

WITNESSES:

1.

--

NAME

--

SIGNATURE

--

DATE

2.

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A2. LETTER OF GOOD STANDING WITH WORKMEN'S COMPENSATION COMMISSIONER

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY
MAIN TO PUMP STATION 2

A3. CLARIFICATION MEETING CERTIFICATE

This is to certify that I/We*

of (tenderer)

.....

of (address)

.....

.....

Telephone number

Fax number

Email

on (date)

have examined the Site of the Works and its surroundings for which I/we* am/are* submitting this Tender and have, so far as is practicable, familiarised myself/ourselves* with all information, risks, contingencies and other circumstances which may influence or affect my/our* tender.

*Delete whichever is inapplicable

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION
CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY
MAIN TO PUMP STATION 2

A4. CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This Returnable Schedule is to be completed only if Tenderer is a joint venture.

We, the undersigned, are submitting this tender offer in joint venture and hereby authorise

Mr/Ms, authorised signatory of the company, close corporation or partnership.....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:

A copy of the Joint Venture Agreement showing clearly the percentage contribution of each partner to the Joint Venture shall be appended to this Schedule.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A5. SCHEDULE OF WORK EXPERIENCE OF TENDERER

Tenderers shall insert in the Schedule hereunder details of work successfully carried out by them of a similar nature to that for which their tender is submitted. Failure to complete this Schedule will be taken to indicate that the Tenderer has no experience in this class of work.

COMPLETED CONTRACTS				
Employer (Name, Tel, Fax, Email)	Consulting Engineer (Name, Tel, Fax, Email)	Nature Of Work	Value of Work R(M)	Date Completed
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

CURRENT CONTRACTS				
Employer (Name, Tel, Fax, Email)	Consulting Engineer (Name, Tel, Fax, Email)	Nature Of Work	Value of Work R(M)	Anticipated Completion Date
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				
Name:				
Tel :				
Fax :				
Email :				

If there is insufficient space above, the tenderer may append additional sheets.

Number of additional sheets appended by the tenderer to this Schedule (If nil, enter NIL)

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A6. CURRENT AND RECENT PROJECTS FOR DEPARTMENT OF WATER AND SANITATION

Tenderers must furnish hereunder details of current and recent projects completed/in the process of being completed for the Department of Water and Sanitation. The information shall include a description of the Works, the Contract value and name of Employer.

CURRENT PROJECTS			
PROJECT NAME	AWARDED AMOUNT	CONTRACT START DATE	ANTICIPATED / ACTUAL COMPLETION DATE
TOTAL AMOUNT OF PROJECTS CURRENTLY UNDERTAKEN FOR DEPARTMENT OF WATER AND SANITATION			R

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Tenderers shall state below what construction plant will be available for this Contract. The tenderer shall differentiate, if applicable, between construction plant immediately available and construction plant which will become available by virtue of outstanding orders, and indicate what further construction plant will be acquired or hired for the work should the tenderer be awarded the Contract.

[illegible]

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A8. SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE

The tenderer shall state his estimated expenditure indicating the values of each monthly claim in terms of Clause 6.10 of the General Conditions of Contract, which he/she estimates will arise based on his/her preliminary programme and tendered rates, in the table below. ***The total of the monthly amounts shall be equal to the tender sum.***

MONTH	VALUE
1	R
2	R
3	R
4	R
5	R
6	R
7	R
8	R
9	R
10	R
11	R
12	R
SUBTOTAL	R
CONTINGENCIES (10%)	R
SUBTOTAL	R
VAT (15%)	R
TOTAL (INCLUDING VAT @ 15%)	R

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A9. SCHEDULE OF SUBCONTRACTORS

The tenderer shall provide a list of Subcontractors which the tenderer intends to employ for work in this contract.

SUBCONTRACTORS							
Category/type of work to be used for	Subcontractor Name/Address/Contact Person/Phone/Fax/Details of Organisation/Firm/ Experience	Items of work (pay items) to be undertaken by the Subcontractor	Estimated Cost of Work (Rand)	a % of contract	b % HDI ownership	c=a x b/100 Total contribution to HDI ownership	Female ownership Yes / No

SUBCONTRACTORS							
Category/type of work to be used for	Subcontractor Name/Address/Contact Person/Phone/Fax/Details of Organisation/Firm/ Experience	Items of work (pay items) to be undertaken by the Subcontractor	Estimated Cost of Work (Rand)	a % of contract	b % HDI ownership	c=a x b/100 Total contribution to HDI ownership	Female ownership Yes / No
TOTAL (Excluding VAT)							

If there is insufficient space above, the tenderer may append additional sheets.

Number of additional sheets appended by the tenderer to this Schedule (If nil, enter NIL)

Acceptance of this tender shall not be construed as approval of all or any of the listed subcontractors. Should any of the subcontractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate this tender, and the tendered unit rates for the various items of work shall remain final and binding, even in the event of a subcontractor not listed above being approved by the Employer's Agent.

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A10. DETAILS OF EXPERIENCE OF CONTRACT DIRECTOR, SITE AGENT AND GENERAL FOREMAN

Tenderers shall set out in the Schedule hereunder details of the experience of the Contract Director, Site Agent and General Foreman in work of a similar nature to that for which this Tender is submitted.

Failure to complete this Schedule may result in the Tender not being considered.

CONTRACT DIRECTOR				
NAME			NQF LEVEL	
Contract and Employer	Nature Of Work	Position Held	Value Of Work	Year Completed

SITE AGENT				
NAME			NQF LEVEL	
Contract and Employer	Nature Of Work	Position Held	Value Of Work	Year Completed

GENERAL FOREMAN				
NAME			NQF LEVEL	
Contract and Employer	Nature Of Work	Position Held	Value Of Work	Year Completed

If there is insufficient space above, the tenderer may append additional sheets.

Number of additional sheets appended by the tenderer to this Schedule (If nil, enter NIL)

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A11. 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

Address of enterprise

Section 2: VAT registration number, if any

Section 3: CIDB registration number, if any

Section 4: CSD Number:

Section 5: 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 6: Particulars of companies and close corporations

Company registration number

Close corporation number

Tax reference number

Section 7: SBD4 issued by National Treasury must be completed for each tender and be attached as a tender requirement.

Section 8: SBD6 issued by National Treasury must be completed for each tender and be attached as a tender requirement.

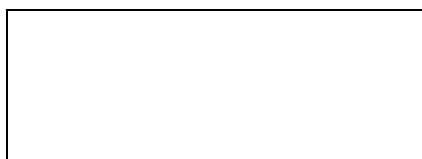
Section 9: SBD8 issued by National Treasury must be completed for each tender and be attached as a tender requirement.

Section 10: SBD9 issued by National Treasury must be completed for each tender and be attached as a tender requirement.

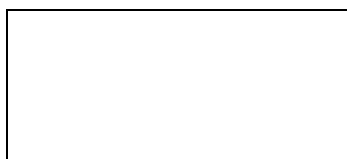
The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:

- i) authorises the Employer to obtain a tax clearance certificate from the South African Revenue Services that it is in order;
- ii) confirms that neither the name of the enterprise nor 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, 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;
- 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.

SIGNED:



ENTERPRISE NAME



DATE



NAME



POSITION



SIGNATURE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A12. ALTERATIONS/AMENDMENTS BY TENDERER

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

The Tenderer's attention is drawn to Clause C.3.8 on page 14 of the Standard Conditions of Tender, referenced on page 21 in the Tender Data, regarding the Employer's handling of material deviations and qualifications.

If no deviations or modifications are desired, the Schedule hereunder is to be marked NIL and signed by the Tenderer.

No alternative Tender will be considered unless a Tender free of qualifications and strictly on the basis of the Tender Documents is also submitted.

PAGE/ITEM	CLAUSE/DESCRIPTION

If there is insufficient space above, the tenderer may append additional sheets.

Number of additional sheets appended by the tenderer to this Schedule (If nil, enter NIL)

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A13. ADJUDICATION OF TENDERS ON POINTS BASIS

Information provided should be as comprehensive as possible as the Tenderer's approach to this subject will be an important criterion in the tender adjudication process. Failure to provide the information could prejudice a tender.

Responsive tenders will be adjudicated on the following basis (see Amended CIDB Conditions of Tender):

Responsive tenders will be evaluated in terms of the Supply Chain Management policy of the Department of Water and Sanitation. The Tender Committees, Tender Evaluation Committee, Tender Adjudication and Accounting Officer will work on the evaluation of the tender. The lowest tender will not necessarily be accepted and the right to accept the whole or part of any tender or not to consider any tender not suitably endorsed is fully reserved by the Department of Water and Sanitation.

The Tender shall be scored on a 80/20 point system where 80 will be for the price and 20 points is in terms of B-BBEE status level of contributor.

The Tender obtaining the highest amount of points will be awarded the Contract unless extenuating circumstances dictate otherwise. Points scored will be rounded off to one decimal place.

In the event of equal points scored, the Tender will be awarded to the Tenderer scoring the highest points for B-BBEE Status.

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS

1. GENERAL CONDITIONS

The following preference point systems are applicable to all tenders:

- the 80/20 system for requirements with a Rand value of up to R50,000,000; and
- the 90/10 system for requirements with a Rand value above R50,000,000.

The value of this tender is estimated not to exceed R50,000,000 and therefore the 80/20 system shall be applicable.

Preference points for this tender shall be awarded for B-BBEE Status verified by an accredited assessor.

THE POINTS FOR THIS TENDER ARE ALLOCATED AS FOLLOWS:

	BREAKDOWN	WEIGHT
1.	Price	80
2.	Preference	20
	Total	100

The points awarded for Preference are based on the B-BBEE status level of contributor is as follows:

B-BBEE status level of contributor	Number of points
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

The tenderer shall attach a copy of his B-BBEE certificate to this page as proof of his status level.

Failure on the part of a tenderer to fill in and/or to sign this form may be interpreted to mean that preference points are not claimed.

The Employer 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 Employer.

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

WITNESS 1:

--

NAME

--

SIGNATURE

--

DATE

WITNESS 2:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A14. SCHEDULE OF DAYWORK RATES

This Day work Schedule will be used at the discretion of the Employer's Agent for valuation of extra work which cannot conveniently be valued at rates submitted in the Bill of Quantities. All price rates shall be exclusive of VAT.

The rates entered for labour and materials shall be exclusive of overhead charges and profit, site supervision of staff, insurance, holidays with pay and use and maintenance of small hand tools and non-mechanical plant, travelling allowances, other emoluments and allowances. Provision will be made for the insertion of percentages to cover all these items which are henceforth termed "on-costs", consumable stores, maintenance, etc.

In the case of plant no "on-costs" item is provided. The rate entered shall include any of the above "on-costs" which are pertinent and shall include profit, operator's costs, consumable stores, maintenance, depreciation, etc.

Failure to complete this Schedule may result in the Tender not being considered.

A. LABOUR

Normal Working Time:

1	Labourers	R.....	per hour plus	..... %	"On-Cost"
2	Gangers	R.....	per hour plus	..... %	"On-Cost"
3	Tradesmen	R.....	per hour plus	..... %	"On-Cost"
4	Other				
	(a).....	R.....	per hour plus	..... %	"On-Cost"
	(b).....	R.....	per hour plus	..... %	"On-Cost"
				

Overtime

1	Labourers	R.....	per hour plus	..... %	"On-Cost"
2	Gangers	R.....	per hour plus	..... %	"On-Cost"
3	Tradesmen	R.....	per hour plus	..... %	"On-Cost"
4	Other				
	(a).....	R.....	per hour plus	..... %	"On-Cost"
	(b).....	R.....	per hour plus	..... %	"On-Cost"
				

B. PLANT

DESCRIPTION	TYPE	ESTABLISHMENT AND DISESTABLISHMENT COST	RATE PER HOUR	
			WORKING	STANDING
Trucks and ADTs				
Bulldozers				
Excavators				
Tractor & Trailer				
Loaders				
Graders				
Tractor – Loader – Backhoe				
Water Pumps and Leadings				
Compressor including Hammers and Hoses				
Other				

C. MATERIAL

The Tenderer shall state here the percentage “On-costs” that should be added to the net cost of materials:

..... %

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A15. RECORD OF ADDENDA TO TENDER DOCUMENTS

The undersigned 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:

No.	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		

If there is insufficient space above, the tenderer may append additional sheets.

Number of additional sheets appended by the tenderer to this Schedule (If nil, enter NIL)

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A16. SIZE OF ENTERPRISE AND CURRENT WORKLOAD

What was your turnover in the previous financial year? R

What is the estimated turnover for your current financial year? R

Physical facilities:

Provide information on offices, factories, yards and warehouses occupied by your enterprise (attach details if the space provided is not enough)

Description	Address	Area (m²)

List your current contracts and obligations:

Description	Value (R)	Start date	Duration	Expected completed date

Do you have the capacity to supply the goods and services described in this tender, should the contract be awarded to you?

Yes ☐ No ☐

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A17. STAFFING PROFILE

Provide information on the staff that you have available to execute this contract (attach a separate list if the space provided is insufficient)

Own staff: gender and race	Number of staff

Staff to be employed for the project: gender and race	Number of staff

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A18. PROPOSED KEY PERSONNEL

The Tenderer shall list below the key personnel (including first nominee and the second choice alternate), whom he proposes to employ on the project should his Tender be accepted, both at his headquarters and on the Site, to direct and for the execution of the work, together with their qualifications, experience, positions held and their nationalities.

DESIGNATION	NAME OF	NATIONALITY	SUMMARY OF		HDI Status	NQF 7 Certified
	(i) NOMINEE (ii) ALTERNATE		QUALIFICATIONS	EXPERIENCE AND PRESENT OCCUPATION	Yes/No	Yes/No
<u>Headquarters</u> Partner/ Contract Director						
Project Manager						
<u>Construction Monitoring</u> Site Agent						
<u>Civil and Concrete</u> General foremen						

DESIGNATION	NAME OF	NATIONALITY	SUMMARY OF		HDI Status Yes/No	NQF 7 Certified Yes/No
	(i) NOMINEE (ii) ALTERNATE		QUALIFICATIONS	EXPERIENCE AND PRESENT OCCUPATION		
Site Engineer						
Construction Supervisor (give designation)						
Other key staff (give designation)						

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A19. FINANCIAL ABILITY TO EXECUTE THE PROJECT

Provide details on the surety you will provide if the tender is awarded to you

AMOUNT

Which of the following institutions will provide surety?

- Bank registered in terms of the Bank Act 1990 (Act 94 of 1990) and Bank Rating:
- Insurance Company registered in terms of the Short Term Insurance Act 1998 (Act 53 of 1998):
- Cash:

Provide the estimated cash flow on the project in terms of submissions of payment certificates or payment schedules to the Employer

Month no	Amount (VAT included)			
	a Received	b Payments made	a – b Net cash flow	Cumulative cash flow
1			d	j=d
2			e	j+e=k
3			f	k+f=l
4			g	l+g=m
5			h	m+h=n
6			Etc.	Etc.
7				
8				
9				
10				
11				
12				
Maximum negative cash flow: Take the largest negative number in the last column and write it in here →				

Notes:

- Value added tax to be included in all amounts
- Assume payment of certificates within 30 days of approval of certificate

From what sources will you fund the above amount (e.g. Funds internally available, bank overdraft, loan, etc.)

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A20. JOINT VENTURE DISCLOSURE FORM

GENERAL

- i) All the information requested must be filled in the spaces provided. If additional space is required, additional sheets may be used and attached to the original documents.
- ii) A copy of the joint venture agreement must be attached to this form, in order to demonstrate the Affirmable, Joint Venture Partner's share in the ownership, control, management responsibilities, risks and profits of the joint venture, the proposed joint venture agreement must include specific details relating to:
 - a. the contributions of capital and equipment
 - b. work items to be performed by the Affirmable Joint Venture Partner's own forces
 - c. work items to be performed under the supervision of the Affirmable Joint Venture Partner.
- iii) Copies of all written agreements between partners concerning the contract must be attached to this form including those, which relate to ownership options and to restrictions/limits regarding ownership and control.
- iv) ABE partners must complete ABE Declaration Affidavits.
- v) The joint venture must be formalised. All pages of the joint venture agreement must be signed by all the parties concerned. A letter/ notice of intention to formalise a joint venture once the contract has been awarded will not be considered.
- vi) Should any of the above not be complied with, the joint venture will be deemed null and void and will be considered non-responsive.

1. JOINT VENTURE PARTICULARS

- a) Name.....
- b) Postal address.....
.....
.....
- c) Physical address
.....
.....
- d) Telephone.....
- e) Fax

2. IDENTITY OF EACH NON-AFFIRMABLE JOINT VENTURE PARTNER

- 2.1(a) Name of Firm
- Postal Address.....
- Physical Address
- Telephone.....
- Fax.....

Contact person for matters pertaining to Joint Venture Participation Goal requirements:

.....

2.2(a) Name of Firm

Postal Address.....

Physical Address

Telephone

Fax.....

Contact person for matters pertaining to Joint Venture Participation Goal requirements:

.....

(Continue as required for further non-Affirmable Joint Venture Partners)

3. IDENTITY OF EACH AFFIRMABLE JOINT VENTURE PARTNER

3.1(a) Name of Firm

Postal Address.....

Physical Address

Telephone

Fax.....

Contact person for matters pertaining to Joint Venture Participation Goal requirements:

.....

3.2(a) Name of Firm

Postal Address.....

Physical Address

Telephone

Fax.....

Contact person for matters pertaining to Joint Venture Participation Goal requirements:

.....

3.3(a) Name of Firm

Postal Address.....

Physical Address

Telephone

Fax.....

Contact person for matters pertaining to Joint Venture Participation Goal requirements:

.....

4. **BRIEF DESCRIPTION OF THE ROLES OF THE AFFIRMABLE JOINT VENTURE PARTNERS IN THE JOINT VENTURE**

.....

.....

.....

5. **OWNERSHIP OF THE JOINT VENTURE**

- a) Affirmable Joint Venture Partner ownership percentage(s)%
- b) Non-Affirmable Joint Venture Partner ownership percentage(s)%
- c) Affirmable Joint Venture Partner percentages in respect of: *
- i) Profit and loss sharing
- ii) Initial capital contribution in Rands

(*Brief descriptions and further particulars should be provided to clarify percentages).

- iii) Anticipated on-going capital contributions in Rands
- iv) Contributions of equipment (specify types, quality, and quantities of equipment) to be provided by each partner.

.....

.....

.....

6. **RECENT CONTRACTS EXECUTED BY PARTNERS IN THEIR OWN RIGHT AS PRIME CONTRACTORS OR AS PARTNERS IN OTHER JOINT VENTURES**

	NON-AFFIRMABLE JOINT VENTURE PARTNERS	PARTNER NAME
a)		
b)		
c)		
d)		
e)		

	AFFIRMABLE JOINT VENTURE PARTNERS	PARTNER NAME
a)		
b)		
c)		
d)		
e)		

7. CONTROL AND PARTICIPATION IN THE JOINT VENTURE

(Identify by name and firm those individuals who are, or will be, responsible for, and have authority to engage in the relevant management functions and policy and decision making, indicating any limitations in their authority e.g. co-signature requirements and Rand limits).

- a) Joint Venture cheque signing

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

- b) Authority to enter into contracts on behalf of the Joint Venture

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

- c) Signing, co-signing and/or collateralising of loans

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

- d) Acquisition of lines of credit

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

- e) Acquisition of performance bonds

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

- f) Negotiating and signing labour agreements

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

8. MANAGEMENT OF CONTRACT PERFORMANCE

(Fill in the name and firm of the responsible person).

- a) Supervision of field operations

.....

- b) Major purchasing

.....

- c) Estimating

.....

- d) Technical management

.....

9. MANAGEMENT AND CONTROL OF JOINT VENTURE

- a) Identify the “managing partner”, if any,

.....

.....

.....

.....

- b) What authority does each partner have to commit or obligate the other to financial institutions, insurance companies, suppliers, subcontractors and/or other parties participating in the execution of the contemplated works?

.....

.....

.....

.....

- c) Describe the management structure for the Joint Venture’s work under the contract

MANAGEMENT FUNCTION / DESIGNATION	NAME	PARTNER*

(Fill in “ex Affirmable Joint Venture Partner” or “ex non-Affirmable Joint Venture Partner”.

10. **PERSONNEL**

- a) State the approximate number of operative personnel (by trade/function/discipline) needed to perform the Joint Venture work under the Contract.

TRADE/FUNCTION/ DISCIPLINE	NUMBER EX AFFIRMABLE JOINT VENTURE PARTNERS	NUMBER EX NON- AFFIRMABLE JOINT VENTURE PARTNERS

- b) Number of operative personnel to be employed on the Contract who are currently in the employ of partners.

- (i) Number currently employed by Affirmable Joint Venture Partners

.....

- (ii) Number currently employed by the Joint Venture

.....

- c) Number of operative personnel who are not currently in the employ of the respective partner and will be engaged on the project by the Joint Venture

.....

- d) Name of individual(s) who will be responsible for hiring Joint Venture employees

.....

.....

- e) Name of partner who will be responsible for the preparation of Joint Venture payrolls

.....

.....

11. **CONTROL AND STRUCTURE OF THE JOINT VENTURE**

Briefly describe the manner in which the Joint Venture is structured and controlled.

.....

.....

.....

.....

The undersigned warrants that he/she is duly authorised to sign this Joint Venture Disclosure Form and affirms that the foregoing statements are true and correct and include all material information necessary to identify and explain the terms and operations of the Joint Venture and the intended participation of each partner in the undertaking.

The undersigned further covenants and agrees to provide the Employer with complete and accurate information regarding actual Joint Venture work and the payment therefore, and any proposed changes in any provisions of the Joint Venture agreement, and to permit the audit and examination of the books, records and files of the Joint Venture, or those of each partner relevant to the Joint Venture, by duly authorised representatives of the Employer.

Signature

Duly authorised to sign on behalf of.....

Name

Address

Telephone.....

Date

Signature

Duly authorised to sign on behalf of.....

Name

Address

Telephone.....

Date

Signature

Duly authorised to sign on behalf of.....

Name

Address

Telephone.....

Date

Signature

Duly authorised to sign on behalf of.....

Name

Address

Telephone.....

Date

(Continue as necessary)

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A21. DETAILS OF ALTERNATIVE TENDERS SUBMITTED

DESCRIPTION

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A22. AMENDMENTS AND QUALIFICATIONS BY TENDERER

PAGE	DESCRIPTION

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A23. DECLARATION OF INTEREST (SBD 4)

1. Any legal person, including persons employed by the state¹, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to tender (includes an advertised competitive tender, a limited tender, a proposal or written price quotation). In view of possible allegations of favouritism, should the resulting tender, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the Tenderer or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

- the Tenderer is employed by the state; and/or
- the legal person on whose behalf the tendering document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the tender(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the tender.

2. **In order to give effect to the above, the following questionnaire must be completed and submitted with the tender.**

2.1. Full Name of Tenderer or his or her representative:

2.2. Identity Number:

2.3. Position occupied in the Company (director, trustee, shareholder², member):

2.4. Registration number of company, enterprise, close corporation, partnership agreement or trust:

2.5. Tax Reference Number:

2.6. VAT Registration Number:

2.6.1. The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / PERSAL numbers must be indicated in paragraph 3 below.

¹"State" means –

- (a) 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);
- (b) any municipality or municipal entity;
- (c) provincial legislature;
- (d) national Assembly or the national Council of provinces; or
- (e) Parliament.

²"Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

2.7. Are you or any person connected with the Tenderer presently employed by the state? **YES / NO**

2.7.1. If so, furnish the following particulars:

Name of person / director / trustee / shareholder/ member:

Name of state institution at which you or the person connected to the Tenderer is employed:

Position occupied in the state institution:

Any other particulars:.....

.....

.....

.....

2.7.2. If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? **YES / NO**

2.7.2.1. If yes, did you attach proof of such authority to the tender document? **YES / NO**

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the tender.

2.7.2.2. If no, furnish reasons for non-submission of such proof:

.....

.....

.....

2.8. Did you or your spouse, or any of the company's directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? **YES / NO**

2.8.1. If so, furnish particulars:

.....

.....

.....

2.9. Do you, or any person connected with the Tenderer, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this tender? **YES / NO**

2.9.1. If so, furnish particulars:

.....

.....

.....

2.10. Are you, or any person connected with the Tenderer, aware of any relationship (family, friend, other) between any other Tenderer and any person employed by the state who may be involved with the evaluation and or adjudication of this tender? **YES/NO**

2.10.1. If so, furnish particulars:

.....

.....

.....

2.11. Do you or any of the directors / trustees / shareholders / members of the company have any interest in any other related companies whether or not they are tendering for this contract? **YES/NO**

2.11.1. If so, furnish particulars:

.....

.....

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

Full Name	Identity Number	Personal Income Tax Reference Number	State Employee Number / Persal Number

4. DECLARATION

I, THE UNDERSIGNED (NAME)

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE TENDER OR ACT AGAINST ME SHOULD THIS
DECLARATION PROVE TO BE FALSE.

POSITION

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A24. DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (VAT INCLUDED)

TENDERERS 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.

.....
.....

1.2. If no, un-audited financial statements must be submitted with your tender.

.....
.....

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

2.1. If no, this serves to certify that the Tenderer 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.

.....
.....

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.

POSITION

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A25. CERTIFICATE OF INDEPENDENT TENDER DETERMINATION (SBD 9)

1. This Standard Tender Document must form part of all tenders¹ 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 tendering (or tender rigging).² Collusive tendering is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
 - a. disregard the tender of any tenderer if that tenderer, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.
 - b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the tendering process or the execution of that contract.
4. This SBD serves as a certificate of declaration that would be used by institutions to ensure that, when tenders are considered, reasonable steps are taken to prevent any form of tender-rigging.
5. In order to give effect to the above, the attached Certificate of Tender Determination (SBD 9) must be completed and submitted with the tender:

¹ Includes price quotations, advertised competitive tenders, 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 tendering process. Tender rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying tender:

(Tender Number and Description)

in response to the invitation for the tender made by:

(Name of Institution)

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 Tenderer)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the Tenderer to sign this Certificate, and to submit the accompanying tender, on behalf of the Tenderer;
4. Each person whose signature appears on the accompanying tender has been authorized by the Tenderer to determine the terms of, and to sign the tender, on behalf of the Tenderer;
5. For the purposes of this Certificate and the accompanying tender, I understand that the word "competitor" shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:
 - (a) has been requested to submit a tender in response to this tender invitation;
 - (b) could potentially submit a tender in response to this tender invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the Tenderer and/or is in the same line of business as the Tenderer
6. The Tenderer has arrived at the accompanying tender 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 tendering.
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 tender;
 - (e) the submission of a tender which does not meet the specifications and conditions of the tender; or
 - (f) tendering with the intention not to win the tender.
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 tender invitation relates.
9. The terms of the accompanying tender have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract.

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.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders 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

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A26. FORM CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS 2014

In terms of regulation 5(h) of the Construction Regulations, 2014 (hereinafter referred to as the Regulations), promulgated on 07 February 2014 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) the Employer shall not appoint a contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

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

YES	
NO	

- Proposed approach to achieve compliance with the Regulations
(Tick)

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

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

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

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

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

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

.....

.....

.....

.....

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

(Tick)

YES	
NO	

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A27. TENDER DOCUMENT

2.3.3 CONDITIONS PERTAINING TO TARGETED PROCUREMENT

THE FOLLOWING IS AN EXTRACT FROM THE SUPPLY CHAIN MANAGEMENT POLICY AND STRATEGY TERMS OF THE PREFERENCE DOCUMENT

2.3.3.1 PREAMBLE

The DEPARTMENT OF WATER AND SANITATION (DWS) aims to improve the quality of life of all citizens and to free the potential of each person. Within a framework of facilitating service delivery, through efficient and effective governance, the DWS wishes to take into account the need for transparent and effective procurement procedures that give effect to the principle of preferential procurement.

2.3.3.2 DEFINITIONS

In this policy, unless the context otherwise indicates:

2.3.3.2.1 **“Acceptable tender”** means any tender which, in all respects, complies with the conditions of tender and specifications as set out in the tender document, including conditions as specified in the Procurement Policy and Strategy Terms of Reference Act (Act 5 of 2000) and related legislation.

2.3.3.2.2 **“Chairperson”** means the chairperson of the Tender Committee.

2.3.3.2.4 **“Committee”** refers to the Tender Committee.

2.3.3.2.5 **“Contractor”** refers to Tenderers who have been successful in being awarded contracts.

2.3.3.2.6 **“DWS”** refers to the **DEPARTMENT OF WATER AND SANITATION**.

2.3.3.2.7 **“Equity ownership”** refers to the percentage ownership and control, exercised by individuals within an enterprise.

2.3.3.2.8 **“HDI equity ownership”** refers to the percentage of an enterprise, which is owned by individuals, or in the case of a company, the percentage shares that are owned by individuals meeting the requirements of the definition of an HDI.

2.3.3.2.9 **“Member”** means a member of the Tender Committee.

2.3.3.2.10 **“Historically disadvantaged individuals (HDIs)”** means all South African citizens –

- (i) Who, due to the apartheid policy that had been in place, had no franchise in national elections prior to the introduction of the Constitution of the Republic of South Africa, 1983 (Act No 110 of 1983) or the Constitution of the Republic of South Africa, 1993 (Act No 200 of 1993) (“the Interim Constitution”); and / or
- (ii) Who is a female; and / or
- (iii) Who has a disability?

Provided that a person who obtained South African citizenship on or after the coming to effect of the Interim Constitution, is deemed not to be an HDI. “

2.3.3.2.11 **“SMMEs”** (Small, Medium and Micro Enterprises) refers to separate and distinct business entities, including co-operative enterprises and NGOs, managed by one owner or more, as defined in the National Small Business (Act 102 of 1996). Please note the attached addendum for a definition of SMMEs for different economic sectors (Clause 2.3.3.14).

2.3.3.2.13 **“Contract”** refers to a legally binding agreement between the DWS and the Contractor.

2.3.3.3 LEGISLATIVE BASE

This policy is governed by the following legislation and informed by the following policy frameworks:

- Constitution of South Africa (Act 108 of 1996)

- Local Governmental Structures Act (Act 117 of 1998)
- Local Government Systems Act (Act 32 of 2000)
- Local Government Transition Act (Act 209 of 1993), if applicable.
- Preferential Procurement Policy Framework Act (Act 5 of 2000)
- Rationalisation of Local Government Affairs Act (Act 10 of 1998)
- Green Paper on Public Sector Procurement Reform in South Africa
- Ten Point Plan for Public Sector Procurement Reform in South Africa.
- Broad Based Black Economic Empowerment Act (Act No. 53 of 2003)
- Municipal Finance Management Act (Act No. 56 of 2003).

2.3.3.4 SCOPE

This policy applies to all contracts awarded by the DWS.

2.3.3.5 PURPOSE

The purpose of the policy is to provide a framework within which effect can be given to the principle of preferential procurement, while ensuring that transparent, efficient and effective procurement practices are adhered to.

2.3.3.6 OBJECTIVES

The objectives of the DWS's procurement policy are to:

- 2.3.3.6.1 Provide clarity on the DWS's approach to procurement, particularly with regards to the requirements of preferential procurement.
- 2.3.3.6.2 Provide access to contracts for historically disadvantaged individuals.
- 2.3.3.6.3 Promote SMME participation.
- 2.3.3.6.4 Promote capacity development and skills transfer.
- 2.3.3.6.5 Promote community empowerment and development.
- 2.3.3.6.6 Promote job creation.
- 2.3.3.6.7 Create an enabling contractual environment.

2.3.3.7 GENERAL PRINCIPLES GOVERNING THE DWS IN ITS INTERACTION WITH TENDERERS

In dealing with Tenderers tendering for DWS work, the DWS will adhere to the principles of:

2.3.3.7.1 Efficiency

- 2.3.3.7.1.1 The DWS undertakes to administer the procurement process in the most efficient manner possible, avoiding time delays and duplication of activities.
- 2.3.3.7.1.2 Where such delays are unavoidable, the DWS undertakes to inform all Tenderers of the nature of the delay and the revised time frames.

2.3.3.7.2 Courtesy

All staff members of the DWS will deal with Tenderers in a courteous and respectful manner.

2.3.3.7.3 Transparency

- 2.3.3.7.3.1 All tendering processes will be open to the scrutiny of the public and interested parties.
- 2.3.3.7.3.2 The DWS will take all reasonable steps to ensure that its processes are clearly defined and understandable to all interested parties.

2.3.3.7.4 Access to Information

The DWS will take reasonable steps to ensure that all Tenderers have equal access to information on the product or service to be tendering, as well as the tender process itself.

2.3.3.8 ADJUDICATION OF TENDERS

Tenders are adjudicated in terms of Department of Water and Sanitation's SCM Policy, and the following framework is provided as a guideline in this regard.

2.3.3.8.1. Technical adjudication and General Criteria

Tenders will be adjudicated in terms of inter alia:

- Compliance with tender conditions
- Technical specifications

If the tender does not comply with the tender conditions and technical specifications, the tender shall be rejected. Refer to page two (2) for examples.

2.3.3.8.2 Infrastructure and resources available

Evaluation of the following in terms of the size, nature and complexity of goods and/or services required:

- Physical facilities
- Plant and equipment available for the contract owned by the Tenderer
- Plant and equipment the Tenderer intends renting, should the contract be awarded to him.

2.3.3.8.3 Size of enterprise, and current workload

Evaluation of the Tenderer's position in terms of:

- Previous and expected current annual turnover
- Current contractual obligations
- Capacity to execute the contract

2.3.3.8.4 Staffing profile

Evaluation of the Tenderer's position in terms of:

- Staff available for this contract being tendered for
- Qualifications and experience of key staff to be utilised on this contract.

2.3.3.8.5. Previous experience

Evaluation of the Tenderer's position in terms of his previous experience. Emphasis will be placed on the following:

- Experience in the relevant technical field
- Experience of contracts of similar size
- Some or all of the references will be contacted to obtain their input.

2.3.3.8.6 Financial ability to execute the contract

Evaluation of the Tenderer's financial ability to execute the contract. Emphasis will be placed on the following:

- Surety proposed
- Estimate cash flow
- Contact the tender's bank manager to assess the Tenderer's financial ability to execute the contract and the Tenderer hereby grants his consent for this purpose.

2.3.3.9 ADJUDICATION USING A POINTS SYSTEM

2.3.3.9.1 The Tenderer obtaining the highest number of total points will be awarded the contract.

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

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

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

2.3.3.9.5 However, when functionality is part of the evaluation process and two or more tenders have scored equal points including equal preference points for B-BBEE, the successful tender must be the one scoring the highest score for functionality.

2.3.3.9.6 Should two or more tenders be equal in all respects, the award shall be decided by the drawing of lots.

2.3.3.10. POINTS AWARDED FOR PRICE

2.3.3.10.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 or 90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{\min} = Price of lowest acceptable tender

Points awarded for B-BBEE Status Level of Contribution

In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a Tenderer for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

2.3.3.11 COMPLAINTS/DISQUALIFICATIONS

Should any issues of concern with regard to the procurement process arise, the following steps will apply:

2.3.3.11.1 A tender will be subject to rejection/disqualification when:

2.3.3.11.1.1 A supplier provided false information.

2.3.3.11.1.2 Under pressure or influence was exerted on a person involved in evaluating a tender.

2.3.3.11.1.3 A financial reward was provided to a person involved in evaluating a tender.

2.3.3.11.1.4 A person involved in evaluating a tender has a material interest in the outcome of the application, and has not declared such interest, or has not recused him/herself from the evaluation process of such a tender.

2.3.3.11.2 In such cases the following steps should be taken:

2.3.3.11.2.1 The DWS will investigate the matter and make recommendations to the Tender Committee.

2.3.3.11.2.2 The Tender Committee will decide or make recommendations to DWS, for a resolution on the matter.

2.3.3.11.2.3 A written notice will be sent to the Tenderer or service provider requiring him/her to make a representation to the Tender Committee on how the issues of concern will be addressed, within 14 days of receiving the notice, subject to it being an issue which can in fact be addressed.

2.3.3.11.2.4 The Tender Committee will consider the representation and if they are not satisfied that the issues of concern have been addressed will:

- Disqualify the tender
- Recover any losses or damages suffered by DWS due to the failure to comply.
- Bar the Tenderer from being considered for any tender for a defined period of time.

2.3.3.11.2.5 The Tenderer will be notified in writing on:

- The reasons for the decision.
- His/her right to appeal against the Tender Committee's decision.
- Name of a contact person to discuss the matter.

2.3.3.11.2.6 The Tenderer must launch an appeal:

- Within 14 days of the date of notice.
- Setting out the grounds for the appeal.
- Addressed to the DWS.

2.3.3.11.2.7 The DWS will hear the appeal.

2.3.3.11.2.7.1 The tribunal will comprise of 3 or 5 (uneven number) arbitrators.

2.3.3.11.2.7.1 DWS employees may not be members of the Tribunal.

2.3.3.11.2.8 The DWS must produce procedures for administering the appeals process and revise these on an annual basis.

2.3.3.12 DISQUALIFICATIONS

Non-compliance with the Preferential Procurement Policy Framework Act.

PLEASE REMEMBER:

- **TO ATTACH A VALID ORIGINAL TAX CLEARANCE CERTIFICATE OR COPY THEREOF IN THE CASE OF A JOINT VENTURE, THE VALID ORIGINAL TAX CLEARANCE CERTIFICATE OR COPY/IES THEREOF, OF EACH ENTITY CONSTITUTING THE JOINT VENTURE, MUST BE SUBMITTED WITH THE TENDER DOCUMENT**
- **TO ATTACH COPIES OF ALL THE LATEST RELEVANT MUNICIPAL ACCOUNTS OF THE TENDERING ENTITY AND ALL OF ITS DIRECTORS OR MEMBERS OF THE BOARD. IF ANY ACCOUNT IS IN ARREARS FOR MORE THAN 3 MONTHS, THE TENDER WILL BE REJECTED.**
- **IN THE CASE OF A JOINT VENTURE, COPIES OF MUNICIPAL ACCOUNTS NOT OLDER THAN THREE (03) MONTHS OF EACH ENTITY CONSTITUTING THE JOINT VENTURE, MUST BE SUBMITTED WITH THE TENDER DOCUMENT**
- **ATTACH ALL REQUIRED DOCUMENTS TO THE LAST PAGE OF YOUR TENDER DOCUMENT**

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A28. GENERAL INFORMATION (PROCUREMENT)

1. Name of tendering entity:

2. Contact details:

Contact name and number:

Address of tendering entity:

Postal code:

Tel no: () Fax no: ()

E-mail address:

3. Legal entity: Mark with an X.

Sole proprietor	
Partnership	
Close corporation	
Company (Pty) Ltd	
Joint venture	

In the case of a Joint venture, provide details on joint venture members:

Joint venture member	Type of entity (as defined above)

4. Income tax reference number: **(COMPULSORY)**
(In the case of a joint venture, provide for all joint venture members)

.....

.....

5. VAT registration number **(COMPULSORY)**:
(In the case of a joint venture, provide for all joint venture members)
-
-
6. Company or closed corporation registration number **(COMPULSORY)**:
(In the case of a joint venture, provide for all joint venture members)
-
-
7. Construction Industry Development Board (CIDB) registration number **(COMPULSORY)**:
(In the case of a joint venture, provide for all joint venture members)
-
-
8. Municipal rates and taxes or service charges accounts of tendering entities and its directors / members **(COMPULSORY)**
(In the case of a joint venture, provide for all joint venture members)
ATTACH COPIES OF ALL LATEST MUNICIPAL ACCOUNTS (SEE “NOTICE TO TENDERERS: VERY IMPORTANT NOTICE ON DISQUALIFICATIONS” PARAGRAPH No. 13)
9. Details of proprietor, partners, closed corporation members, or company directors, indicating technical qualifications where applicable (Form on the next page).
10. For joint ventures the following must be attached:
- Written authority **of each JV partner**, for authorized signatory.
 - The joint venture agreement.

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DETAILS OF PROPRIETOR, PARTNERS, CLOSED CORPORATION MEMBERS OR COMPANY DIRECTORS

(In the event of a joint venture, to be completed by all joint venture partners)

Name and Surname	Identity Number	Relevant qualifications and experience	Years of relevant experience

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A29. SPECIFIC GOALS

1. Equity Ownership

List all partners, shareholders or members of tendering entity by name, identity number, citizenship, gender, race, HDI status and ownership.

In the case of a JV, complete an Equity ownership for each JV member.

Name and Surname	Position Occupied in Enterprise	Identity Number	Date RSA Citizen-ship obtained	Gender Male / Female	Race	HDI Status (Yes/No)	Date of Ownership	% Owned by HDIs	% Owned by Women	% Owned by Disabled
TOTAL								A	B	C

Note: Where owners are themselves a company or partnership, identify the ownership of the holding firm.

In the case of joint ventures equity ownership for each of the JV members are determined as above, and the combined HDI ownership is then calculated as follows:

Joint venture members	a % Contribution to the JV	b %BBBEE	c = a * b ÷ 100 % BBBEE contribution
Total BBBEE contribution			

A COPY OF A VALID SIGNED JOINT VENTURE AGREEMENT MUST BE ATTACHED TO THE TENDER DOCUMENT.
FAILURE TO COMPLY WITH ABOVE-MENTIONED WILL RESULT IN REJECTION OF THIS TENDER

NOTE: See table in paragraph 2.3.3.10 for specific goals and points to be awarded.

2. **SMME Status**

Provide details on the following

Sector/Sub-Sector in accordance with the Standard Industrial Classification	
Total Full-time Equivalent of paid Employees	
Total Annual Turnover	
Total Gross Asset Value	
Size or Class (Medium, Small, Very Small, Micro)	

NOTE: If all of the above does not adhere to the definition of a single class, use the total Annual Turnover only to decide on the class.

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A30. DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT (SBD 6.2)

This Standard Tendering Document (SBD) must form part of all tenders invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, Tenderers must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2017, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Important Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

- 1.1. Preferential Procurement Regulations, 2017 (Regulation 8 make provision for the promotion of local production and content.
- 1.2. Regulation 8.(2) prescribes that in the case of designated sectors, organs of state must advertise with the specific tendering condition that only locally produced or manufactured goods with a stipulated minimum threshold for local production and content will be considered.
- 1.3. Where necessary, for tenders referred to in paragraphs 1.2 above, a two stage tendering process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.
- 1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5. The local content (LC) as a percentage of the tender price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:
$$LC = [1 - x / y] * 100$$

Where

x is the imported content in Rand

y is the tender price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) on the date of advertisement of the tender as required in paragraph 3.1 below.

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

- 1.6. A tender will be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the tender documentation;
2. **The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this tender is/are as follows:**

Description of services, works or goods	Stipulated minimum threshold
To be confirmed	%
	%
	%

3. Does any portion of the services, works or goods offered have any imported content? **YES / NO**

3.1 If yes, the rate(s) of exchange to be used in this tender to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by the SARB for the specific currency on the date of advertisement of the tender.

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

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

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

4. Where, after the award of a tender, challenges are experienced in meeting the stipulated minimum threshold for local content the DTI must be informed accordingly in order for the DTI to verify and in consultation with the AO/AA provide directives in this regard.

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

IN RESPECT OF TENDER No.

ISSUED BY: (Procurement Authority / Institution):

NB

- The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the Tenderer.
- Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp. Tenderers should first complete Declaration D. After completing Declaration D, tenderers should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the tender documentation at the closing date and time of the tender in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the tenderers for verification purposes for a period of at least 5 years. The successful tenderer is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),

do hereby declare, in my capacity as

of

.....
(name of Tenderer entity), the following:

- The facts contained herein are within my own personal knowledge.
- I have satisfied myself that:
 - the goods/services/works to be delivered in terms of the above-specified tender comply with the minimum local content requirements as specified in the tender, and as measured in terms of SATS 1286:2011; and

- (c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

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

If the tender is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E.

- (d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.
- (e) I understand that the awarding of the tender is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE:

DATE:

WITNESS No. 1

DATE:

WITNESS No. 2

DATE:

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A31. PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017 (SBD 6.1)

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

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all tenders:

- 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 The value of this tender is estimated not to exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 system shall be applicable.

1.3 Preference points for this tender shall be awarded for:

- (a) Price; and
- (b) B-BBEE Status Level of Contributor.

1.4 The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTION	20
Total points for Price and B-BBEE must not exceed	100

1.5 Failure on the part of a Tenderer to submit proof of B-BBEE level of contributor together with the tender, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.6 The purchaser 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 purchaser.

2. DEFINITIONS

- (a) “**B-BBEE**” means broad-based black economic empowerment as defined in section 1 of the Broad -Based Black Economic Empowerment Act;
- (b) “**B-BBEE status level of contributor**” means the B-BBEE status of an entity in terms of a Code of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) “**tender**” means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of good or services, through price quotations, advertised competitive tendering processes or proposals;
- (d) “**Broad-Based Black Economic Empowerment Act**” means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) “**EME**” means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents;
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
1) B-BBEE Status level certificate issued by an authorized body or person;
2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
3) Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of tender invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 or 90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{\min} = Price of lowest acceptable tender

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

- 4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a Tenderer for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5. TENDER DECLARATION

5.1 Tenderers who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

6.1 B-BBEE Status Level of Contributor: = (maximum of 10 or 20 points)
(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted? YES / NO (tick which is applicable)

7.1.1 If yes, indicate:

- (i) what percentage of the contract will be subcontracted?%
- (ii) the name of the sub-contractor?
- (iii) the B-BBEE status level of the sub-contractor?
- (iv) whether the sub-contractor is an EME or QSE? YES / NO (tick which is applicable)
- (v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2017:

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

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:

8.2 VAT registration number:

8.3 Company registration number:

8.4 Type of company/ firm [TICK APPLICABLE BOX]

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

8.5 Describe principal business activities

.....

.....

.....

8.6 Company classification [TICK APPLICABLE BOX]

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

8.7 Total number of years the company/firm has been in business?

8.8 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 B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we 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 paragraph 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- (iv) If the B-BBEE status level of contributor has 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 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) restrict the Tenderer 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

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A32. TENDERER'S FINANCIAL STANDING

In terms of Clause C.2.1 of the Tender Data the Employer may make inquiries to obtain a bank rating from the Tenderer's bank.

To that end the Tenderer must provide with his Tender a bank rating, certified by his banker, to the effect that he will be able to successfully complete the contract at the tendered amount, within the specified time for completion.

Name of account holder:

Name of Bank: Branch:

Account number: Type of account:

Telephone number: Facsimile number:

Name of contact person (at bank)..... Bank Rating:

Failure to provide either the required bank details or a certified bank rating with his Tender, will lead to the conclusion that the Tenderer does not have the necessary financial resources at his disposal to complete the contract successfully within the specified time for completion. As such, his Tender will be ruled as "invalid".

The Employer reserves the right to confirm with the Tenderer's bank that the supplied bank rating has not changed since the submission of the Tender.

The Employer undertakes to treat the information thus obtained as confidential, strictly for the use of evaluation of the tender submitted by the Tenderer.

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A33. TENDERER'S PRICING SCHEDULE

SBD 3.1

PRICING SCHEDULE – FIRM PRICES (PURCHASES)

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATES OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of bidder.....	Bid Number: DWS18-1120 WTE (WQ-1266GP)
Closing time: 11H00 am	Closing Date: 3 June 2022

OFFER TO BE VALID FOR 12 WEEKS (84 DAYS) FROM CLOSING DATE OF BID

Item no	DESCRIPTION	QUANTITY	UNIT PRICE	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
REFER TO SECTION C2.2 Bill of Quantities				
	TOTAL (EXCLUDING VAT)			
	VAT (15%)			
	TOTAL (INCLUDING VAT)			

Required by

At:

Brand and model:

Country of origin:

Does the offer comply with the specification(s)? *YES/NO

If not to specification, indicate deviation(s):

Period required for delivery:

Delivery: *FIRM/NOT FIRM

Delivery basis:

Note: All delivery costs must be included in the bid price, for delivery at the prescribed destination.

***"All applicable taxes" includes value added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

A34. BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. BIDDER'S DECLARATION

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State Institution

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

.....
.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

.....
.....

¹ the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

3. DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 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 consortium² will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.5 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.

3.6 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.7 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.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature	Date
.....
Position	Name of bidder

2 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.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

B1. CIDB CONTRACTOR REGISTRATION CERTIFICATE

A Certificate of Contractor's Registration issued by the Construction Industry Development Board (CIDB) shall be attached to this page.

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.

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

B2. TAX CLEARANCE CERTIFICATE AND FINANCIAL STATEMENTS

An **original** valid Tax Clearance Certificate from the South African Revenue Service (SARS) or proof shall be attached to this page (or proof that the tenderer has made arrangements with SARS to meet his or her outstanding tax obligations).

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate, or proof that he or she has made the necessary arrangements with SARS.

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

FINANCIAL STATEMENTS FOR CONTRACTS OVER R10 MILLION

Tenderers are referred to Clause C.2.23 A to D, page 21 and shall attach all the required documentation to this Schedule where a tender price exceeds R10 million.

Each party to a Consortium/Joint Venture shall submit a separate set of documents.

SIGNED BY/ON BEHALF OF TENDERER:

--

NAME

--

SIGNATURE

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

B3. PRELIMINARY PROGRAMME

(For information purposes only)

The tenderer shall attach a preliminary programme, to this page.

This programme shall be in the form of a bar chart (Gantt chart) or similar acceptable time/activity form reflecting the proposed sequence and rate of progress of the various activities and the quantities that will be carried out every week under each of the elements, comprising the work for this contract. The programme shall also indicate the point where the tenderer intends to commence work operations and the direction in which the work will proceed. The working hours shall be indicated.

The tenderer shall also take into account the additional requirements as set out in C.3.11 Evaluation of Tender Offers.

Details of the preliminary programme shall be appended to this Schedule.

Number of sheets appended by the tenderer to this Schedule (If nil, enter NIL)

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

B4. ADDITIONAL FUNCTIONALITY DOCUMENTS

- Bank Rating Certificate from a Registered Financial Institution. Append to Schedule A34.
- Tenderer's Occupational Health & Safety Policy
- Joint Venture agreement (if applicable) - append to Schedule A4
- A Certificate of Contractor Registration issued by the Construction Industry Development Board - append to Schedule B1
- Where the contract is expected to exceed R10 million including VAT, further documents are required – append to Schedule B2
- Previous Experience appointment letter, referral letter from the employer/employer's agent and a Completion Certificates (only for completed projects) for each project, signed by the relevant organ of state (i.e. municipality or government) as per C.3.11 Evaluation of Tender Offers and C3.2.1.3 of the Contract Data.
- Methodology as to how your company will complete the works as per C.3.11 Evaluation of Tender Offers.
- CVs and certified copies of qualifications of Contract Director, Site Agent, General Foreman as per C.3.11 Evaluation of Tender Offers.

Part C1: Agreements and Contract Data

	<u>Page</u>
C1.1 Form Of Offer And Acceptance	108
C1.2 Contract Data	113
C1.3 Performance Guarantee	120
C1.4 Adjudication	124
C1.5 Occupational Health And Safety Agreement	125

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C1.1. Form of Offer and Acceptance

Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

CONTRACT NO. DWS18-1120 WTE (WQ-1266GP): SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

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 Returnable Schedules, and by submitting this offer has accepted the conditions of tender.

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

The Contract shall be completed within weeks of the Commencement Date.

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 tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

SIGNED ON BEHALF OF/BY THE TENDERER:

NAME

SIGNATURE

CAPACITY

DATE

Name and address of Organisation:

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

SIGNED BY WITNESS:

NAME

SIGNATURE

DATE

Acceptance

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

The terms of the contract are contained in:

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

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto as listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

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

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the tenderer (now Contractor) within five (5) working days of the date of such receipt notifies the Employer in writing of any reason why he/she cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

SIGNED ON BEHALF OF/BY THE EMPLOYER:

NAME	SIGNATURE
CAPACITY	DATE

DEPARTMENT OF WATER AND SANITATION - address of Organisation

.....

.....

.....

SIGNED BY WITNESS:

NAME	SIGNATURE	DATE

Schedule of Deviations

Notes:

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

1. Subject
Details
.....
.....
.....
2. Subject
Details
.....
.....
.....
3. Subject
Details
.....
.....
.....
4. Subject
Details
.....
.....
.....

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

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

SIGNED ON BEHALF OF/BY THE TENDERER:

NAME

SIGNATURE

CAPACITY

DATE

SIGNED BY WITNESS:

NAME

SIGNATURE

DATE

SIGNED ON BEHALF OF/BY DEPARTMENT OF WATER AND SANITATION:

NAME

SIGNATURE

CAPACITY

DATE

SIGNED BY WITNESS:

NAME

SIGNATURE

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY
MAIN TO PUMP STATION 2

CONFIRMATION OF RECEIPT

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

the (day) of (month) (year)

at (place)

SIGNED ON BEHALF OF/BY THE CONTRACTOR:

NAME

SIGNATURE

CAPACITY

SIGNED BY WITNESS:

NAME

SIGNATURE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C1.2. Contract Data

Part 1: Contract Data Provided by the Employer

GENERAL CONDITIONS OF CONTRACT

The following standardised General Conditions of Contract:

General Conditions of Contract for Construction Works (Third Edition, 2015)

prepared by the South African Institution of Civil Engineering (SAICE) shall apply to and from the General Conditions of Contract for this contract. Copies of these Conditions of Contract are obtainable from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, email:civilinfo@saice.org.za.

Copies of the General Conditions of Contract are available for inspection and scrutiny at the offices of the Employer's Agent.

The General Conditions of Contract 2015 makes references to the Contract Data for specific data, which, together with these conditions, collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Specific Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the General Conditions of Contract.

The General Conditions of Contract shall be read in conjunction with the variations, amendments and additions set out in the Contract Specific Data below. Each item of data given is cross-referenced to the Clause in the General Conditions of Contract to which it mainly applies.

CONTRACT SPECIFIC DATA

The following Contract specific data are applicable to this Contract:

Clause 1.1.1.5 Commencement Date

For Contracts where the tender value limit is a grade 7, 8 or 9 CIDB grading the Commencement Date shall mean the date that the Construction Work Permit is issued by the Department of Employment and Labour.

Clause 1.1.1.13: Defects Liability Period

The defects liability period is a period of 365 days, measured from the date of the Certificate of Completion.

Clause 1.1.1.14: Due Completion Date

The time for achieving Practical Completion is a date calculated from the number of weeks stated in the Form of Offer after the Commencement Date.

Clause 1.1.1.15: Employer

The name of the **Employer** is the **DEPARTMENT OF WATER AND SANITATION**, represented by **Lusanda Dlamini** and/or such person or persons duly authorised thereto by the Employer in writing, and the legal successors in title of this person and is referred to in this Contract Document as "Employer".

Clause 1.1.1.16: Employer's Agent

The name of the **Employer's Agent**, referred to in the documents, is the company of Consulting Engineers, GIBB (Pty) Ltd, or their successors duly appointed by the Employer, acting through a Director, an Associate or an official authorised thereto in writing.

Clause 1.1.1.26: Pricing Strategy

The Pricing Strategy is Re-measurement.

Clause 1.1.1.28: Scope of Work

Replace with the following:

“**Scope of Work**” means the document(s) containing the Standard Specifications, the Project Particular Specifications and the Drawings, that specify and describe the Works which are to be provided, and any other requirements and constraint relating to the manner in which the work is to be carried out.

Add the following Clause after Clause 1.1.1.34

1.1.1.35 “Drawings” means all drawings, calculations and technical information forming part of the Tender Documents (other than information contained in the Specifications) and any modifications thereof or additions thereto from time to time approved in writing by the Employer’s Agent or delivered to the Contractor by the Employer’s Agent.

Clause 1.2.1.2: Delivery of Notices

The name of the Employer is : **DEPARTMENT OF WATER AND SANITATION**

The address of the Employer is : 285 Francis Baard Street,
Bothongo Plaza East,
Pretoria,
0002

The name of the Employer’s Agent is : GIBB (Pty) Ltd

The address of the Employer’s Agent is : Johannesburg, 3rd Floor, Building 4
19 Ninth Street, Houghton Estate
Rosebank, 2196

Clause 1.3.5: Contractor’s Copyright

Add the following to Clause 1.3.5:

No part of any document or drawings issued with this enquiry may be copied, photographed or repeated in any manner or by any process without the written consent of the Employer’s Agent. Copyright is reserved on all designs, specifications, patents and patentable designs, systems and processes contained in the documents and drawings.

The person, firm, or body to whom these documents are issued or made available shall be held jointly and severally responsible in their personal and corporate capacities for any contravention of the requirements of Clause 1.3.5. The recipients of these documents shall treat the documents as well as the details contained herein as private and confidential.

Clause 3.2.3: Specific Approval of the Employer Required

The Employer’s Agent is required to obtain the specific approval of the Employer before executing any of the following functions or duties:

1. The approval of any extension of time for completion in terms of Clause 5.12.
2. The reduction of a penalty for delay in terms of Clause 5.13.2.
3. The issuing of a variation order in terms of Clause 6.3.2.

Clause 4.3: Legal Provisions

Add the following Clauses after Clause 4.3.2:

4.3.3 The Employer and the Contractor shall enter into an agreement to complete the work required for the construction of the works in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (No. 85 of 1993) and the Construction Regulations promulgated thereunder, as well as any further requirements stipulated in this contract document.

4.3.4 The Contractor shall provide proof to the Employer, within 14 days of the Commencement Date, that he/she has paid all contributions required in terms of the Compensation for Occupational Injuries and Diseases Act (Act No. 130 of 1993).

Clause 5.1.1: Time Calculations

The non-working days are Saturday and Sunday. The special non-working days are gazetted public holidays as well as the annual year-end break.

Clause 5.3: Commencement of Works

The Contractor shall commence executing the Works within 28 days from the Commencement Date.

Notwithstanding the above, the Contractor will not be permitted to commence executing the Works before the Form of Guarantee and required insurances and other specified items have been submitted and approved.

Clause 5.3.1: Commencement of the Works

The documentation required before commencing with the Works are:

1. Health and Safety Plan (refer to Clause 4.3)
2. Initial programme (refer to Clause 5.6)
3. Security (Refer to Clause 6.2)
4. Insurance (Refer to Clause 8.6)

Clause 5.3.2: Unacceptable Documentation

The time to submit the documentation required before commencement of the Works is 28 days.

Clause 5.4: Access to the Site

Add the following clause after Clause 5.4.3:

- 5.4.4 The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site. The Contractor shall also provide at his/her own cost any additional facilities outside the Site required by him/her for the purposes of the Works.

Clause 5.5.1: Time for Practical Completion

The Works shall be completed within the time frame stipulated or tendered (as applicable) on the Form of Offer, exclusive of the special non-working days and the year-end break and inclusive of the 28 day period referred to in Clause 5.3 above.

Clause 5.6.1: Programme of Works

The Contractor shall deliver the programme of work within 14 days of the Commencement Date. The programme shall clearly show the order in which the Contractor proposes to carry out the work, including the critical path, the proposed rate of progress and a linked cash flow forecast. The programme shall be updated monthly.

Clause 5.8: Non-Working Times

The special non-working days are the days falling in the year-end break and all gazetted public holidays falling outside the year end break.

The year-end break commences on **16 December 2022** and ends on **15 January 2023**.

Clause 5.9: Instructions

Add the following Clauses after Clause 5.9.7:

- 5.9.8 Tender Drawings shall be used for tender purposes only and shall not be used for construction.

The Employer's Agent shall have full power and authority to supply to the Contractor from time to time during the progress of the Works copies of such further drawings and such instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the Works, which the Contractor shall carry out and be bound by.

Clause 5.12.2.2: Extension of Time

Regardless of the cause of any delay an extension of time will only be considered if it can be shown that the activity delayed is on the critical path indicated on the Programme of Works (Clause 5.6.1).

No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal Climatic Conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working days listed below for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time shall be granted in accordance with the provisions of that Clause.

The number of days quoted below shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts work on the critical path.

January	3 days	May	1 days	September	2 days
February	3 days	June	1 days	October	2 days
March	2 days	July	1 days	November	3 days
April	2 days	August	1 days	December	3 days

Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day delay is experienced. Should an extension of time be granted by the

Employer's Agent such extension of time will be added to the Time for Completion or set against any over-provision that may have occurred in the abovementioned schedule.

It shall be further noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be entertained.

Clause 5.12.3: Adjustment to General Items

Add the following to Clause 5.12.3

The cost of time related general items will be calculated on the basis of the number of days in Clause 5.5.1.

Clause 5.13.1: Penalty for Delay

The penalty for failing to complete the Works on time is R5,000.00 per calendar day up to a maximum of 10% of the contract value.

Clause 5.14.1: Practical Completion

The requirements for achieving Practical Completion are to bring the works in a state where it can be used for its intended purpose and occupation without danger or undue inconvenience to the Employer.

Clause 5.16.3: Latent Defects Liability

The latent defects period is 10 years

Clause 6.2: Security

The Deed of Guarantee is to be delivered to the Employer within 14 days of the Commencement Date.

The Performance Guarantee shall be worded as set out in the document included in C1.3.

The liability of the guarantee shall be for 10% of the Contract Price.

The Guarantor must be one of the approved financial institutions listed in the Annexure to C1.3 of the Contract Data

Clause 6.5.1.2.3: Dayworks

The percentage allowance on the net cost of materials actually used in the completed work is 15%.

Clause 6.8.2: Contract Price Adjustment

Add the following to Clause 6.8.2:

The Contract Price is **NOT** subject to contract price adjustment

Clause 6.8.3: Variation in Cost of Special Materials

Price adjustments for variations in the costs of special materials are **NOT** allowed.

Clause 6.10.1.5: Interim Payments – Materials on Site

The percentage advance on materials on site but not yet built into the Permanent Works is 80% (eighty percent).

The percentage advance on Plant not yet supplied to Site is 80%

Clause 6.10.3: Retention Money

The percentage retention on the amounts due to the Contractor is 10% (ten percent). The limit of retention is 5% of the Contract Price, including allowances for contingencies and Contract Price Adjustment.

Clause 6.10.6: Set-Off and Delayed Payments

A guarantee in lieu of retention is not permitted.

Clause 8.6.1: Insurances

Clause 8.6.1.1.2

The value of the Plant and materials supplied by the Employer to be included in the insurance sum is R0.00 (zero Rands).

Clause 8.6.1.1.3

The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is R0.00 (zero Rands).

Clause 8.6.1.3

The limit of indemnity for liability insurance is R10 000 000.00 for any single claim – the number of claims to be unlimited during the construction.

Clause 8.6.1.5: Additional Insurance

Additional Insurance is required for the following:

- a) Insurance of Construction Plant and Equipment (including tools, offices and other temporary structures and contents) and all other items (except those intended for incorporation into the Works) brought onto the site for a sum sufficient to provide for their replacement.
- b) Insurance in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993.
- c) Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability Indemnity.
- 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) The insurance policy held by the Contractor shall cover "wet risks" because a portion of the works will be in the confines of an existing river and storm water channel.

Clause 8.6.6: Proof of Payment

Add the following:

The contractor shall within 14 days of the Commencement Date provide the Employer/Employer's Agent the relevant policy or policies of insurance.

Clause 9.2.1: Termination by the Employer

Add the following Clauses after Clause 9.2.1.3.8:

- 9.2.1.3.9 The Contractor fails to provide the required Guarantee and insurances within the prescribed time.
- 9.2.1.3.10 The Contractor committed a corrupt or fraudulent act during the procurement process or the execution of the contract.
- 9.2.1.3.11 An official or other role player committed any corrupt or fraudulent act during the procurement process or in the execution of the contract that benefited the Contractor.

Clause 10: Claims and Disputes

Clause 10.1: Contractor's Claim

The Contractor is to estimate the cost of its Plant (Items 1.4.1), Labour (Items 1.4.2), Supervision (Items 1.4.3) and any other services or facilities not included (Items 1.4.4) that will be paid for each working day (Saturday's, Sunday's and Public holidays excluded) standing, in the opinion of the Employers Agent and the Employer, due to community unrest. These Items can only be claimed for full days standing due to community unrest. The Contractor is to inform the Employers Agent immediately of such an event in writing with substantiation of the circumstances of the delay.

Clause 10.5 and 10.6: Dispute Resolution

Dispute resolution shall be by standing adjudication panel or ad-hoc adjudication.

Clause 10.5.3: Rules for Adjudication

The number of Adjudication Board Members to be appointed is one.

ADDITIONAL CONDITIONS OF CONTRACT

The additional Conditions of Contract are:

Clause 11: Contractor to Provide Everything Necessary

The Contractor is to provide all labour, material, workmanship, machinery and everything which is or may be necessary in and for the execution and entire completion of the Contract in accordance with the Conditions of Contract, Drawings and Scope of Work.

Clause 12: Details to be Confidential

The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without prior written consent of the Employer's Agent.

Part 2: Data Provided by the Contractor

Clause 1.1.19: The name of the Contractor is

Clause 1.2.1.2: The address of the Contractor is

Physical Address

Postal Address

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

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

Telephone:

Fax:.....

Email:

SIGNED ON BEHALF OF/BY THE TENDERER:

--

NAME

--

SIGNATURE

--

CAPACITY

--

DATE

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C1.3. Performance Guarantee

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor: means:

.....

Physical address:

.....

"Employer" means: **DEPARTMENT OF WATER AND SANITATION**

"Contractor" means:

.....

"Employer's Agent" means: GIBB (Pty) Ltd

"Works" means:

.....

"Site" means:

.....

"Contract: means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Contract Sum" means: The accepted amount inclusive of tax of R.....

Amount in words:

.....

"Guaranteed Sum" means: The maximum aggregate amount of R.....

Amount in words:

.....

"Expiry Date" means:.....

CONTRACT DETAILS

Employer's Agent issues: Interim Payment Certificates, Final Payment Certificate and the Certificate Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. 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 Expiry Date or the date of issue by the Employer's Agent of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Employer's Agent 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.
3. The Guarantor hereby acknowledges that:
 - 3.1. 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;

- 3.2. Its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
- 4.1. A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent 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 4.2;
- 4.2. A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
- 4.3. A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
- 5.1. The Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
- 5.2. 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 5; and
- 5.3. 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.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
10. The Employer shall have the absolute right to arrange his/her affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his/her release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa, the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

SIGNED AT:.....

GUARANTOR (1)

SIGNATURE

DATE

CAPACITY

GUARANTOR (2)

SIGNATURE

DATE

CAPACITY

WITNESS (1)

SIGNATURE

WITNESS (2)

SIGNATURE

ANNEXURE

LIST OF APPROVED FINANCIAL INSTITUTIONS

The following financial institutions are currently approved for issue of contract guarantees:

National Banks:

ABSA Bank Ltd.
FirstRand Bank Ltd.
Investec Bank Ltd.
Nedbank Ltd.
Standard Bank of SA Ltd.

International Banks (with branches in SA):

Barclays Bank plc.
Citibank n.a.
Credit Agricole Corporate and Investment Bank
Deutsche Bank AG
HSBC Bank plc.
JP Morgan Chase Bank
Societe Generale
Standard Chartered Bank

Insurance companies:

ABSA Insurance
AIG South Africa
Coface s.a.
Compass Insurance Co.
Constantia Insurance Co.
Credit Guarantee Insurance Co.
Guardrisk Insurance Co.
Hollard Insurance Company Ltd.
Home Loan Guarantee Co.
Infiniti Insurance Limited
Lombard Insurance
Mutual & Federal Insurance Co.
New National Assurance Co.
Regent Insurance Co.
Renasia Insurance Company Ltd.
Santam Limited
Zurich Insurance Co.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY
MAIN TO PUMP STATION 2

C1.4. Adjudication

Adjudication shall be carried out in terms of Clauses 10.5, and 10.6 of the General Conditions of Contract.

The Disclosure Statement and the Adjudication Board Member Agreement to be used in this Contract are contained in Appendices 4 and 5 of the General Conditions of Contract 2015.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C1.5. Occupational Health and Safety Agreement

AGREEMENT MADE AND ENTERED INTO BETWEEN DEPARTMENT OF WATER AND SANITATION (HEREINAFTER CALLED THE "EMPLOYER") AND

.....
(Contractor/Mandatory/Company/CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, ACT No. 85 OF 1993 AS AMENDED.

I,
representing

....., as an employer in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated thereunder.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number:

OR Compensation Insurer: Policy No.:

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable. The Health and Safety Officer will be registered with the SACPCMP.

I further undertake to ensure that any subcontractors employed by me will enter into an Occupational Health and Safety Agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the appended Occupational Health and Safety Conditions and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan.

Signed at on the day of 20.....

SIGNED BY/ON BEHALF OF CONTRACTOR - MANDATORY

NAME

SIGNATURE

DATE

SIGNED BY WITNESS:

NAME

SIGNATURE

DATE

Signed at on the day of 20.....

SIGNED BY/ON BEHALF OF DEPARTMENT OF WATER AND SANITATION

NAME

SIGNATURE

DATE

SIGNED BY WITNESS:

NAME

SIGNATURE

DATE

Occupational Health and Safety Conditions

1. The Chief Executive Officer of the Contractor shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act (as amended). Should the Contractor assign any duty in terms of Section 16(2), a copy of such assignment shall immediately be provided to the representative of the Employer as defined in the Contract.
2. All work performed on the Employer's premises shall be performed under the supervision of the construction supervisor who understand the hazards associated with any work that the Contractor performs on the site in terms of Construction Regulations 2014.
3. The Contractor shall appoint a Competent Person who shall be trained on any occupational health and safety aspect pertaining to them or to the work that is to be performed and be registered with the SACPCMP.
4. The Contractor shall ensure that he familiarises himself with the requirements of the Occupational Health and Safety Act and that he/she, his/her employees, and any sub-contractors, comply with them.
5. Discipline in the interests of occupational health and safety shall be strictly enforced.
6. Personal protective equipment shall be issued by the Contractor as required and shall be worn at all times where necessary.
7. Written safe work procedures and appropriate precautionary measures shall be available and enforced, and all employees shall be made conversant with the contents of these practices.
8. No substandard equipment/machinery/articles or substances shall be used on the site.
9. All incidents referred to in terms of Section 24 of the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour and the Employer.
10. The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of Section 32 of the Occupational Health and Safety Act and into any incident involving a Contractor and/or his/her employees and/or his/her sub-contractor/s.
11. No use shall be made of any of the Employer's machinery/plant/equipment/substance/personal protective equipment or any other article without prior arrangement and written approval.
12. No alcohol or any other intoxicating substance shall be allowed on the site. Any person suspected of being under the influence of alcohol or any other intoxicating substance shall not be permitted access to, or allowed to remain on the site.
13. Prior to commencement of any work, verified copies of all documents mentioned in the agreement, must be presented to the Employer.

Part C2: Pricing Data and Bill of Quantities

	<u>Page</u>
C2.1 Pricing Instructions	128
C2.2 Bill Of Quantities	129

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C2.1. Pricing Instructions

1. Measurement and payment shall be in accordance with the relevant provisions of Clause 8 of each of the SANS 1200 Specifications for Civil Engineering Construction referred to in the Scope of Work. The Preliminary and General items shall be measures in accordance with the provisions of SANS 1200-A, General.

2. The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

%	=	per cent	m ² .pass	=	square metre-pass
h	=	hour	m ³	=	cubic metre
ha	=	hectare	m ³ .km	=	cubic metre-kilometre
kg	=	kilogram	MN	=	meganewton
kℓ	=	kilolitre	MN.m	=	meganewton-metre
km	=	kilometre	MPa	=	megapascal
km-pass	=	kilometre-pass	No.	=	number
kPa	=	kilopascal	Prov sum	=	Provisional sum
kW	=	kilowatt	P C sum	=	Prime Cost sum
ℓ	=	litre	sum	=	lump sum
m	=	metre	t	=	ton (1 000 kg)
mm	=	millimetre	W/day	=	Work day
m ²	=	square metre			

3. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

4. The prices and rates to be inserted in the Bill of Quantities are to be the full inclusive prices for the work described under the items. Such prices and rates shall cover all costs and expenses that may be required in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices shall be used as a basis for assessment of payment for additional work that may have to be carried out.

5. It will be assumed that prices included in the Bill of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.SABS.co.za or www.iso.org for information on standards).

6. Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered for such items.

7. Each item in the Bill of Quantities must be priced. Failure to price a billed item may lead to the Tender being regarded as non-responsive.

8. The quantities set out in the Bill of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bills of Quantities.

9. Reasonable compensation will be received where no pay item appears in respect of work required in the Bills of Quantities in terms of the Contract and which is not covered in any other pay item.

10. The short descriptions of the items of payment given in the Bill of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.

11. Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the SANS 1200 Standardised Specifications.

12. The clauses in the Specification Data in which further information is provided regarding a schedule item, appears under the **"reference clause"** column in the Bill of Quantities. The reference clauses indicated are not necessarily the only sources of information in respect of the scheduled items. Further information and specifications may be found elsewhere in the contract documents

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C2.2. Bill of Quantities

CONTENTS	PAGE
SECTION 1 PRELIMINARY AND GENERAL	128
SECTION 2 SITE CLEARANCE	137
SECTION 3 EARTHWORKS	138
SECTION 4 EARTHWORKS (PIPE TRENCHES)	139
SECTION 5 EARTHWORK (ROADS, SUBGRADE)	141
SECTION 6 CONCRETE (STRUCTURAL)	142
SECTION 7 BEDDING (PIPES)	144
SECTION 8 SEWERS	145
SECTION 9 SUBBASE	149
SECTION 10 BASE	150
SECTION 11 ASPHALT BASE & SURFACING	151
SECTION 12 KERBING AND CHANNELLING	152
SECTION 13 SEGMENTED PAVING	153
SECTION 14 PIPE JACKING AT NIC BOTHA CROSSING	153
SECTION 15 SOCIO ECONOMIC DEVELOPMENT	153
Summary Of Bill Of Quantities	161
Declaration	162

CONTRACT: DWS18-1120 WTE (WQ-1266GP)
CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

Section	INDEX	PAGE
BILL 1	CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2	130
1	PRELIMINARY AND GENERAL	130
2	SITE CLEARANCE	139
3	EARTHWORKS	140
4	EARTHWORKS (PIPE TRENCHES)	141
5	EARTHWORKS (ROADS, SUBGRADE)	144
6	CONCRETE (STRUCTURAL)	145
7	BEDDING (PIPES)	147
8	SEWERS	148
9	SUBBASE	152
10	BASE	153
11	ASPHALT BASE & SURFACING	154
12	KERBING AND CHANNELLING	155
13	SEGMENTED PAVING	156
14	PIPE JACKING AT NIC BOTHA CROSSING	157
15	SOCIO ECONOMIC DEVELOPMENT	159

CONTRACT: DWS18-1120 WTE (WQ-1266GP) **BILL OF QUANTITIES**
CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2
BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2
SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
1.1	8.3	FIXED CHARGE ITEMS				
1.1.1	8.3.1	Contractual requirements	Sum	1		
1.1.2	8.3.2	Establishment of facilities on the site:				
	PSAB8.2	a) Facilities for the Employer's Agent				
1.1.2.1		Employer's Agent's Office (No 1)	Sum	1		
1.1.2.2		Boardroom (No 1)	Sum	1		
1.1.2.3		Parking (No 2)	Sum	1		
1.1.2.4		Surevy Assistant & Equipment	Sum	1		
1.1.2.5		Ablution and latrine facilities	Sum	1		
1.1.2.6		Name boards (No 2)	Sum	1		
1.1.2.7	PSAB 8.3	Communication	Prov.Sum	1	50 000.00	50 000.00
1.1.2.8		Profit on item 1.1.2.7 above	%	50 000.00		
	8.3.2.2	b) Facilities for the Contractor				
1.1.2.9	PSA.8.3.2. 2 (a)	Offices and storage sheds	Sum	1		
1.1.2.10		Workshops	Sum	1		
1.1.2.11		Ablution and latrine facilities	Sum	1		
1.1.2.12		Tools and equipment	Sum	1		
1.1.2.13		Water supplies and electric power and communications	Sum	1		
1.1.2.14	PSA.8.3.2. 2 (h)	Dealing with water	Sum	1		
1.1.2.15		Access	Sum	1		
1.1.2.16		Plant	Sum	1		
1.1.2.17	8.3.3	Other fixed-charge obligations	Sum	1		
	PSSH&ES	Fixed charges associated with complying with Project Specific Environment Specification (PSSH&ES):				
1.1.2.18	PSSH&ES Part A, Section 24	Principal Contractor's initial obligations in respect of the Environmental administration and documentation	Sum	1		
1.1.2.19	8.3.4 PSA 8.3.4	Remove Employer's Agent's and Contractor's Site establishment on completion	Sum	1		
1.2	8.4 PSA8.2.2	TIME RELATED ITEMS				
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.2.1	8.4.1	Contractual requirements	Sum	1		
	8.4.2	Operation and maintenance of facilities on site for the duration of construction				
1.2.2	8.4.2.1 PSAB8.2	a) Facilities for the Employer's Agent				
1.2.2.1		Employer's Agent's Office (No 1)	Sum	1		
1.2.2.2		Meeting room (No 1)	Sum	1		
1.2.2.3		Parking (No 2)	Sum	1		
1.2.2.4		Surevy Assistant & Equipment	Sum	1		
1.2.2.5		Ablution and latrine facilities	Sum	1		
1.2.2.6		Name boards (No 2)	Sum	1		
1.2.2.7	PSAB 8.3	Communication (Provisional)	Prov.Sum	1	24 000.00	24 000.00
1.2.2.8		Profit on item 1.2.2.7 above	%	24 000.00		
1.2.3	8.4.2.2	b) Facilities for the Contractor				
1.2.3.1	PSA 8.4.2.2 (a)	Offices and storage sheds	Sum	1		
1.2.3.2		Workshops	Sum	1		
1.2.3.3		Ablution and latrine facilities	Sum	1		
1.2.3.4		Tools and equipment	Sum	1		
1.2.3.5		Water supplies and electric power and communications	Sum	1		
1.2.3.6	PSA 8.4.2.2 (h)	Dealing with water	Sum	1		
1.2.3.7		Access	Sum	1		
1.2.3.8	8.4.3 PSA8.4.3	Supervision for duration of construction	Sum	1		
1.2.3.9	8.4.4	Company and head office overhead costs for the duration of the contract	Sum	1		
1.2.3.10	8.4.5	Other time-related obligations	Sum	1		
	PSSH&ES	Time Related Charges associated with complying with Project Specific Environment Specification (PSSH&ES):				
1.2.3.11	PSSH&ES Part A, Section 24	Principal Contractor's time related obligations in respect of the Environmental administration and documentation	Sum	1		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.2.4	Annex C3.6.5 H&S Spec	Fixed and Time Related Charges associated with complying with the Project Health and Safety Specification:				
1.2.4.1		Preparation of principal contractor's site specific health and safety plan, safety file, risk assessments, fall prevention/protection plan, Annexure 2 notification to Dept of Labour, demolition method statement, other method statements requested to be prepared for safety reasons, permits, amendments to safety plan during course of project, traffic management / accommodation plans, and any other legally required health and safety documentation	Sum	1		
1.2.4.2		Provision of safety documentation required of the principal contractor for Construction Work Permit application by the safety agent of Dept of Labour, if applicable (note section 2.4 of this safety specification document)	Sum	1		
1.2.4.3		Provision of current workman's compensation cover for employees for the project, and ensuring that contractors appointed have such cover too	Sum	1		
1.2.4.4		Health and safety management of principal contractor's employees, visitors and contractors' employees on site.	Sum	1		
1.2.4.5		Provision of full time Construction Manager for site, provision of Alternate Construction Manager in absence of Construction Manager and provision of sufficient safety supervision on site	Sum	1		
1.2.4.6		Provision of full time SACPCMP registered Construction Health & Safety Officer for site (refer to safety specification for full time / part time requirement) and preparation of safety reports after each safety inspection	Sum	1		
1.2.4.7		Competence assessment, appointment and required competence and safety training of all principal contractor's legally required appointments for site	Sum	1		
1.2.4.8		Maintenance of principal contractor's plant and equipment on site so as to be in safe condition, including inspection registers, inspections by competent persons, thorough examination certificates, hand over certificates and related documentation	Sum	1		
1.2.4.9		Provision of general safety signage (e.g. first aid, firefighting, traffic safety, excavations, PPE, Assembly Point, noise zones, etc.)	Sum	1		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.2.4.10		Provision of medical certificates of fitness for employees on site (Annexure 3)	Sum	1		
1.2.4.11		Provision of personal protective equipment (PPE) by principal contractor to employees and, as applicable, visitors to site, incl. • reflective vests • hard hats • protective foot wear • hearing protection • respiratory protection • safety eyewear • gloves • overalls • Safety harnesses and lanyards • Sunblock • UV Protective clothing / hats / eye wear • Protective thermal wear (heat / wind / cold / rain) • Protective firefighting clothing • Arc flash and electrical protective clothing	Sum	1		
1.2.4.12		Provision of Fall Prevention and Protection Equipment including. • Rope • Lifelines & Self-Retracting Lifelines (SRL) • Anchor Points • Warning Lines & Area demarcation • Fall Arrest Accessories • Fall Rescue Equipment • Passive Fall Protection Equipment • Confined Space Rescue and Retrieval (In elevated work situations) • Etc.	Sum	1		
1.2.4.13		Provision of Confined Space work equipment & Training • Training • Air Monitoring Equipment • Ventilation Equipment • Entry Equipment • Personal Protective Equipment • Confined Space Rescue and Retrieval Equipment • Communication Equipment • Etc.	Sum	1		
1.2.4.14		Holding of safety meetings with safety representatives and safety officers on site on at least monthly basis	Sum	1		
1.2.4.15		Principal contractor construction safety management attendance at health and safety meetings called by client, professional team or safety agent	Sum	1		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.2.4.16		Provision of site specific health and safety induction training for all on site	Sum	1		
1.2.4.17		Conducting of toolbox talks to employees on health and safety issues on a weekly basis	Sum	1		
1.2.4.18		Provision of sufficient First Aiders for site as per legal requirements	Sum	1		
1.2.4.19		Provision of First Aid Boxes for site as per legal requirements	Sum	1		
1.2.4.20		Provision of sufficient fire extinguishing equipment for site	Sum	1		
1.2.4.21		Fire drills on site at least 6 monthly basis for duration of project	Sum	1		
1.2.4.22		Provision of welfare facilities for site (drinking water, toilets, soap, means of drying hands, toilets paper, sheltered eating areas, etc.)	Sum	1		
1.2.4.23		Provision for safe disposal of waste, spill kits, safe housekeeping and storage practices	Sum	1		
1.2.4.24		Provision of leading edge protection, covers to prevent falls	Sum	1		
1.2.4.25		Provision of fencing at site camp and to protect excavations	Sum	1		
1.2.4.26		COVID 19 measures – provision of hand sanitiser, respiratory protection (as required), safety signage, formal and informal communication to all on site and any other measures necessary to contain and detect COVID 19 on site (refer to safety specification)	Sum	1		
1.2.4.27		Compilation of consolidated Safety File at Close Out stage and handover of file to safety agent in hard copy or digital format	Sum	1		
1.2.4.28		Supply of safety caps on all exposed re-bar	Sum	1		
1.2.4.29		Any other compliance item in site specific safety specification issued by project client/ safety agent with potential cost implication	Sum	1		
1.2.4.30		• Item 1	Sum	1		
1.2.4.31		• Item 2	Sum	1		
1.2.4.32		• Item 3	Sum	1		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP) **BILL OF QUANTITIES**
CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2
BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2
SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.2.4.33		• Item 4	Sum	1		
1.2.4.34		• Item 5	Sum	1		
1.2.4.35		Principal contractor's general compliance with respect to the Occupational Health and Safety Act, Construction and other health and safety Regulations apart from other provisions in this bill.	Sum	1		
1.3	8.5	PROVISIONAL SUMS				
1.3.1	PSA 8.5 (b)	a) Provisional amount for additional acceptance testing of material and workmanship called for by the Employer's Agent at a nominated laboratory	Prov.Sum	1	60 000.00	60 000.00
1.3.2		Overhead, charges and profit on item 1.3.1 above	%	60 000.00		
1.3.3		b) Allowance for the emptying and cleaning on the pipelines installed by others (to be paid against daywork rates)	Prov.Sum	1	800 000.00	800 000.00
1.3.4	PSLD8.2.1 3	c) Allowance for a CCTV camera survey to confirm the alignment and integrity of pipelines installed by others	Prov.Sum	1	100 000.00	100 000.00
1.3.5		Overhead, charges and profit on item 1.3.4 above	%	100 000.00		
1.3.6		d) Allowance for the testing of pipelines installed by others (to be paid against daywork rates)	Prov.Sum	1	200 000.00	200 000.00
1.3.7	PSD8.3.7	e) Allowance for the shoring of trenches	Prov.Sum	1	6 000 000.00	6 000 000.00
1.3.8		Overhead, charges and profit on item 1.3.7 above	%	6 000 000.00		
1.3.9		f) Allowance for soicial responsiblity outcomes required by the Employer	Prov.Sum	1	150 000.00	150 000.00
1.3.10		Overhead, charges and profit on item 1.3.10 above	%	150 000.00		
1.3.11		g) Reinstate the fence of Hinterland	Prov.Sum	1	150 000.00	150 000.00
1.3.12		Overhead, charges and profit on item 1.3.11 above	%	150 000.00		
1.4	GCC 10.1	COMPENSATION FOR DELAY IN TERMS OF SUB CLAUSE 10.1 OF THE PARTICULAR CONDITIONS OF CONTRACT FOR DELAYS INCURRED				
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.4.1		Plant	day	90		
1.4.2		Labout	day	90		
1.4.3		Supervision	day	90		
1.4.4		Other Services, facilities etc not included in 1.4.1; 1.4.2; 1.4.3	day	90		
1.5	8.7	DAYWORKS				
		Note: To be executed on instruction of the Employer's Agent only				
1.5.1		a) Labour				
1.5.1.1		(i) Skilled	hr	30		
1.5.1.2		(ii) Semi-skilled	hr	30		
1.5.1.3		(iii) Unskilled	hr	30		
1.5.1.4		(iv) Armed guard	man-day	30		
1.5.2		b) Planthire (Work rates on site)				
1.5.2.1		(i) Trucks				
		Tipper trucks				
1.5.2.1.1		- Capacity: 6m³	hr	30		
1.5.2.2		(ii) Flatbed trucks				
1.5.2.2.1		- Capacity: 7 ton	hr	30		
1.5.2.3		(iii) LDV's				
1.5.2.3.1		- LDV: Capacity 1 ton	hr	30		
1.5.2.4		(iv) Conservancy Tankers				
		Water Tankers				
1.5.2.4.1		- Capacity: 10000 liter	hr	30		
		Jet-Vac Equiped Tanker Truck				
1.5.2.4.2		- Capacity: 10000 liter	hr	30		
1.5.2.5		(v) Excavators				
1.5.2.5.1		- Crawler Excavators (Medium)	hr	30		
1.5.2.6		(vi) TLB's				
		Tractor loader backhoe				
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP) **BILL OF QUANTITIES**
CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2
BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2
SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.5.2.6.1		- Model: 2 X 4	hr	30		
1.5.2.7		(vii) Rollers Walk behind vibrating rollers				
1.5.2.7.1		- (BW 76) Medium	hr	30		
1.5.2.8		(viii) Compactors				
1.5.2.8.1		- Wackers (Medium)	hr	30		
1.5.2.9		(ix) Compressors Portable diesel compressors				
1.5.2.9.1		- Capacity: 125cfm	hr	30		
1.5.2.10		(x) Water pumps Capacity:				
1.5.2.10.1		a) Small	hr	30		
1.5.2.10.2		b) Medium	hr	30		
1.5.2.10.3		c) Large	hr	30		
1.5.3		c) Materials				
1.5.3.1		a) Materials used in the execution of dayworks	Prov.Sum	1	150 000.00	150 000.00
1.5.3.2		b) Overheads, charges and profit on item 1.5.3.1 above	%	150 000.00		
1.6	8.8	TEMPORARY WORKS				
1.6.1	8.8.2	Dealing with traffic for the duration of the Contract	Sum	1		
1.6.2	8.8.2	Provision of Concrete barriers for traffic accomodation for the duration of construction	No	15		
1.6.3	8.8.4	Existing service				
1.6.3.1		(a) Supply or hire of ground penetrating radar for the detection of underground services	Sum	1		
1.6.3.2		b) The use of equipment referred to in item 1.6.3.1 above	Day	2.00		
1.6.3.3		(c) Excavation by hand in soft material to expose existing services	m³	150		
1.6.3.4		(d) Temporary protection of existing services	Sum	1		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 1 PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
1.6.3.5		(e) The use of equipment referred to in item 1.6.3.1 above to scan the cemetery area to assure graves will be disrupted or exposed.	Sum	1		
1.7	8.10	MISCELLANEOUS				
	Part C3.1 Description of the works, C3.1.6 (b)	Design, supply, install, operate and remove a temporary sewer conveyance system capable of conveying sewage at a peak flow of 220l/s for a distance of approximately 100m to allow for the upstream and downstream tie-ins of the new pipeline into the existing infrastructure.				
1.7.1		Temporary bypass pipeline (100m long)	day	20		
1.7.2		2 Diesel driven Sewer pumps with a combined flow of 220l/s Incl. fuel and operator (24hr/day)	day	20		
1.7.3		Temporary sump to collect all incoming flows and from which to convey the sewer	Sum	1		
1.7.4		Any other costs associated with the temporary conveyance system	Sum	1		
TOTAL FOR SECTION 1 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 2 SITE CLEARANCE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
2.1	8.2.1 PSC8.2.1	Clear and grub for width of 3 metres along the pipe route	m	1050		
2.2	8.2.5 PSC8.2.5 a	Take down existing fencing (Concrete type fencing), store and re-instate	m	350		
2.3	PSC8.2.5 b	Install temporary Fence identified by Employers Agent at cemetery location	m	100		
2.4	8.2.8 PSC 8.2.8	Demolish and remove structures				
2.4.1		Manholes	No.	10		
2.5	8.2.10 PSC8.2.10	Remove topsoil to nominal depth of 150mm, stockpile an maintain	m³	480		
TOTAL FOR SECTION 2 CARRIED FORWARD TO SUMMARY						

CONTRACT:

CONTRACT TITLE:

BILL:

SECTION:

DWS18-1120 WTE (WQ-1266GP)

Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

3 EARTHWORKS

BILL OF QUANTITIES

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
3.1	PSD 8.3.10	Topsoiling				
3.1.1		Topsoiling from stockpiles (150mm thick)	m	480		
TOTAL FOR SECTION 3 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 4 EARTHWORKS (PIPE TRENCHES)

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
4.1	8.3.2 PSDB 8.3.2	Excavation				
4.1.1	8.3.2 (a)	Excavate in all material for trenches, backfill, compact and dispose of surplus material, for pipes up to and including 160 mm diameter for total trench depth:				
4.1.1.1		Exceeding 1 m but not exceeding 2 m	m	100		
4.1.2	8.3.2 (a)	Excavate in all material for trenches, backfill, compact and dispose of surplus material, for pipes over 500mm up to and including 800 mm diameter for total trench depth:				
4.1.2.1		Exceeding 1 m but not exceeding 2 m	m	-		Rate Only
4.1.2.2		Exceeding 2 m but not exceeding 3 m	m	440		
4.1.2.3		Exceeding 3 m but not exceeding 4 m	m	380		
4.1.2.4		Exceeding 4 m but not exceeding 5 m	m	250		
4.1.2.5		Exceeding 5 m but not exceeding 6 m	m	120		
4.1.2.6		Exceeding 6 m but not exceeding 7 m	m	-		Rate Only
4.1.3	8.3.2 (a)	Excavate in all material for trenches, backfill, compact and dispose of surplus material, for pipes over 800mm up to and including 1000 mm diameter for total trench depth:				
4.1.3.1		Exceeding 4 m but not exceeding 5 m	m	-		Rate Only
4.1.3.2		Exceeding 5 m but not exceeding 6 m	m	260		
4.1.3.3		Exceeding 6 m but not exceeding 7 m	m	-		Rate Only
4.1.4	8.3.2 (b)	Extra-over items 4.1.2.1 to 4.1.2.6 for:				
4.1.4.1		Hard rock excavation	m ³	350		
4.1.5	8.3.2 (c)	Excavate and dispose of unsuitable material from trench bottom	m ³	1400		
4.1.6	PSD 2.3	Restricted excavation				
4.1.6.1		Restricted excavation at structures:Pump Station 2	m ³	40		
4.2	8.3.3	Excavation ancillaries				
	8.3.3.1	Make up deficiency in backfill material:				
4.2.1		(a) from other necessary excavations on site	m ³	300		
4.2.2		(c) by importation from commercial sources	m ³	600		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP) **BILL OF QUANTITIES**
CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2
BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2
SECTION: 4 EARTHWORKS (PIPE TRENCHES)

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
4.2.3		(c) by importation from commercial sources of a G6 material for backfill under roadways	m ³	500		
4.3		Additional compaction				
	8.3.3.3	Compaction in road reserve				
4.3.1		Additional compaction to 95% mod AASHTO density in road reserves	m ³	500		
	8.3.3.4	Overhaul				
4.3.2		Long overhaul in excess of 5km freehaul distance	m ³ .km	21000		
4.4	8.3.5	Existing services that intersect or adjoin a pipe trench				
4.4.1	8.3.5 (a)	Services that intersect a trench				
4.4.1.1		Stormwater pipes up to 1050mm dia.	No	2		
4.4.1.2		Sewer pipes up to 1050mm dia.	No	1		
4.4.1.3		Potable water mains up to 300mm dia.	No	2		
4.4.1.4		Kerbs and channels	No	10		
4.4.1.5		Electrical cables	No	5		
4.4.1.6		Fibre optic data cables	No	1		
4.4.1.7		Lamp posts	No	1		
4.4.2	8.3.5 (b)	Services that adjoin a trench				
4.4.2.1		Stormwater pipes up to 1050mm dia.	m	50		
4.4.2.2		Stormwater pipes up to 1050mm dia.	m	50		
4.4.2.3		Kerbs and channels	m	20		
4.4.2.4		Potable water mains up to 300mm dia.	m	50		
4.4.2.5		Electrical cables	m	100		
4.4.2.6		Fibre optic data cables	m	100		
4.5	8.3.6	Finishing				
	8.3.6.1 PSDB 8.3.6.1	Reinstate road surfaces complete with all courses				
4.5.1		a) Asphalt of 40mm thickness in roadway	m ²	70		
4.5.2		b) Interlocking brick paving 100mm thick in roadway	m ²	40		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 4 EARTHWORKS (PIPE TRENCHES)

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
4.6	PSDB 8.3.8	Installation of bedding layer for wet conditions (19mm crushed stone 150mm thick)	m ³	120		
4.7	PSDB 8.3.9	Geofabric blanket	m ²	2500		
4.8	PSA8.10	Miscellaneous				
		Installation of subsoil drain 300mm wide x 700mm high				
4.8.1		110mm slotted drain pipe	m	100		
4.8.2		19mm crushed stone	m ³	25		
TOTAL FOR SECTION 4 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP) **BILL OF QUANTITIES**
CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2
BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2
SECTION: 5 EARTHWORKS (ROADS, SUBGRADE)

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
5.1	PSDM 8.3.3	Treatment of roadbed				
5.1.1		a) Road-bed preparation and compaction of material to:				
5.1.1.1		2) Minimum of 93% of mod AASHTO density (150mm thick)	m³	50		
5.2	PSDM 8.3.4	Cut to fill				
5.2.1		a) Compact to 93% mod AASHTO density	m³	150		Rate Only
5.3	PSDM 8.3.6	Extra over items 8.3.4(a) for excavating and breaking down material in				
5.3.1		b) Hard excavation	m³	10		Rate Only
5.4	PSDM 8.3.7	Cut to spoil from				
5.4.1		a) Soft excavation, including all haul	m³	150		
5.4.2		c) Hard excavation, including all haul	m³	-		Rate Only
5.5	SANS 1200ME 8.3.3	Construct fill or selected layer using material from a commercial source				
5.5.1		b) Fill (roads and platforms, minimum G9 material)	m³	50		
5.5.2		c) Selected layer (minimum G7 quality material)	m³	50		
5.6	PSA 8.10	Miscellaneous				
	SANS 1200ME 8.3.3	Construction of temporary access roads				
5.6.1		c) Selected layer (minimum G7 quality material)	m³	50		
TOTAL FOR SECTION 5 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 6 CONCRETE (STRUCTURAL)

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
6.1	8.1.1 PSG8.1.1	FORMWORK				
	8.2.5	Smooth - vertical, straight in narrow widths not exceeding 300mm:				
6.1.1		i) Outer perimeter of footing	m	16		
6.1.2		ii) Outer perimeter of roof slabs	m	12		
	8.2.2	Smooth - vertical, straight:				
6.1.3		i) Walls	m ²	75		
6.1.4		ii) To soffit slabs	m ²	9		
	8.2.6	Box out holes / Form voids and pockets:				
6.1.5		i) Large, other than circular, of area over 0.1m ² up to and including 0.5m ²	No.	1		
6.1.6		ii) Large, other than circular, of area over 0.5m ² up to and including 1.0m ²	No.	3		
6.2	8.1.2 PSG8.1.2	REINFORCEMENT				
6.2.1	8.3.1	Mild steel bars	t	0.5		
6.2.2	8.3.1	High tensile steel bars	t	2.5		
6.3	8.1.3 PSG8.1.3	STRENGTH CONCRETE				
	8.4.2	Class 15 MPa / 19mm mass concrete:				
6.3.1		50mm thick blinding layer	m ²	16		
	PSG 8.16	Provide and install bond breaker :				
6.3.2		250 micron DPC membrane	m ²	16		
	8.4.3	Class 20 MPa / 19mm mass concrete :				
6.3.3		i) Division chamber : Benching	m ³	2.5		
6.3.4		ii) Concrete encasing around 250mm Ø existing inlet pipe.	m ³	1.5		
	PSG 8.15	Treat exposed benching and screed surfaces with :				
6.3.5		1 x coat of Xypex Concentrate Slurry painted over steel floated surface.	m ²	55		
6.3.6		1 x coat of Xypex Modified painted over the Concentrate Slurry layer.	m ²	55		
	8.4.3	Class 35 MPa / 19mm reinforced concrete with ordinary portland cement:				
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 6 CONCRETE (STRUCTURAL)

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
6.3.7		i) In floor slabs	m ³	5		
6.3.8		ii) In walls	m ³	11		
6.3.9		iii) In roof slabs	m ³	2		
6.3.10		Amount of Xypex to be added to the concrete.	kg	540		
6.4	8.4.4 PSG8.4.4	UNFORMED SURFACE FINISHES				
		Steel trowelled finish to level:				
6.4.1		i) Top of roof slab and all external exposed surfaces.	m ²	9		
6.4.2		ii) Top of floor in stilling chamber.	m ²	11		
6.5	8.5 PSG8.5	JOINTS				
		Supply, seal and insert with waterstops				
6.5.1		i) Construction joint (CJ) in floor with waterbar.	m	12		
6.5.2		ii) Construction joint (CJ) in wall with waterbar - horizontal.	m	12		
6.6	PSG 8.10	Items cast in concrete to line and level :				
6.6.1		i) 300mm Ø x 850mm long straight puddle pipe.	No.	1		
6.6.2		ii) 7000mm Ø x 850mm long straight puddle pipe.	No.	2		
6.7	PSG8.14	Carry out water-tightness testing:				
6.7.1		a) Stilling Chamber	No.	1		
TOTAL FOR SECTION 6 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 7 BEDDING (PIPES)

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
7.1		Provision of flexible bedding to HDPE pipes:				
7.1.1	8.2.1 PSLB8.2.1	(a) from trench excavations				
7.1.1.1		(i) selected granular material	m ³	180		
7.1.1.2		(ii) selected fill material	m ³	54		
7.1.2	8.2.2.3	(b) from commercial sources				
7.1.2.1		(i) selected granular material	m ³	1350		
7.1.2.2		(ii) selected fill material	m ³	270		
7.2		Provision of Class B bedding for Concrete pipes:				
7.2.1	8.2.1 PSLB8.2.1	(a) from trench excavations				
7.2.1.1		(i) selected granular material	m ³	20		
7.2.1.2		(ii) selected fill material	m ³	6		
7.2.2	8.2.2.3	(b) from commercial sources				
7.2.2.1		(i) selected granular material	m ³	350		
7.2.2.2		(ii) selected fill material	m ³	80		
7.3	PSDB 8.3.8	Installation of bedding layer for wet conditions (19mm crushed stone 150mm thick)	m ³	120		
7.4	PSDB 8.3.9	Geofabric blanket	m ²	2500		
TOTAL FOR SECTION 7 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 8 SEWERS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
8.1	8.2.1 PSLD8.2.1	Supply, lay, joint, bed, backfill on Flexible bedding and test the following pipes as detailed in the project specifications: (b) 710mm diameter HDPE PE100 pipe with a wall thickness of 44.3mm amd all joints to be butt-welded on site (Rate to allow for non-destructive factory testing, field repair and inspection of joints)				
8.1.1		(ii) DN710	m	340		
8.2	8.2.1 PSLD8.2.1	Lay, joint, bed, backfill on Flexible bedding and test the following pipes as detailed in the project specifications (Pipes supplied by the Employer as indicated in Section "Part C3 Scope of Work" and subsection "C3.4.2 Plant and Materials"):				
	C3.1.1.1	(b) 710mm diameter HDPE PE100 pipe with a wall thickness of 44.3mm amd all joints to be butt-welded on site (Rate to allow for non-destructive factory testing, field repair and inspection of joints)				
8.2.1		(ii) DN710	m	750		
8.3	8.2.1 PSLD8.2.1	Supply, lay, joint, bed, backfill on Rigid Class C bedding and test the following pipes as detailed in the project specifications: (b) 900mm diameter 100D HDPE lined concrete pipe (rate to allow for 200mm wide capping strips welded in accordance with the project specification PS LD3.1.2 to all joints)				
8.3.1		(ii) DN900	m	260		
8.4	8.2.3 PSLD8.2.3	Manholes Sewer Manholes of 1,500mm diameter with concrete bases and chambers, rings, cover and frame complete as per detailed drawings				
8.4.1		over 1,0 m and up to 2,0 m	No.	1		
8.4.2		over 2,0 m and up to 3,0 m	No.	1		
8.4.3		over 3,0 m and up to 4,0 m	No.	1		
8.4.4		over 4,0 m and up to 5,0 m	No.	1		
8.4.5		over 5,0 m and up to 6,0 m	No.	1		
8.4.6		over 6,0 m and up to 7,0 m	No.	1		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 8 SEWERS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
		Sewer Manholes of 1,500mm diameter with concrete bases, cover and frame complete as per detailed drawings (Only Precast manhole rings, covers and frames supplied by the Employer as indicated in "Part C3 Scope of Work", and subsection "C3.4.2 Plant and Materials")				
8.4.7		over 2,0 m and up to 3,0 m	No.	3		
8.4.8		over 3,0 m and up to 4,0 m	No.	1		
8.4.9		over 4,0 m and up to 5,0 m	No.	5		
8.4.10		over 5,0 m and up to 6,0 m	No.	4		
8.4.11		over 6,0 m and up to 7,0 m	No.	2		
8.5	8.2.10 PSLD8.2.1 0	Permanent plug stoppers for pipelines up to 700mm diameter	No.	15		
8.6	8.2.10 PSLD8.2.1 0	Temporary plug stoppers for pipelines up to 700mm diameter	No.	4		
8.7	8.2.11 PSLD8.2.1 1	Connect to existing Sewers Break existing manhole, channel and benching and rebuilt manhole with new channel and benching (Pump Station 2).	No	1		
8.8	8.2.11 PSLD8.2.1 1	Connect to existing Sewers Break existing manhole, channel and benching and rebuilt manhole with new channel and benching (Spitter box connection to Pump Station 10 and Pump Station 3)	No	1		
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 8 SEWERS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
8.9	SANS 1200H	PIPE SPECIALS				
8.9.1		Stainless Steel (grade 316) straight pipes All flanges drilled according to : SANS 1123 Table 1600/3 All welding to be according to Gas Tungsten Arc Welding SANS 053:2005 specifications. Supply, deliver and install:				
8.9.1.1		i) 300mm Ø x 850mm long straight puddle pipe, flanged one end. Puddle placed 125mm from other plain end.	No.	1		
8.9.2		ii) 700mm Ø x 850mm long straight puddle pipe, flanged one end. Puddle placed 125mm from other plain end.	No.	2		
8.9.3		iii) 700mm Ø x 400mm Ø reducer pipe, flanged both ends.	No.	1		
8.9.4		b) Adaptors :				
8.9.4.1		i) 300mm Ø adaptor - uPVC to S/S (grade 316). Klamflex VARlplus-DFA Dedicated Flange Adaptors or similar approved.	No.	1		
8.9.5		ii) 400mm Ø adaptor - AC to S/S (grade 316). Klamflex VARlplus-DFA Dedicated Flange Adaptors or similar approved.	No.	1		Rate Only
8.9.6		ii) 700mm Ø adaptor - HDPE to S/S (grade 316). Klamflex VARlplus-DFA Dedicated Flange Adaptors or similar approved.	No.	1		
8.9.7		ii) 900mm Ø adaptor - Concrete to S/S (grade 316). Klamflex VARlplus-DFA Dedicated Flange Adaptors or similar approved.	No.	1		
8.10	SANS 1200G 8.8 1200HA PSG8.8	HD BOLTS AND MISCELLANEOUS METAL WORK				
8.10.1		Manhole Covers Supply, deliver and cast in the Collector manhole's cover :				
8.10.1.1		900 x 600 x 50mm medium duty FRP manhole cover and frame. UV resistant with non slip surface.(As per manufacturers specifications.)	No.	2		
8.10.2		Locking mechanisms :				
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 8 SEWERS

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
8.10.2.1		Supply, deliver and install 2 x locking mechanisms per FRP grating with heavy duty locks. (As approved by Engineer.) Stainless steel (grade 316) locking mechanism : 1050mm long complete with latch, hinge and locking eye.	No.	2		
8.10.3		Supply, handle and install :				
8.10.3.1		ii) 10mm Ø stainless steel (grade 316) safety harness eye.	No.	2		
8.11	PSA 8.10	MISCELLANEOUS Step irons to be 12mm high tensile steel with injection moulded polypropylene coating As per drawing J40073-3010/01-02-01/D1				
8.11.1		Step irons	No.	48		
8.12	PSLD8.2.1 3	CCTV camera surveys CCTV camera surveys of completed pipelines (any cleaning required for such inspections should be included in the inspection rate)				
8.12.1		Over 500mm and up to 800mm diameter	m	1330		
TOTAL FOR SECTION 8 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 9 SUBBASE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
9.1	8.3.3	Construct subbase with material from commercial sources				
9.1.1		a) 150mm thick layer using minimum G5 quality material (with G4 grading), stabilised to C4 specification	m³	50		
9.2	8.3.5	Process subbase material by the following processes				
9.2.1		d) Stabilisation	m³	50		
9.3	8.3.8	Stabilising agent				
9.3.1		b) Cement, CEM IIA or B, 32.5	m³	4		
9.4	PSA 8.10	Miscellaneous				
	8.3.3	Construction of temporary access roads				
9.4.1		a) 150mm thick layer using minimum G5 quality material	m³	50		
TOTAL FOR SECTION 9 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 10 BASE

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
10.1	8.3.3	Construct 150mm G5 layer from imported commercial sources and compacted to 98% MOD AASHTO density (Nic Botha Street)	m ³	50		
10.2	8.3.3	Construct 150mm G5 layer from imported commercial sources and compacted to 98% MOD AASHTO density (Vaal Showgrounds)	m ³	50		
TOTAL FOR SECTION 10 CARRIED FORWARD TO SUMMARY						

CONTRACT:	DWS18-1120 WTE (WQ-1266GP)	BILL OF QUANTITIES
CONTRACT TITLE:	Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2	
BILL:	1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2	
SECTION:	11 ASPHALT BASE & SURFACING	

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
	8.5.1	Prime coat				
11.1	8.5.1	Prime using Ecoprime or similar approved at 0.8 l/m²	m²	250		
11.2	8.5.4	40mm thick asphalt-continously graded medium grade using 60/70 pen bitumen	m²	250		
TOTAL FOR SECTION 11 CARRIED FORWARD TO SUMMARY						

CONTRACT:	DWS18-1120 WTE (WQ-1266GP)	BILL OF QUANTITIES
CONTRACT TITLE:	Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2	
BILL:	1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2	
SECTION:	12 KERBING AND CHANNELLING	

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
12.1	8.2.1 PSMK 8.1.4	Concrete kerbing				
12.1.1		a) Pre-cast Fig 8 mountable kerb				
12.1.1.1		i) 4m to 20m radius	m	30		
12.1.1.2		ii) Exceeding 20m radius	m	100		
	8.2.2	CONSTRUCT PRECAST CONCRETE SEGMENTED PAVING (pattern and colour to be approved by engineer)				
TOTAL FOR SECTION 12 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 13 SEGMENTED PAVING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
13.1		Supply and lay 60mm interlocking concrete paver (25MPa) including 20mm bedding sand , complete	m²	30		
13.2		Obtain from Stockpile and lay 60mm interlocking concrete paver (25MPa) including 20mm bedding sand , complete	m²	30		
13.2.1	8.2.1	PROVIDE EDGE RESTRAINTS				
13.2.1		Construct insitu 200mm wide x 200mm deep concrete edge beams complete	m	20		
TOTAL FOR SECTION 13 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP) **BILL OF QUANTITIES**
CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2
BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2
SECTION: 14 PIPE JACKING AT NIC BOTHA CROSSING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
	SABS 1200 LG	Pipe Jacking at Nic Botha, between Manhole 12 and 13				
14.1	8.2.1	Jacking establishment				
14.1.1		a) Fixed charges	Sum	1		
14.1.2	8.2.1 PSA 8.2.2	b) Time-related charges for jacking operations	Sum	1		
14.2		Excavation and backfilling				
	8.2.4	Excavate for pipes at the jacking face (including removal and disposal of surplus excavated material within a 0,5 km radius of the working area) in material that is:				
14.2.1		a) Soft cohesive soil	m ³	100		
14.2.2		b) Non-cohesive sand	m ³	30		
14.2.3		c) Hard pickable soil	m ³	20		
14.2.4		d) Cobbles and boulders larger than 150 mm but not larger than 0, 10 m3	m ³	1		
14.2.5		e) Very hard material occurring in bulk requiring extraordinary techniques for breaking, or boulders larger than 0,10 m3, or both	m ³	10		
14.2.6		f) A mixture of two or more of (a) - (e) above	m ³	5		
14.2.7	8.2.4	Overhaul in excess of the 5 km freehaul distance, extra-over items 14.2.1 - 14.2.5, for disposal of surplus excavation	m ³ .km	1500		
14.3	8.2.2	Supply of pipes to be jacked				
14.3.1		1200 mm dia. SC Type, designation 100D in one crossing	m	42		
14.4	8.2.3	Jacking of pipes into their final positions				
14.4.1		1200 mm dia. SC Type, designation 100D at one crossing	m	42		
14.5	8.2.5	Extra-over Items 14.1 and 14.2 for unforeseen rock or boulders (Provisional)	m ³	100		
14.6	8.2.9	Stabilization of unstable areas, where ordered				
14.6.1		a) Provide equipment and remove on completion	Sum	1		
14.6.2		b) Operate equipment	Days	5		
14.6.3		c) Materials	m ³ or kg	10		
14.7	8.2.9	Grouting: Injection of cement/sand grout, mix ration ..., where ordered				
CARRIED FORWARD						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 14 PIPE JACKING AT NIC BOTHA CROSSING

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
		BROUGHT FORWARD				
14.7.1		a) Provide equipment and remove on completion	Sum	1		
14.7.2		b) Operate equipment	Days	5		
14.7.3		c) Materials	m³ or kg	10		
14.7.4	PSLG 8.2.12	d) Provide stable bedding (mixture of sand and cement) for pipe inside jacking sleeve to assure pipe falls with correct slope	m	40		
14.7.5	PSLG 8.2.13	e) Strap the pipe to assure to prevent the pipe from floating	m	40		
TOTAL FOR SECTION 14 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

CONTRACT TITLE: Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL: 1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION: 15 SOCIO ECONOMIC DEVELOPMENT

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	RATE R	AMOUNT R
15.1		SKILLS DEVELOPMENT PROGRAM				
15.1.1		Accredited training programme are targeted which will provide the beneficiaries with significant and recognised credit value in accordance with the National Qualification Framework (NQF) (2.5% of Project Value - Sub Total A)	Sum	1		
15.1.2		Contractors mark-up on Item 15.1.1	%			
15.2		SOCIAL RESPONSIBILITY PROGRAM				
15.2.1		Social Responsibility programs aimed at community development (1.5% of Project Value - Sub Total A)	Sum	1		
15.2.2		Contractors mark-up on Item 15.2.1	%			
15.3		COMMUNITY LIAISON OFFICER				
15.3.1	Contract Part C3 Scope of Work, C3.5.2.4 Community Participation	Community Liaison Officer for the duration of Construction. A key component in aiding the realisation of the SED objectives is effective community liaising with all the relevant role-players, structures, civic organisations and the community at large	Prov.Sum	1	69 212.00	69 212.00
15.3.2		Contractors mark-up on Item 15.3.1	%	69 212.00		
15.4		PARTICIPATION OF LOCAL ENTERPRISES				
15.4.1		Work allocated to local enterprises (inclusive of P&G's and SHEQ) (Minimum 5% of Project Value) (Sub-Total A)	Prov.Sum	1	1 000 000.00	1 000 000.00
15.4.2		Contractors mark-up Item 15.4.1 above	%			
TOTAL FOR SECTION 15 CARRIED FORWARD TO SUMMARY						

CONTRACT: DWS18-1120 WTE (WQ-1266GP)

BILL OF QUANTITIES

Construction of 1,3 km long 710 mm diameter Gravity Main to Pump Station 2

BILL:

1 CONSTRUCTION OF 1,3 km LONG 710 mm DIAMETER GRAVITY MAIN TO PUMP STATION 2

SECTION	DESCRIPTION	AMOUNT R
1	PRELIMINARY AND GENERAL	
2	SITE CLEARANCE	
3	EARTHWORKS	
4	EARTHWORKS (PIPE TRENCHES)	
5	EARTHWORKS (ROADS, SUBGRADE)	
6	CONCRETE (STRUCTURAL)	
7	BEDDING (PIPES)	
8	SEWERS	
9	SUBBASE	
10	BASE	
11	ASPHALT BASE & SURFACING	
12	KERBING AND CHANNELLING	
13	SEGMENTED PAVING	
14	PIPE JACKING AT NIC BOTHA CROSSING	
15	SOCIO ECONOMIC DEVELOPMENT	
	NET TOTAL OF TENDER	
	ADD CONTINGENCIES 0.00% OF NET TOTAL	
	TENDER AMOUNT	
	CONTRACT PRICE ADJUSTMENT PROVISION	0.00
	ALLOWANCE FOR VAT AT 15.00%	
	TOTAL TENDER SUM	

Summary of Bill of Quantities

	AMOUNT
TOTAL FOR SECTION 1 – PRELIMINARY AND GENERAL	R.....
TOTAL FOR SECTION 2 – SITE CLEARANCE	R.....
TOTAL FOR SECTION 3 – EARTHWORKS	R.....
TOTAL FOR SECTION 4 – EARTHWORKS (PIPE TRENCHES).....	R.....
TOTAL FOR SECTION 5 – EARTHWORKS (ROADS, SUBGRADE).....	R.....
TOTAL FOR SECTION 6 – CONCRETE (STRUCTURAL)	R.....
TOTAL FOR SECTION 7 – BEDDING (PIPES)	R.....
TOTAL FOR SECTION 8 – SEWERS	R.....
TOTAL FOR SECTION 9 – SUBBASE	R.....
TOTAL FOR SECTION 10 – BASE	R.....
TOTAL FOR SECTION 11 – ASPHALT BASE & SURFACING.....	R.....
TOTAL FOR SECTION 12 – KERBING AND CHANNELLING.....	R.....
TOTAL FOR SECTION 13 – SEGMENTED PAVING	R.....
TOTAL FOR SECTION 14 – PIPE JACKING AT NIC BOTHA CROSSING	R.....
SUBTOTAL (A) OF TENDER	R.....
TOTAL FOR SECTION 15 – SOCIO ECONOMIC DEVELOPMENT	R.....
NETT TOTAL (B) OF TENDER (SUBTOTAL A + SECTION 13)	R.....
ADD CONTINGENCIES (10% OF SUB-TOTAL):	R.....
Allow the sum of 10% (ten percent) of the above Sub-total for Contingencies to be spent as the Employer's Agent may direct and to be deducted in whole or in part if not required.	
TOTAL INCLUDING CONTINGENCIES	R.....
ALLOWANCE FOR VAT 15%	R.....
CARRIED TO PART C1.1 Form Of Offer And Acceptance.....	R.....

**TIME FOR COMPLETION OF CONTRACT:
AS STATED IN THE FORM OF OFFER (PAGE 108).**

SIGNED BY/ON BEHALF OF TENDERER

NAME

SIGNATURE

DATE

COMPANY STAMP

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Declaration

(In respect of completeness of Tender)

INSERT ADDRESS OF EMPLOYER

285 Francis Baard Street,
Bothongo Plaza East,
Pretoria, 0002

I/we, the undersigned, do hereby declare that these are the properly priced Bill of Quantities forming Part C2.2 of this Contract Document comprising 336 pages + the Bill of Quantities comprising 26 pages in consecutive order upon which my/our tender for the **CONTRACT NO: DWS18-1120 WTE (WQ-1266GP) AND SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2** has been based.

SIGNED BY/ON BEHALF OF TENDERER

NAME

SIGNATURE

DATE

Part C3: Scope of Work

	<u>Page</u>
C3.1 Description Of The Works	164
C3.2 Engineering	166
C3.3 Procurement	168
C3.4 Construction	169
C3.5 Management	242
C3.6 Annexes	251

Status

Should any requirement or provision in the parts of the Scope of Work conflict with any requirement of any Specification(s) forming part of this contract or any drawings, the order of precedence, unless otherwise specified, is:

Drawings
Scope of Work
Specifications

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C3.1. Description of the Works

C3.1.1 Employer's Objectives

The aim of the Sedibeng Regional Sanitation Scheme (SRSS) is to create bulk sanitation capacity in the Sedibeng region, deliver effective solutions to prevent pollution of water resources and unlock development projects that require sanitation services. The Study Area for the SRSS consists of the entire Emfuleni and Midvaal municipal areas. It includes the Sebokeng, Vanderbijlpark, Vereeniging and Meyerton sewerage catchments which are serviced by the Sebokeng, Rietspruit, Leeuwkuil and Meyerton wastewater treatment works (WWTW) respectively. The construction of the 1,3 km long 710mm diameter gravity main to Pump Station 2 is therefore a key component to providing sanitation services to existing and future planned developments, and is prioritised to be implemented.

The Employer's objective is to appoint a qualified Contractor for the construction and commissioning of the gravity main to Pump Station 2 and all associated civil infrastructure.

C3.1.2 Overview of the Works

The purpose of the contract is replace an existing gravity main by constructing a new 1,3 km long 710mm diameter HDPE gravity main from the existing stilling chamber of Pump Station 10 to Pump Station 2.

C3.1.3 Extent of the Works

The Works consists of Civil Works and the Scope of Works includes, but is not limited to, the following complying with the specifications:

- a) Emptying and cleaning of the existing gravity pipeline
- b) Inspecting the existing gravity pipeline with closed circuit television (CCTV) to confirm the grades and levels
- c) Testing the existing gravity pipeline for incorporation into the new gravity main
- d) Clearance of the new proposed pipe route
- e) Supply, lay, bed and commissioning of a new 710mm Ø HDPE gravity main from the existing stilling chamber of Pump Station 10 to Pump Station 2. The Contractor shall install the pipeline starting from the downstream end, thus commencing at Pump Station 2 and working in the upstream direction.
- f) Sewage pumping and/or handling during construction
- g) Locating, exposing and protecting existing services
- h) Connecting new gravity main to the existing infrastructure
- i) Reinstatement of surfaces to original condition
- j) CCTV inspection upon completion of all infrastructure.

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.

C3.1.4 Location of the Works

The Works are located within Emfuleni Local Municipality, near the Vaal Showgrounds, to the south-east of the R59 and Boy Louw Street crossing.

The works location is at approximately Latitude 26°40'30"S and Longitude 27°54'32"E.

C3.1.5 Description of Site and Access

The site consists of mixed land use including both municipal and privately owned property as well as the Vaal show grounds. The site is also adjacent to a cemetery, Access to the site can be obtained via the R28 (Boy Louw Street).

C3.1.6 Temporary Works

The Contractor shall, as relevant, provide for the following temporary works:

- a) Provide temporary drainage works, temporary pumps and other equipment as might be necessary for the protection, draining and dewatering of the works.
- b) Design, supply, install, operate and remove a temporary sewer conveyance system capable of conveying sewage for a distance of approximately 100m to allow for the upstream and downstream tie-ins of the new pipeline into the existing infrastructure. This system will be required to accommodate an average daily flow of 90 l/s and a peak daily flow of 216 l/s. For the connection of the upstream end and the commissioning of the stilling chamber, the construction of a temporary sump to collect all incoming flows and from which to convey the sewer will also be required. The Contractor is to ensure that sufficient planning is done to ensure that the temporary pumping over of sewage for either of the two tie-ins does not exceed 1 calendar week.
- c) Construct and maintain haulage, temporary access and construction roads, subject to the approval of the Employer, and permit the Employer, other Contractors, statutory bodies or any other person who might require legitimate access to or through the site for the purpose of executing legitimate business, free and unhindered usage of such roads.
- d) 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.
- e) 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.
- f) The camp shall be adequately guarded during or outside working hours.
- g) Include the works required to locate, verify and protect existing services within the works area.
- h) Be such to ensure no or limited interruption to vehicular and pedestrian traffic.
- i) Be such as to allow the continued or uninterrupted sewage flow. The Contractor, under the supervision of an experienced manager (from the Contractor personnel), may install plugs in the sewers to prevent the flow of sewage during inspection for a period of no longer than 10 minutes. The plugs must then be removed for a minimum of 10 minutes after which time they may be installed again for the period stated above. Plugs shall only be installed when and for the time period directed by the Employer's Agent where the existing flow hinders proper inspection.
- j) Be such that existing stormwater flow shall not be impeded during survey and construction activities.

Furthermore, the Contractor shall note that no stockpiling of materials, plant, 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.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C3.2. Engineering

C3.2.1 Design Services and Activity Matrix

Responsibilities in terms of design are as follows:

Concept, feasibility and overall process	Employer/Employer's Agent
Basic engineering and detail layouts to tender stage	Employer/Employer's Agent
Final design to approved for construction stage	Employer/Employer's Agent
Temporary works	Contractor
Preparation of accurate information for record drawings	Contractor
GA drawings for mechanical and electrical components	Contractor
Piping and Instrumentation Diagrams (P&ID)	Contractor

C3.2.2 Employer's Design

The design for the works is detailed on the drawings and described in the detail Specifications and the Bills of Quantities.

C3.2.3 Design Brief

The Employer is responsible for the approval and acceptance of the Design. The Contractor undertakes only construction on the basis of full designs issued by the Employer. The Contractor is to follow the specification, the design and construction drawings as laid out by the Employer.

The Contractor shall note the following:

- a) Sewer upgrading shall comply with all applicable local and international standards and guidelines as mandated by the Employer, the SABS, and the supplier and/or manufactures of applicable materials and goods.

C3.2.4 Drawings

I. Tender Drawings

The drawings issued to tenderers as part of the tender documentation shall be regarded as provisional and preliminary to generally assess the scope of the work. The drawings for the works prepared by the Employer/Employer's Agent for the purposes of obtaining tenders are listed in Section C3.6.7: Drawings and Photographs. The work shall be carried out in accordance with the latest available revisions of the drawings as issued for construction.

II. Construction Drawings

Upon receiving the instruction to commence with construction the Contractor shall receive three (3) sets of construction drawings, of which one set shall be designated for as-built records and updated by the Contractor on a daily basis. The later shall be:

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

III. 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 three (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.

IV. Survey Report Drawings

The Contractor shall submit with his survey report(s) a set of drawings highlighting:

- a) The location of sewer manholes,
- b) The location of any other services discovered during construction that were not previously indicated on the provided drawings.

V. Record Drawings

The set of drawings issued as per above for recording survey findings showing manhole numbers that coincide with the survey report coding sheets and video recording, shall be returned to the Employer's Agent on completion of the Contract. The drawings shall be clearly annotated to show any discrepancies between the Employer's record drawings and the contents of the survey report. Such discrepancies shall be brought to the attention of the Employer's Agent during the survey.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C3.3. Procurement

C3.3.1 Preferential Procurement Procedures

C3.3.1.1 Requirements

State requirements appropriate to the methodology and procedures which are to be followed. (See Annex A of SANS 10396. Make reference to Preference Schedules, if any.

C3.3.1.2 Resource Standard Pertaining to Targeted Procurement

State the number, title, part and edition of SANS 1914 Targeted Procurement applicable to the contract and all data, variations and definitions required - e.g. definitions of targeted groups, weighting factors etc. (Refer to SANS 10396 for specific guidance)

- SANS 1914-1:2002 Targeted Construction Procurement Part 1 – Participation of Targeted Enterprises
- SANS 1914-2:2002 Targeted Construction Procurement Part 1 – Participation of Targeted Partners in Joint Ventures
- SANS 1914-3:2002 Targeted Construction Procurement Part 1 – Participation of Targeted Enterprises and Targeted Partners in Joint Ventures
- SANS 1914-4:2002 Targeted Construction Procurement Part 1 – Participation of Targeted Enterprises and Targeted Labour (local resources)
- SANS 1914-5:2002 Targeted Construction Procurement Part 1 – Participation of Targeted Labour
- SANS 1914-6:2002 Targeted Construction Procurement Part 1 – Participation of Targeted Enterprises in Concession Contracts

C3.3.2 Subcontracting

C3.3.2.1 Scope of Mandatory Subcontract Works

This Contract is not eligible to qualify for consideration as a Mandatory Subcontract Works project.

C3.3.2.2 Preferred Subcontractors / Suppliers

List approved domestic subcontractors and suppliers, as necessary.

C3.3.2.3 Subcontracting Procedures

No subcontracting procedures are prescribed to the Tenderer.

C3.3.2.4 Attendance on Subcontractors

The Contractor is responsible for work carried out on his behalf by subcontractors. The Employer's Agent will not liaise directly with such subcontractors and all problems relating to payments, programming, workmanship, method statements, quality control etc., shall be the concern of the Contractor and the subcontractor, and the Employer's Agent will not be involved.

The Contractor shall, on the written request of the Employers Agent, provide documentary evidence showing the value of work sub-contracted to any or all of the sub-contractors employed by the Contractor.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C3.4. Construction

C3.4.1 Works Specifications

C3.4.1.1 Applicable SANS 2001 Standards

- SANS 2001-BE1:2008 Construction works Part BE1 : Earthworks (general)
- SANS 2001-BS1:2008 Construction works Part BS1 : Site clearance
- SANS 2001-CC1:2012 Construction works Part CC1 : Concrete works (structural)
- SANS 2001-CC2:2007 Construction works Part CC2 : Concrete works (minor works)
- SANS 2001-DP1:2011 Construction works Part DP1 : Earthworks for buried pipelines and prefabricated culverts
- SANS 2001-DP4:2010 Construction works Part DP4 : Sewers
- SANS 2001-DP5:2010 Construction works Part DP5 : Stormwater drainage

C3.4.1.2 Applicable National and International Standards

- SANS 4633 Rubber Seals – Joint Rings for water supply, drainage and sewer pipelines – Specification for materials (2008).
- SANS 558 Cast iron surface boxes and manhole and inspection covers and frames
- SANS 966-1 Components of pressure pipe systems Part 1: Unplasticized poly(vinyl chloride) (PVC-U) pressure pipe systems
- SANS 974-1 Rubber joint rings for use in water, sewer and drainage systems
- SANS 1083 Aggregates from Natural Sources – Aggregates for concrete
- SANS 1123 Pipe Flanges
- SANS 1601 Structural wall pipes and fittings of unplasticized poly(vinyl chloride) (PVC-U) or buried drainage and sewerage systems
- SANS 1921-1 General engineering and construction works
- SANS 1921-2 Accommodation of traffic on public roads occupied by the Contractor
- SANS 1921-4 Third-party management support in works contracts
- SANS 1921-5 Earthworks activities which are to be performed by hand
- SANS 1921-6 HIV/AIDS awareness
- SANS 10090 Community protection against fire
- SANS 10102 The selection of pipes for buried pipelines
- SANS 10120 Code of Practice for use with Standardised Specifications for Civil Engineering Construction and Contract Documents
- SANS 10120-2 Project Specifications (blue pages)
- SANS 10120-3 Guidelines for Design (green pages)
- SANS 10120-4 Typical Schedule of Quantities (yellow pages)
- SANS 10120-5 Contract Administration (pink pages)
- SANS 10144 Detailing of steel reinforcement for concrete
- SANS 10403 Formatting and compilation of construction procurement documents
- SANS 10845-1 Processes, methods and procedures
- SANS 10845-2 Formatting and compilation of procurement documentation
- SANS 10845-3 Standard conditions of tender
- SANS 10845-4 Standard conditions for the calling for expressions of interest
- SANS 10845-5 Participation of targeted enterprises in contracts
- SANS 10845-6 Participation of targeted partners in joint ventures in contracts
- SANS 10845-7 Participation of local enterprises and labour in contracts
- SANS 10845-8 Participation of targeted labour in contracts

C3.4.1.2.1 Applicable SANS 1200 Standardised Specifications

The following SANS 1200 Standardised Specifications for Civil Engineering Construction are applicable:

- SANS 1200 A - 1986 General
- SANS 1200 AB - 1986 Engineer's Office
- SANS 1200 C - 1980 Site Clearance (As Amended 1982)
- SANS 1200 D - 1988 Earthworks (As Amended 1990)

- SANS 1200 DB - 1989 Earthworks (Pipe Trenches)
- SANS 1200 DM - 1981 Earthworks (Roads, Sub grade)
- SANS 1200 G - 1982 Concrete (Structural)
- SANS 1200 LB - 1983 Bedding (Pipes)
- SANS 1200 LD - 1982 Sewers
- SANS 1200 LE - 1982 Stormwater Drainage
- SANS 1200 M - 1996 Roads (General)

C3.4.1.3 Particular Specifications

The following variations to SANS 1200 are applicable:

- | | |
|--------|--|
| • PSA | GENERAL (SANS 1200 A) |
| • PSAB | ENGINEER'S OFFICE (SANS 1200 AB) |
| • PSC | SITE CLEARANCE (SANS 1200 C) |
| • PSD | EARTHWORKS (SANS 1200 D) |
| • PSDB | EARTHWORKS (PIPE TRENCHES) (SANS 1200 DB) |
| • PSDM | EARTHWORKS (ROADS, SUBGRADE) (SANS 1200 D) |
| • PSG | CONCRETE (STRUCTURAL) (SANS 1200 G) |
| • PSLB | BEDDING (PIPES) (SANS 1200 LB) |
| • PSLD | SEWERS (SANS 1200 LD) |
| • PSLE | STORMWATER DRAINAGE (SANS 1200 LE) |
| • PSM | ROADS (GENERAL)(SANS 1200 M) |

NOTE : Numbering in the Project Specifications correspond with the numbering of clauses in the Standard Specifications (SANS 1200). Additional clauses are preceded by an asterisk “*”.

Tenderers must make provision for all the relevant Specifications to be included when calculating the prices of the various items in the Bill of Quantities.

In addition, the sum tendered shall cover all initial costs incurred in complying with the requirements of C1.2 Contract Specific Data.

PSA GENERAL (SANS 1200 A)

PSA 2 INTERPRETATIONS

PSA 2.2 Applicable edition of standards

Add at the beginning of SANS 1200 A, sub-clause 2.2:

"Unless a specific edition is specified (see the List of Applicable Specifications)"

PSA 2.3 Definitions

Add at the beginning of SANS 1200 A, sub-clause 2.3:

"The terms "ESCOM", "ESC" and "Electricity Supply Commission" shall mean "Eskom".

PSA 2.4 (b) Abbreviations

Add the following to SANS 1200 A, sub-clause 2.4(b):

"MAMDD: Modified AASHTO maximum dry density."

PSA 2.8.1 Principle

In the fourth line of SANS 1200 A, sub-clause 2.8.1, after the word "specification", add: "or in the measurement and payment clause of the standard specification, particular specification or project specification".

Add the following to SANS 1200 A, sub-clause 2.8.1:

"Items which are designated as provisional quantities or provisional in the Bill of Quantities are intended to provide for works, the need or extent of which cannot be forecast. Work scheduled as such shall only be undertaken on the written instruction of the Employer's Agent and, where applicable, shall be paid for at the tendered rate or in the absence of rates shall be valued in accordance with Clause 6.4 of the General Conditions of Contract.

The Bill of Quantities shall not be used for ordering purposes and no liability or responsibility shall be admitted by the Employer's Agent in respect of materials ordered or procured by the Contractor on the basis of the Bill of Quantities."

PSA 2.8.2 Preliminary and general section

Add the following to SANS 1200 A, sub-clause 2.8.2:

"In addition, the sum tendered shall cover all initial costs incurred in complying with the requirements of:

- Contract Specific Data (Part C1.2)
- Scope of Work (Part C.3)
- Site Information (Part C.4)

Facilities for the Contractor shall include all the costs of providing water for construction other than the water required for watertightness testing of water retaining structures. Water for such tests will be measured according to PSG 7.2.5 Watertightness test.

The Contractor is to make his own arrangements with DEPARTMENT OF WATER AND SANITATION for water and sanitation connections.

No separate payment will be made for the cost of constructing and maintaining the temporary access roads, the removal of the roads and the reinstatement of the areas, on completion. The sums tendered for in the Bill of Quantities shall include all such costs."

Add the following new sub-clause to SANS 1200 A, sub-clause 2.8:

***PSA 2.8.3 Time-related items**

"The Contractor shall tender a lump sum in the Bill of Quantities to cover his time-related establishment costs. The amount tendered and paid shall be full compensation to the Contractor for:

- i) The maintenance of his whole organization as established for this Contract.
- ii) The maintenance of all insurances, indemnities and guarantees required in terms of the Conditions of Contract or Tender, where applicable.
- iii) Compliance with all general conditions and requirements which are not specifically measured elsewhere for payment in these Contract Documents.

The Contractor shall tender a lump sum for the above mentioned items.

Payment of the lump sum shall be made monthly in compliance with the method laid down in Sub-clause 8.2.2 of SANS 1200:A. Provided 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.

The Contractor will not be paid Time-Related Preliminary and General Charges for any Special Non-Working Days, which shall be deemed to have been allowed for in his rates.

The payment to the Contractor for Time-Related Items shall be adjusted in accordance with the following formula in the event of the Contract being extended by means of a variation order:

$$1 \times \frac{2}{3}$$

Sum of Tendered amounts for Time Related Items (1) x $\frac{\text{Extension of Time authorised by variation order (2)}}{\text{Tender contract period (3)}}$

*For the purposes of applying this formula "Extension of Time" will exclude the Contractor's December/January close-down period, if applicable.

The abovementioned adjustment of the payment for Time-Related Items shall be made in the Completion Payment Certificate and shall be the only payment for additional Time-Related costs, irrespective of the actual period required to complete the Contract including its authorised extensions.

In the case of fixed price contracts, the amount by which the Time-Related Items is adjusted shall not be subject to the Contract Price Adjustment formula.

In the case of contracts subject to Contract Price Adjustment the amount by which the time-related items are adjusted shall be subject to the Contract Price Adjustment formula.

Where extension of time is approved, payment for time-related items shall only be applicable to working days as defined in the Contract."

PSA 3 MATERIALS

PSA 3.1 Quality

Add the following to SANS 1200 A, sub-clause 3.1:

"Where material to be used in this Contract is specified to comply with the requirements of an SABS Standard Specification, and such material is available with the official SABS mark, the material used must bear the official mark as proof of quality.

The Contractor shall submit in good time, before any construction commences, to the Employer's Agent on site samples of all materials intended to be incorporated into the Works. The samples shall be accompanied by results of tests undertaken by an approved independent laboratory on the samples in question on behalf of the Contractor and at his cost, before consideration by the Employer's Agent.

The Employer's Agent, during construction, will take independent samples from stockpiles of proposed construction materials on site and from the completed works. Approval will not be granted for samples delivered by the Contractor directly to the Employer's Agent's office. The Contractor shall be responsible for the cost of all failures on test samples and control testing.

All pipes, fittings and materials used in the Works, must bear the official standardisation mark of The South African Bureau of Standards, where applicable. The mark and the class of a pipe shall be visible from above after the pipe is laid.

Rubber articles, including pipe insertion or joint rings shall be stored in a suitable shed and kept away from sunlight, oil or grease.

Large items not normally stored in a building (or storage shed) shall be neatly stacked or laid out above ground on suitable cleared areas on the Site. Grass or vegetation shall be kept short (or completely removed) in the storage areas and the material shall be kept free of dust, mud and be protected from stormwater and ponding water. Pipes shall be handled and stacked in accordance with the manufacturer's recommendations. Special care must be taken to avoid placing pipes over hard objects and stacking pipes to heights above those recommended by the manufacturer. uPVC pipes shall be protected from direct sunlight with suitable covers. Reinforcing will also be staked above ground with no grass cover beneath it. All reinforcing must be cleaned with steel brush before utilised in any structures construction.

Every precaution shall be taken to keep cement dry and prevent access of moisture to it from the time it leaves the place of manufacture until it is required for use on the Site. Cement is to be used on a first in/first out basis. Bags of cement which show any degree of hydration and setting shall be removed from the site of the Works and replaced at the Contractor's own expense. Any cement older than six weeks is to be removed from site.

Materials shall be handled with proper care at all times. Under no circumstances may materials be dropped from vehicles. Large pipes or large plant shall be lifted or lowered only by means of suitable hoisting equipment.

Proprietary materials are specified to indicate the quality, or type of materials, or specific articles, required for the specific installation or construction purpose. The terms "or other approved" or "or approved equivalent" are used in connection with proprietary materials or articles. The Contractor is to supply with their tender the name of the manufacturer and supporting documentation which shows that the materials or articles comply with the relevant specifications. It is understood that the approval shall be at the sole discretion of the Employer and the Employer's Agent."

PSA 4 PLANT

PSA 4.2 Contractor's offices, stores and services

Add the following to SANS 1200 A, sub-clause 4.2:

"The suitable first aid services required in terms of sub-clause 4.2 of SANS 1200 A shall include, inter alia, a First Aid cabinet fully equipped and maintained with at least the minimum contents as listed in Regulation 3 of the General Safety Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), to deal with accidents and ailments which are likely to occur during the construction period."

Add the following new sub-clauses to SANS 1200 A, sub-clause 4.2:

***PSA 4.2.1 Accommodation for employees**

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

The Employer will place an area of ground at the disposal of the Contractor at construction site to enable him to erect his site offices, workshops and stores. The temporary facilities and ablution facilities shall comply with the requirements of the Local Authority. The Contractor shall fence all those areas in which movement of his construction equipment and personnel will take place and he shall provide his own site security.

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

***PSA 4.2.2 Condition and availability of plant**

"All plant and equipment to be supplied by the Contractor shall be in a sound working condition and of adequate capacity to complete the works well within the period or periods specified or stated in the Contract Data.

Execution of this contract is likely to require excavations of soil material, moving of earth material and demolition of concrete. The Contractor is therefore required, on the included forms, to provide satisfactory information concerning plant and labour to indicate that he is adequately equipped to execute the work involved.

To avoid delays and reduce shut-down time to a minimum it is a particular requirement of this contract that the Contractor shall have available sufficient dewatering pumps on site to ensure that excavations are kept dry at all times.

In addition, he shall have available on the site adequate standby plant to ensure that operations designed to be executed continuously are not disrupted by the breakdown of any plant provided for such operations. He shall also provide for equipment such as lighting plant and generator and adequate spares and tools to cope with emergencies that may occur at any time during the execution of the works."

PSA 5 CONSTRUCTION

PSA 5.1.1 Setting out of the works

Add the following to SANS 1200 A, sub-clause 5.1.1:

"The Contractor shall be fully responsible for the setting out of the Works, and where labour intensive work is specified, for the setting out of the daily tasks.

The Contractor must, within two (2) weeks after the site has been handed over, ascertain the correctness of all the setting out pegs and bench marks. Any discrepancy shall immediately be reported in writing to the Employer's Agent. Any costs or subsequent costs arising from discrepancies which had not been reported to the Employer's Agent, within the aforementioned period, shall be the sole responsibility of the Contractor.

Before commencement of work, the Contractor is to liaise with the Employer's Agent to establish exactly the status of all boundary pegs adjacent to the Works. The position of all erf pegs found must be recorded on a layout print. If any pegs are missing, he shall immediately inform the Employer's Agent in writing.

On completion of the Contract the pegs that have been unavoidably disturbed will be replaced by the Employer. Pegs which have, in the opinion of the Employer's Agent, been disturbed due to the negligence of the Contractor will be replaced by a registered Land Surveyor at the Contractor's cost."

PSA 5.2 Watching, barricading, lighting

Add the following to SANS 1200 A, sub-clause 5.2:

"The Contractor shall employ competent watchmen to guard the Works both by day and night.

From the time any portion of the Works commences, until the Taking-Over of the Works and the issue of the Certificate of Completion, the Contractor shall be responsible for protecting the property of the Employer. The Contractor shall also be responsible for all persons having business on the Site from anything dangerous, or likely to cause damage or injury. The Contractor shall take all practical precautions to avoid nuisance or inconvenience

to the owners / occupiers of properties near to the Site, as well as the public generally, whilst carrying out the Works. The Contractor shall at all times keep the Site clean and in a safety and satisfactory condition.

Temporary traffic signs shall be erected when work is being done within and adjacent to roadways. The number and layout of the traffic signs shall comply with the Site Manual entitled "Safety at Roadworks in Urban Areas", as published by the Department of Transport. Traffic signs shall have a yellow background with either a red or black border."

PSA 5.3 Protection of structures

Add the following paragraph to SANS 1200 A, sub-clause 5.3:

"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 representative of local or controlling authorities, as appropriate, to determine the condition of structures, services, buildings and property that the works could affect. The Contractor shall document their current condition in sufficient detail to enable disturbances or damage (or both) which might be caused by the works to be constructed.

The Contractor shall furnish the Employer with copies of all such documentation and shall be held responsible for any disturbance and damage to such structure, services, building and property arising from the performance of the contract."

PSA 5.4 Protection of overhead and underground services

Add the following to SANS 1200 A, sub-clause 5.4:

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

The Contractor shall, on becoming aware of a defect on the existing works which have an impact on the performance of the contract, notify the Employer's Agent of such defect without delay.

Temporary and permanent alterations made to existing services by the Contractor will be measured and paid under the relevant scheduled items. The length of a service that is re-laid will be measured in its final position.

The sums or rates (as indicated in the Bill of Quantities) shall cover the cost of excavation and backfilling, lifting, recovery of the existing service, laying of the service in the new position, any other related work and materials such as new rubber ring seals, packing, etc., required to complete the alteration.

New material can be used to make up shortfalls resulting from a longer route, existing material damaged during recovery (beyond the control of the Contractor), and other additional work carried out by the Contractor in making permanent alterations. These new materials, for which no scheduled items apply for, will be measured and paid under "SCHEDULE OF DAYWORK RATES".

All additional work to locate and expose the existing service if the existing service is situated further than 2,0 m from the position indicated, (i.e., excluding the initial work within 2,0 m from the indicated position) will be measured and paid under "SCHEDULE OF DAYWORK".

The tendered rates shall further cover the cost of backfilling the excavation with selected material compacted to 90% AASHTO density, keeping the excavation safe and taking care that the services are not damaged in any way. No direct payment will be made for the protection of such services."

PSA 5.5 Dealing with water on works

Add the following to SANS 1200 A, sub-clause 5.4:

"The Contractor shall take all precautions to keep stormwater away from the excavations. He shall deal with all water inclusive of seepage and groundwater, such that construction is not hampered and shall supply and operate all necessary plant.

The Contractor will not be allowed to divert stormwater or groundwater seepage into the sewer network. Such flows must be diverted to the nearest suitable stormwater drainage infrastructure.

The cost of supplying and operating the equipment for dewatering of excavations and the controlling of stormwater or groundwater seepage, shall be covered by the tendered sums in the Bill of Quantities."

Add the following new sub-clause to SANS 1200 A, sub-clause 5.6:

***PSA 5.6.1 Environment management**

"Compliance with the Environment Management Plan of the approved Environmental Impact Assessment Report in terms of the Department of Environmental Affairs and Tourism regulations is a prerequisite for the Contractor.

The Contractor is to price the lump sum provision provided in the Preliminary and General Section of the Bill of Quantities to cover the Contractor's cost for compliance with the requirements of the Environment Management Plan. The cost of producing the Environment Management Plan as well as training and appointing the necessary personnel to ensure compliance with the required regulations and specifications, shall be included in this lump sum.

A provision for a Time Related Item is made in the Preliminary and General Section of the Bill of Quantities. The amount submitted shall include full compensation for the provision of the training, plans, audits, assessments, administration, etc. and all other costs required for full compliance.

Fines issued for non-compliance will be deducted from these Provisional Sums, but are not limited to the value of the Provisional Sum stated."

PSA 5.7 Safety

Add the following to SANS 1200 A, sub-clause 5.7:

"Compliance with Occupational Health and Safety Act, 1993, the Construction Regulations, 2014 and the Employer's Health and Safety Specification, is another prerequisite for the Contractor. The Contractor is to price the lump sum provision provided in the Preliminary and General Section of the Bill of Quantities, to cover the Contractor's cost for compliance with the requirements mentioned above. The cost of producing the Contractors Safety Management Plan and Risk Assessment as well as training and appointing the necessary personnel to ensure compliance with the required regulations and specifications, shall be included in this lump sum.

A provision for a Time Related Item is made in the Preliminary and General Section of the Bill of Quantities. The amount submitted shall include full compensation for the provision of the training, PPE's, plans, audits, assessments, administration, etc. and all other costs required for full compliance. Fines issued for non-compliance will be deducted from the above Provisional Sums, but are not limited to the value of the Provisional Sum stated.

No separate item shall be allowed for in the Bill of Quantities for the accommodation of traffic. The Contractor's movement of construction activities is mainly between the site camp and the construction site which does not cross any municipal roads. In the event that the Contractor need to cross any municipal roads, he will ensure that he takes all necessary precautions for safety which will be deemed included in his rates."

Add the following new sub-clauses to SANS 1200 A, clause 5:

***PSA 5.9 Record drawing information**

"As the Works progress, the Contractor shall mark on a special set of drawings, all as-built details and submit the information to the Employer's Agent's Representative for approval on a monthly basis. No extra payment shall be made for preparation of these as-built plans and recording as built information.

The Certificate of Completion shall only be issued once all the as-built information has been received and verified by the Employer's Agent."

***PSA 5.10 Clearance of site on completion**

"The Contractor shall obtain a certificate, signed by each property owner listed in the Project Specification as being affected by the Works, which indicates that the property owners are satisfied with the standard of reinstatement of any fences, boundary walls and structures.

The Contractor should also obtain a similar certificate of satisfaction for any compensation paid for loss or damage to stock, crops or property, material spoiled on their properties or any other condition affecting their properties as a result of the operations of the Contractor. All such certificates must be lodged with the Employer's Agent before the Certificate of Completion will be issued."

***PSA 5.11 Community Liaison Officer**

"A provisional monthly rate has been included to allow for the salary of a person working full time as the Community Liaison Officer, for the duration of this Contract's construction period. The Contractor shall ensure

that the salary and other expenses such as payment to the PSC (Project Steering Committee) are paid on time and recorded.

A separate, percentage based item, for overheads, charges and profit on the above item is applicable.”

***PSA 5.12 Connection into existing sewers**

“A provisional sum has been included to cover the cost of connecting into the existing sewer. The sum includes all labour, plant, specials, and materials required to complete the work, and deal with the existing flaws. Payment for all the work will be based on existing rates and/or Daywork rates where applicable.”

***PSA 5.13 Relocation of existing services**

“A provisional sum has been included to cover the cost of re-locating existing services. The sum includes all labour, plant, specials, and materials required to complete the work. Payment for all the work will be based on existing rates and/or Daywork rates where applicable.”

PSA 6 TOLERANCES

PSA 6.2 Degrees of Accuracy

Add the following to SANS 1200 A, sub-clause 6.2:

“The degree of accuracy shall be Degree II except for:

- a) Smooth formwork which shall be Degree I.”

PSA 7 TESTING

PSA 7.1 Testing principles

Add the following to SANS 1200 A, sub-clause 7.1:

“Every completed layer or section of the Works shall be subject to check testing by the Contractor. Whenever possible the check testing should be done in the presence of the Employer’s Agent. Once the Contractor is satisfied with the standard of the Works, the Employer’s Agent will be requested to perform acceptance testing for the particular section. When giving notice, the Contractor shall provide the Employer’s Agent with the results of the check testing, thus indicating that the Work is to specification. The Employer’s Agent shall be given 48 (forty-eight) hours’ notice of when testing or inspections are required.

The Employer’s Agent may from time to time carry out his own check tests on the work performed by the Contractor. Should these test result differ significantly from the data provided by the Contractor, the quality of the Contractor’s control testing can be called into question. Upon such a discovery the Employer’s Agent may order further check tests to be carried out on work already completed. All costs associated with such check tests shall be for the Contractor’s account, and so shall the costs of any other check tests whose results do not comply with the specification.

Failure by the Contractor to notify the Employer’s Agent or to provide the required information or, where specified, to perform the required test, will be grounds to exempt the Employer from payment for the associated work. This exemption is applicable to all subsequent work, which would be affected by the failure of the specific portion not tested.

The Employer’s Agent will be under no obligation to the Contractor to perform acceptance tests. If the Employer’s Agent elects not to perform a particular test after notification by the Contractor and is satisfied with results of the Contractor’s check tests, the Contractor will be issued with a written instruction to proceed with the relevant works without the acceptance test being performed.

Nothing contained in this clause will relieve the Contractor of any responsibilities under the specifications or in any way limit the tests, which the Employer’s Agent may call for or perform in terms of the specification.

The Employer reserves the right to recover cost from the Contractor in instances where the Employer’s Agent is called to witness certain control tests, such as the pressure testing of a pipeline, and the results of such tests do not comply with the specifications.”

PSA 7.2 Approved laboratories

Replace SANS 1200 A, sub-clause 7.2 with the following:

"Acceptance testing shall be done by a laboratory selected by the Employer's Agent. The Employer's Agent requires 24 (twenty-four) hours' notice from the Contractor in order to perform the relevant acceptance test.

All acceptance testing by the Employer's Agent shall be paid by the Contractor. The cost of such tests which meet the specification requirements will be reimbursed to the Contractor in the monthly payment certificate. This payment amount shall consist of a billed amount plus the tendered mark-up.

A Provisional Sum for the sole use of the Employer's Agent has been provided in the Bill of Quantities to allow for the cost of such testing.

The Contractor shall make due allowance for testing procedures in the construction programme."

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.2.2 Time related items

Replace SANS 1200 A, sub-clause 8.2.2 with the following:

"Payment for time-related items will be effected as follows only after payment for the relevant fixed-charge item has been made: Subject to the provision of SANS 1200 A, sub-clauses 8.2.3 and 8.2.4 payment will be made monthly in equal amounts, calculated by dividing the sum tendered for the item by the tendered contract period in months, multiplied by the months completed, 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."

PSA 8.3 Scheduled fixed-charge and value-related items

SANS 1200 A, sub-clause 8.3 to include payment for:

PSA 2.2	Interpretations
PSA 2.8.1	Principle
PSA 2.8.2	Preliminary and general
PSA 3.1	Quality
PSA 5.1.1	Setting out of the works
PSA 5.2	Watching, barricading, lighting
PSA 5.3	Protection of structures
PSA 5.4	Protection of overhead and underground services.
PSA 5.9	Record drawing information
PSA 6.2	Degrees of accuracy

PSA 8.3.2.2 (a) Offices and storage sheds

SANS 1200 A, sub-clause 8.3.2.2 (a) to include payment for:

PSA 4.2	Contractor's offices, stores and services
---------	---

PSA 8.3.2.2 (h) Dealing with water

SANS 1200 A, sub-clause 8.3.2.2 (h) to include payment for:

PSA 5.5	Dealing with water on works
---------	-----------------------------

PSA 8.3.3 Other fixed charge obligations

SANS 1200 A, sub-clause 8.3.3 to include payment for:

*PSA 5.6.1	Environmental Management
PSA 5.7	Safety
*PSA 5.11	Community liaison officer
*PSA 5.12	Connection into existing sewers
*PSA 5.13	Relocation of existing sewers

PSA 8.3.4 Removal of site establishment

SANS 1200 A, sub-clause 8.3.4 to include payment for:

*PSA 5.10	Clearance of site on completion
-----------	---------------------------------

PSA 8.4 Scheduled time-related items

SANS 1200 A, sub-clause 8.4 to include payment for:

*PSA 2.8.3 Time related items

PSA 8.4.2.2 (a) Offices and storage sheds

SANS 1200 A, sub-clause 8.4.2.2 (a) to include payment for:

PSA 4.2 Contractor's offices, stores and services

PSA 8.4.2.2(h) Dealing with water

SANS 1200 A, sub-clause 8.4.2.2 (h) to include payment for:

PSA 5.5 Dealing with water on works

PSA 8.4.3 Supervision for duration of construction

SANS 1200 A, sub-clause 8.4.3 to include payment for:

*PSA 5.9 Record drawing information
PSA 6.2 Degrees of accuracy
PSA 7.1 Testing principals
PSA 3.1 Quality
PSA 5.1.1 Setting out of the works
PSA 5.2 Watching, barricading, lighting
PSA 5.4 Protection of overhead and underground services

PSA 8.4.5 Other time-rated obligations

SANS 1200 A, sub-clause 8.4.5 to include payment for:

*PSA 5.6.1 Environmental management
PSA 5.7 Safety
*PSA 5.11 Community liaison officer

PSA 8.5 (b) Sums stated provisionally by Engineer

SANS 1200 A, sub-clause 8.5 (b) to include payment for:

PSA 7.2 Approved laboratories

Add the following new sub-clause to SANS 1200 A, clause 8:

***PSA 8.10 Miscellaneous items**

"An item which, in the payment clause column of the Bill of Quantities, refers to this clause will be measured in the unit scheduled.

The sum or rate for such item shall cover the cost of all materials, labour and plant required to execute and complete the work as specified, described in the Bill of Quantities or shown on the drawings."

PSAB ENGINEER'S OFFICE (SANS 1200 AB)

PSAB 3 MATERIALS

PSAB 3.1 Nameboards

Adjust the first sentence of the first paragraph of SANS 1200 AB, sub-clause 3.1 to read as follows:

Delete: "The standard board of the South African Institution of Civil Engineers" **and replace by:** "the standard nameboard of EMFULENI LOCAL MUNICIPALITY's Engineering Department, all in accordance with standard drawing issued by the Employer's Agent contained in this document under Annexes C3.6."

Add the following the following to SANS 1200 AB, sub-clause 3.1:

"Two Employer's nameboards shall be erected within one month of the commencement of construction and shall be placed where ordered by the Employer's Agent. Any damage to this board shall be repaired within 14 days of a written instruction received from the Employer's Agent. The cost of the repair will be for the Contractor's account.

Erection of two Contractor's nameboards of maximum size 2.5 x 3 m will be allowed in the area of the Works, at positions approved by the Employer's Agent, who may at any time order their removal if any objections are received.

Sub-contractor's boards may be erected if sanctioned by the Employer's Agent. All nameboards shall be removed 14 days prior to the date of the Performance Certificate."

PSAB 3.2 Office building

Adjust the first sentence of the first paragraph of SANS 1200 AB, sub-clause 3.2 to read as follows:

"The Contractor shall supply, erect, maintain and service one office with adequate lighting for the sole use of the Employer's Agent's and the Employer."

The furniture stated in SANS 1200 AB, sub-clause 3.2, (a.... j) shall be replaced by the following items to be provided in the site office:

- a) One desk(1.5m x 0.9m) with at least one lockable drawer and 3 office chairs
- b) One plans table (2 m long x 1 m wide x 0.9 m high) suitable for working with AO drawings plus one high stool.
- c) One A0 plan rack and hangers to accommodate 30 drawings hanging vertically.
- d) One lockable upright steel cabinet with three shelves or a lockable steel filing cabinet with four drawers
- e) At least four metres of file/book shelving.
- f) One noticeboard/pin-board of 2 m² size
- g) One whiteboard of 2 m² size with 3 coloured markers and duster
- h) Two independent power points, each supplied with a four plug extension cord
- i) One suitable electrical heater/air conditioner
- j) Adequate equipment and provisions for making tea or coffee.
- k) One small electric refrigerator.
- l) One small microwave oven.
- m) An acceptable blind on each window.
- n) A wash-hand basin inclusive of all necessary plumbing, soap and paper towels.
- o) Acceptable lighting

Add the following to SANS 1200 AB, sub-clause 3.2:

"The Contractor shall also supply and maintain two corrugated iron covered carports with closed sides and gravelled floor for the sole use of the Employer's Agent's Representative and the Employer.

The Contractor shall also supply, maintain and service a boardroom for 20 m² minimum floor area able to seat 10 people for joint use by him, the Employer's Agent's and the Employer. This room shall be equipped with adequate lighting, chairs, tables, a 2 m² noticeboard, a 2 m² whiteboard with stationary and air-conditioning."

PSAB 4 PLANT

PSAB 4.1 Telephone

Replace SANS 1200 AB, sub-clause 4.1 with the following:

“Mobile phone

“A provisional sum has been allowed for the Contractor to supply the Employer’s Agent’s with a new mobile phone inclusive of sim card as soon as the contract has commenced and pay for all calls made from this phone up to a maximum amount of R3 000.00 per month

Telephone, Fax and Mobile Network

The contractor shall supply a site telephone, fax, photocopier and a reliable ADSL facility for use by the Employer’s Agent’s for the duration of contract. The Contractor shall be responsible for the cost of all calls, installation, rental, supplies, maintenance, etc.

The ADSL facility may require a separate installation with modem from 8-ta, Space Stream or V-Sat.

Add the following new sub-clauses to SANS 1200 AB, clause 4:

***PSAB 4.2 Computer**

“A provisional sum of R50 000.00 has been allowed for the purchase of a computer, printer, scanner and copier, with required software for full functionality of all hardware, for the exclusive use of the Employer’s Agent’s for the duration of the contract.”

***PSAB 4.3 Survey equipment**

“The Contractor shall upon request provide the following survey equipment on the Site from commencement to the completion of the Works.

- (a) 1 Engineers level and levelling staff.
- (b) 1 steel tape of 100 m length and measuring wheel.
- (c) Wooden and steel pegs and hammers as required.

The equipment shall be provided for the exclusive use of the Employer’s Agent. The Contractor shall keep the equipment continuously insured against any loss, damage or breakage, and he shall indemnify the Employer’s Agent and the Employer against any claims in this regard. The Contractor shall also maintain the equipment in good working order throughout the Contract period.

The following additional equipment/service may be required from time to time by the Employer’s Agent’s and shall be supplied by the Contractor when required. The equipment/service may be shared with the Employer’s Agent.

- (d) Two chainmen to assist with levelling and surveying;
- (e) Theodolite and prism;
- (f) Spray paint (selected colour)

Upon completion of the whole of the Works, ownership of the above equipment shall revert to the Contractor.”

***PSAB 4.4 Site instruction books and daily site diary**

“The Employer’s Agent shall supply a site instruction book for specific use on the Site. All instructions given by the Employer’s Agent’s must be confirmed, signed, and countersigned by the Contractor.

The Contractor shall supply a triplicate book for site correspondence and inspection requests to the Employer’s Agent. Reasonable notice time shall be allowed prior to inspections. All inspections requests and approval/disapproval thereof shall be recorded by the Site staff in writing.

The Contractor in conjunction with the Employer’s Agent must ensure that a suitable site quality record system is put in place to record that each section complies with the relative works specification.

The Contractor and the Employer’s Agent shall keep a daily diary recording all the pertinent information and sign acceptance of each other’s record on a daily basis. The daily record is to include weather conditions, any other factor that may affect the progress, labour on site, activity in progress, materials delivered, delays including reasons, site instructions received, plant on site and remarks pertaining to any other event on site.”

PSAB 8 MEASUREMENT AND PAYMENT

PSAB 8.2 Payment

SANS 1200 AB, sub-clause 8.2 to include payment for:

PSAB 3.1	Nameboards
PSAB 3.2	Office building
PSAB 4.1	Telephone
PSAB 4.2	Computer
PSAB 4.3	Survey equipment
PSAB 4.4	Site instruction book and daily site diary

Add the following new sub-clauses to SANS 1200 AB, clause 8:

***PSAB 8.3 Electronic equipment for the Employer's Agent**

"The Contractor will provide various items of electronic equipment for the exclusive use by the Employer's Agent and his site staff, to assist in the administration of the Contract, for the duration of construction. The equipment may include a digital camera(s), computer(s), software, printer(s), GPS, cell phones and related consumables.

The equipment shall remain the property of the Employer's Agent during the execution of the project, where after ownership will revert to the Employer. The Contractor shall have no obligation other than the payment in terms of PSAB 8.2."

PSC SITE CLEARANCE (SANS 1200 C)

PSC 3 MATERIALS

PSC 3.1 Disposal of materials

Add the following to SANS 1200 C, sub-clause 3.1:

"Unless otherwise ordered by the Employer's Agent, the Contractor shall dispose of material resulting from clearing and demolition operations at a site to be determined by the Contractor. Such a site shall have the approval of the Employer's Agent, the Local Authority and the Environmental Officer. No additional payment will be made for the transportation of such material."

PSC 5 CONSTRUCTION

PSC 5.1 Areas to be cleared and grubbed

Add the following to SANS 1200 C, sub-clause 5.1:

"All areas to be constructed on inclusive of a two meter strip round the perimeter of each structure shall be cleared and grubbed. A strip up to 1.5m wide on either side of the centerline of the pipes shall be cleared and grubbed. This work will be paid under the relative item in the Bill of Quantities.

For the access and site roads the width of clearing shall only be sufficient for the construction of the road i.e. for the cut and fill operations and allowing for side slopes. The cost of this work will be for the contractor's account.

The platform constructed shall be cleared and grubbed to the toe of the outside slope including the concrete block retaining wall. Clearance for workspace shall be included in the rate.

No trees with a trunk girth of more than 1 m shall be removed without the written permission of the Employer's Agent."

PSC 5.3 Clearing

Add the following to SANS 1200 C, sub-clause 5.3 (e):

"Where the sewer pipeline route crosses an existing fence or wall, a section of fencing or wall not exceeding 50,0 m in length may be removed temporarily during construction and thereafter reinstated to a condition of equal or better than the original condition as soon as the pipeline has been installed and backfilled in the immediate vicinity of the crossing. For the period while the existing fence or wall is dismantled, the Contractor shall erect, at the end of each day's operations, a temporary fence to close the gap in the existing fence or wall and shall maintain security adequate to prevent use of the temporary fence as a point of access by unauthorized persons."

PSC 5.6 Conservation of topsoil

Add the following to SANS 1200 C, sub-clause 5.6:

"The topsoil up to a depth of 150 mm, if available and approved by the Employer's Agent, shall be removed from the above specified cleared areas and stockpiled not higher than 2m on approved sites for later reuse. Until required for spreading, the stockpiles of topsoil material shall be stabilized by watering or other approved means to limit dust pollution.

When in the opinion of the Employer's Agent, there is an insufficient quantity of topsoil available as a result of the Contractor's failure to comply with the above, the Contractor shall import topsoil at his own cost."

PSC 8 MEASUREMENT AND PAYMENT

PSC 8.2.1 Clear and grub

Add the following to SANS 1200 C, sub-clause 8.2.1:

"The rate tendered for clearing and grubbing shall cover the cost of disposal of the material off the Site by approved means. Debris should be dealt with as per PSC 3.1, as amended.

The area to be cleared and grubbed will be measured by area and will include trees up to 1.0m girth.

The rate tendered for will include payment for PSC 5.1, as amended."

PSC 8.2.5a Take down existing fencing

Add the following to SANS 1200 C, sub-clause 8.2.5:

"The rate tendered for taking down existing fencing to include payment for PSC 5.3 Clearing."

PSC 8.2.5b Install temporary Fence identified by Employers Agent at cemetery location

Rate shall include supply, install and remove diamond mesh fence at location indicated by the Employers Agent.

PSC 8.2.8 Demolish and remove structures

Add the following to SANS 1200 C, sub-clause 8.2.8:

"The rate tendered shall cover the cost of demolishing existing manholes and backfill with suitable selected material compacted to 90% Mod AASHTO."

PSC 8.2.10 Remove topsoil to nominal depth of 150mm and stockpile

Add the following to SANS 1200 C, sub-clause 8.2.10:

"The rate tendered for the removal of in-situ topsoil shall also cover the cost of stabilizing and protecting the stockpiles of topsoil and include payment for PSC 5.6, as amended."

PSD EARTHWORKS (SANS 1200 D)

PSD 2 DEFINITIONS

PSD 2.3 Restricted excavation

Add the following to SANS 1200 D, sub-clause 2.3 under Restricted excavation:

"Irrespective of the method of excavation, all excavations for platforms, concrete water retaining structures above the level of the underside of the particular floor slab's blinding layer shall be considered to be "bulk excavation". All excavations below this level will be considered as "restricted excavations".

PSD 3 MATERIALS

PSD 3.1.2 Classes of Excavation

Replace SANS 1200 D, sub-clauses 3.1.2 (a), (b) and (c) with the following:

"All material encountered in any excavations for any purpose including restricted excavations will be classified as follows:

1. Excavation in all materials, excluding hard rock. This category of excavation includes excavation in all sandy and disturbed material; in clay; in undisturbed and weathered Shale (clay); Sandstone; Mudstone and in all rip-able rock.
2. Excavation in hard rock will require blasting or rock splitting. Areas where rock splitting is required will be indicated on site by the Employer's Agent.

Other earthworks

Non-plastic sandy material from excavations shall be used in the following order:

1. As selected granular material for pipe bedding.
2. As blanket and backfill to pipe trenches.
3. As backfill to structures.
4. As spoil stockpiled in selected areas indicated by the Employer's Agent.

The Contractor shall employ selective methods of excavation to obtain topsoil, and material suitable for backfill, embankments, pipe bedding and selected granular material."

PSD 5 CONSTRUCTION

PSD 5.1.1.2 Safeguarding of excavations

Replace SANS 1200 D, sub-clause 5.1.1.2 by the following:

"Excavation rates are to include all the Contractor's costs required for full compliance of the Occupational, Health and Safety Act 2014.

This can include the reduction of the slope of excavations to the safe angle as determined by a suitably qualified Professional Geotechnical Engineer employed by the Contractor. Where sufficient space is not available to achieve this, the Contractor will be required to obtain three quotations for the provision of a shoring system, designed by a suitably qualified Professional Engineer. Acceptance a suitable shoring provider will be subject to approval by the Employer's Agent."

PSD 5.1.3 Groundwater

Add the following to SANS 1200 D, sub-clause 5.1.3:

"The Contractor shall provide, operate and maintain sufficient pumping equipment, pipes and other equipment on site as may be necessary for the proper execution of the Works."

PSD 5.1.4.1 Dust nuisance

Add the following to SANS 1200 D, sub-clause 5.1.4.1:

"The Contractor is responsible for dust control and is liable for all claims, that may result from the dust nuisance on all parts of the site and at all times, from the date of handing over of the Site, to the completion date of the Contract.

The Contractor shall plan the Works accordingly and shall use sufficient water or other methods to keep the level of dust to a minimum. This shall be done in consultation with the Employer's Agent and to the Employer's Agent's approval.

The Contractor must make allowance for the above in the rates tendered for excavation."

PSD 5.1.4.3 Disposal of surplus material

Add the following to SANS 1200 D, sub-clause 5.1.4.3:

"All surplus material and unsuitable material not required for backfilling shall be disposed of at disused borrow pits or other suitable sites to be located by the Contractor. All such sites shall require the approval of the Employer's Agent and the local Authority and community. No additional payment will be made for the transportation of such material

Dumping shall proceed in an orderly manner with coarse material placed at the bottom and covered with finer material, where possible. Upon completion of dumping the material shall be shaped to provide free draining surfaces and slopes and finished off to the satisfaction of the Employer's Agent.

All movement of cut to fill material shall be regarded as free-haul. In addition, all movement of topsoil, overburden soil or any other material within the boundary of the site and less than 5 km from the site boundary shall be regarded as free-haul."

PSD 5.2.2.1 (c) Excavation for general earthworks and for structures

Add the following to SANS 1200 D, sub-clause 5.2.2.1(c):

"The Contractor shall excavate to the net outlines of the structures plus an allowance for working space. Vertical concrete walls shall not be cast against excavated surfaces, except in the case of bases, concrete encasement to pipes and footings for brick walls."

PSD 5.2.2.1 (e) Excavation for general earthworks and for structures

Add the following to SANS 1200 D, sub-clause 5.2.2.1(e):

"The Contractor shall inform the Employer's Agent, in writing, at least 14 days before commencing any work which will result in a change of the topography of the site, whether such work is for the permanent works, or for temporary works which the Contractor intends to execute for his own convenience. After clearing the area to be worked on of all vegetation and before commencing the work, the Contractor shall in presence of the Employer's Agent take cross-sections of the original ground profiles or any other approved method to determine the ground profiles of the entire area to be worked. In addition all rock and/or foundation levels shall be recorded as the work proceeds.

The information so obtained shall be permanently recorded on a drawing or drawings by the Contractor each of which shall be signed off by both the Contractor and the Employer's Agent. The Contractor shall then provide the Employer's Agent with a copy of each drawing to serve as a permanent record. The Contractor is to provide the Employer's Agent with an electronic copy of the relevant information for the purpose of determining the quantities of excavation and earthworks carried out in the construction of the permanent works and the extent to which temporary works shall be removed or temporary excavations shall be filled upon completion of the Works.

Where the Contractor excavates to depths in excess of those shown on the drawings or ordered by the Employer's Agent or if the material in the bottom of an excavation is loosened before concrete has been cast, or if there is any over-excavation, or any loose or disturbed soil it shall be removed and the over-excavation shall be replaced by mass concrete of prescribed mix Grade 15/19 mm. Backfilling over-excavation with concrete will not be measured for payment unless the over-excavation is ordered by the Employer's Agent in order to remove unsuitable material, in which case the additional excavation will be measured and paid as excavation in all materials and the concrete will be measured by volume, all to the additional dimensions ordered by the Employer's Agent.

Where the Contractor excavates to depths in excess of those shown on the drawings or ordered by the Employer's Agent or if the material in the bottom of an excavation is loosened before concrete has been cast, or if there is any over-excavation, or any loose or disturbed soil it shall be removed and the over-excavation shall be replaced

by mass concrete of prescribed mix Grade 15/19 mm. Backfilling over-excavation with concrete will not be measured for payment unless the over-excavation is ordered by the Employer's Agent in order to remove unsuitable material, in which case the additional excavation will be measured and paid as excavation in all materials and the concrete will be measured by volume, all to the additional dimensions ordered by the Employer's Agent.

Where structural concrete is to be cast or where precast elements are to be placed on surfaces established by restricted excavation, the Contractor shall, in the case of rock surfaces, over excavate to 100 mm below the bottom of the structure and use mass concrete Grade 15/19 mm for bringing the level to the bottom of the blinding or mass concrete.

Excavations to final level, ready to receive a blinding layer or concrete footing, shall be completed less than 24 hours before such layer or footing is cast.

The Contractor shall arrange for the inspection by the Employer's Agent or Employer's Agent's Representative of all surfaces to receive concrete immediately before casting concrete."

PSD 5.2.3.1 Construction of platform and embankments

Add the following to SANS 1200 D Sub-clause 5.2.3.1:

"The areas over which earth fills are to be constructed shall, after site clearance and removal of 150mm topsoil, be ripped to a depth of 150 mm and compacted to 90% of Mod AASHTO Density. Should the topsoil layer be in excess of 150mm the Contractor is to notify the Employer's Agent in writing and request a directive as to how to proceed.

The Contractor shall plan his operations and particularly his cut and fill operations in such a manner that all cut material may be used to the best advantage of the Employer. This would mean that no material shall be unnecessarily spoiled. The Contractor shall therefore not spoil any materials without the Employer's Agent's approval and without satisfying the Employer's Agent that this is necessary and the most economical method of constructing the works.

Where the earthworks pattern is such that the selected materials cannot be placed directly in their appropriate positions the Employer's Agent may authorise their removal to temporary stockpiles.

Wherever practical, fill shall be placed in successive layers parallel to the final level of the platform.

The material to be used for the platform construction will be G7 minimum quality material.

Fill in other applications shall be compacted to the densities specified in SANS 1200 D, sub-clause 5.2.3.1 and SANS 1200 DM, sub-clause 5.2.4.2 (100% for sand). Material shall be placed in such a way that adjacent layers at any stage of the operation do not differ in height by more than 600 mm.

The construction of benches shall be measured as "cut to fill" or cut to spoil as the case may be.

Amend SANS 1200 D Sub-clause 5.2.3.1 as follows:

In the fourteenth line delete "600 mm" and substitute "300 mm"

In the seventeenth line delete "300 mm" and substitute "150 mm".

PSD 5.2.3.2 (a) General backfilling

Add the following to SANS 1200 D, sub-clause 5.2.3.2 (a):

"Backfill measured under the various items in the Bill of Quantities shall be compacted to a density as stipulated in the scheduled item.

Material for backfilling around structures must be selected so that no clay, boulders or rock is used for backfilling within 300 mm of the structure."

PSD 5.2.4.2 Topsoiling

Add the following to SANS 1200 D, sub-clause 5.2.4.2:

"Topsoil shall not be stockpiled higher than 2 m. Care shall be exercised to prevent the compaction of topsoil in any way especially by vehicles travelling over such material.

Topsoil shall be placed as directed in SANS 1200 D, sub-clause 5.2.4.2 on the faces of cut slopes and embankments and other flatter areas, as shown on the drawings or ordered by the Employer's Agent."

Amend the last sentence of SANS 1200 D, sub-clause 5.2.4.2 to read:

"The final thickness of topsoil after light compaction shall be at least 100mm."

PSD 7 TESTING

PSD 7.2 Taking and testing of samples

Add the following to SANS 1200 D, sub-clause 7.2:

"The Contractor shall carry out sufficient process control checks (one test per 7.5 cubic metres of backfill) on the compaction of all backfill layers before calling the Employer's Agent to inspect the work completed. The frequency of testing shall be such that at least 9 tests shall be carried out for every lift of backfill material across a 225 m² grid block. The costs of testing shall be deemed to be included in the rates for backfilling of the platform."

PSD 8 MEASUREMENT AND PAYMENT

PSD 8.3 Scheduled items

SANS 1200 D, sub-clause 8.3 to include payment for:

PSD 5.1.1.2	Safeguarding of excavations (Excluding shoring)
PSD 5.1.3	Groundwater
PSD 5.1.4.1	Dust nuisance
PSD 5.1.4.3	Disposal of surplus material
PSD 5.2.2.1(c) PSD 5.2.2.1(e)	Excavation for general earthworks and for structures
PSD 5.2.3.1	Construction of platform and embankments
PSD 5.2.3.2(a)	General backfilling
PSD 7.2	Testing and testing samples.

PSD 8.3.2 Bulk excavation

Add the following to SANS 1200 D, sub-clause 8.3.2:

"No extra over payment will be made for excavation in material classified in terms of SANS 1200 D, sub clause 3.1.2 as intermediate excavation and boulder excavation Class A and B. The tendered rate for excavation in all materials shall include for the cost of such excavation. Rock quantities are to be measured and agreed with the Employer's Agent prior to backfilling. In the event that backfilling has taken place before rock quantities have been agreed with the Employer's Agent then no rock payment will be made."

PSD 8.3.3 Restricted excavation

SANS 1200 D, sub-clause 8.3.3 to include payment for:

PSD 2.3	Restricted excavation
PSD 3.1.2	Classes of excavation

PSD 8.3.5 Extra excavation in all materials to provide working space around structures

Add the following to SANS 1200 D, sub-clause 8.3.5:

"Excavation for workspace will be measured to the net vertical area of the structure below ground level, except in the case of footings for brick walls where no payment will be made."

PSD 8.3.6 Overhaul

Replace SANS 1200 D, sub-clause 8.3.6 with the following:

"All movement of cut to fill material shall be regarded as freehaul. In addition, all movement of topsoil, overburden soil or any other material within the boundary of the site and less than 5 km from the site boundary shall be regarded as freehaul."

Overhaul will only be paid in disposal of topsoil, overburden, spoil or any other material where the transportation is beyond 5 km of the boundary of the site."

PSD 8.3.7 Additional lateral support

SANS 1200 D, sub-clause 8.3.7 to include payment for:

PSD 5.1.1.2 Safeguarding of excavations

"The rate shall cover all the cost of the design, supply, placing, maintenance and removal of the lateral support system and other support measures together with any cost that results from the inconvenience of working in the supported excavation and the cost of any risks inherent in the operation."

PSD 8.3.10 Topsoiling

SANS 1200 D, sub-clause 8.3.10 to include payment for:

PSD 5.2.4.2 Topsoiling

Add the following to SANS 1200 D, sub-clause 8.3.10:

"The topsoiling will be measured by surface area covered.

The rate for topsoiling shall cover the cost of loading, hauling, spreading, compacting and making suitable provision to avoid the topsoil slipping down the slopes of embankments and cut-slopes, all to the approval of the Employer's Agent."

PSDB EARTHWORKS (PIPE TRENCHES) (SANS 1200 DB)

PSDB 3 MATERIALS

PSDB 3.6.1 Subbase and base

Replace SANS 1200 DB, sub-clause 3.6.1 with the following:

"Where trenches cross existing surfaced roads the following will apply:

- a) The service (pipe, cable etc.) shall be laid on a bedding cradle, and covered with a fill blanket, as specified in SANS 1200 LB Bedding (Pipes) or in the Project Specification.

The rate for placing and compacting bedding and blanket material shall be included in the rate for excavation and backfilling. No additional payment will be made for placing and compacting bedding and blanket using material selected from trench excavations. Where material excavated from trenches is unsuitable for backfill bedding or blanket material and suitable material cannot be reasonably selected from adjacent trench excavations or stockpiles within free haul distance on the site, then the Employer's Agent will order the use of material from commercial sources.

- b) The remaining portion of the trench, from the top of the fill blanket to the underside of the road wearing layer, shall be filled with a G6 gravel compacted mechanically in 150 mm layers to 95% of modified AASTHO density."

PSDB 3.7 Selection

Add the following to SANS 1200 DB, sub-clause 3.7:

"Notwithstanding SANS 1200 DB, sub-clause 3.7, in terms of which the Contractor has a choice regarding methods of selection, the Contractor is required to use selective methods of excavation. The Contractor shall selectively remove and keep separate the sandy material from unsuitable material and place it adjacent to the trench for reuse as backfill, selected fill, selected granular material or for other use as ordered by the Employer's Agent.

Material which, in terms of SANS 1200 D, sub-clause 6.2 or SANS 1200 LB, sub-clause 6.1, is too wet for immediate use in the trench (but which is otherwise suitable) will not be regarded as "unsuitable" material and, if so ordered by the Employer's Agent, the Contractor shall spread such material in a suitable area until it has dried sufficiently for later use. Should the material which is replaced in the trench become too wet again, due to the fact that the Contractor made insufficient provision for the handling and removal of groundwater in accordance with SANS 1200 A, sub-clause 5.5, the Contractor shall replace the material at his own cost with material which is, in the opinion of the Employer's Agent, suitable.

When preparing his programme and construction methods, the Contractor shall make allowance for selective excavation and the handling and drying out of material which is too wet for immediate use.

Unless otherwise ordered by the Employer's Agent, all excavated material shall be kept within the pipe servitude. The toe of the bank of excavated material shall be trimmed well back from the edge of the trench so as to leave a minimum 600 mm clearance between the toe of the bank and the edge of the trench. The Contractor shall keep this strip clear of excavated material at all times.

The Contractor shall take steps to avoid burying or contaminating topsoil which shall be set aside for replacing, as far as practical, on the surface from which it was excavated."

PSDB 5 CONSTRUCTION

PSDB 5.1.2 Stormwater, seepage and dewatering of excavations

PSDB 5.1.2.1 Throughout the works

Add the following to SANS 1200 DB, sub-clause 5.1.2.1:

"In addition to the Contractor's responsibilities for dealing with water, the Employer's Agent may order the Contractor to place a crushed stone bedding layer (minimum thickness 150 mm) on the trench bottom. Should the trench bottom conditions remain unstable due to the nature of the soil and the degree of saturation, the Employer's Agent may order the Contractor to install a filter fabric on the trench bottom prior to the provision of the stone layer.

Should the material in the trench bottom or the bedding material be of such a nature that it can penetrate the stone layer, the Employer's Agent may instruct the Contractor to enclose the stone layer completely within a geotextile filter blanket which shall comply with the requirements below, and shall have overlaps of at least 300 mm.

The Contractor will only be paid by providing and laying the stone bedding layer and filter fabric after receipt of a written order to do so from the Employer's Agent.

Stone bedding in water-logged conditions:

Where the use of a layer of crushed stone in the trench bottom has been authorized by the Employer's Agent, it will be measured by volume calculated according to length multiplied by the minimum base width and specified thickness. The tendered rate shall cover the cost of preparation of the trench bottom to accommodate the layer of stone, the supply and placing of the layer of stone over at least the specified width and all related activities in order to produce a stable platform.

Geotextile filter fabric:

Where the Employer's Agent has authorised the use of geotextile filter fabric, this shall be measured by area as: width x nett length, where the width shall be the full or half-width supplied by the manufacturer which conforms closest to the specified minimum base width + 2 x height of bedding. The tendered rate shall include the cost of supply, placing and losses as a result of overlaps and over excavated trench widths.

The synthetic fibres of a geo-textile blanket shall consist of at least 85% by mass of polypropylene, polyethylene, a polyester, a polyamide, or a copolymer of vinyl chloride and vinylidene-chloride, or any combination of these polymers, and shall contain such additives as are necessary to render the filaments resistant to the effects of ultra-violet radiation and heat. The amount of water absorbed by the geo-textile after 24 hours soaking in water at 20°C shall be less than 1% by mass.

In addition to the requirements of Sub-clause 3.1.3 of SANS 1200 DK the geo-textile shall comply with the following:

Mass	:	150 g/m ² (minimum)
Strength in all directions	:	6 kN/m (minimum)
Equivalent opening size (EOS)	:	105 micrometres (maximum)"

PSDB 5.4 Excavation

Add the following to SANS 1200 DB, sub-clause 5.4:

"The maximum allowable length of open pipe trench, at any given time during the execution of this Contract, shall not exceed:

- a) 100 meters for all sections of pipeline
- b) At any time during the contract the aggregate length of completed sewer, without successful testing, will be restricted to 250 metres

Please note that any portion of the pipeline being laid and backfilled, which has not been fully backfilled, is deemed to be an open pipe trench. Open trenches are to be regularly (at least once a day) checked in compliance with the OHS Act requirements by the Contractor's appointed construction Safety Officer.

The Contractor shall install the pipeline starting from the downstream end, thus commencing at Pump Station 2 and working in the upstream direction."

PSDB 5.5 Trench bottom

Add the following to SANS 1200 DB, sub-clause 5.5:

"Where the Contractor's method of working results in quagmire conditions in the trench bottom, the Contractor shall excavate and stabilize the trench at their own cost to the approval of the Employer's Agent."

PSDB 5.6.3 Disposal of soft excavation material

Replace SANS 1200 DB, sub-clause 5.6.3 with the following:

"All surplus material and unsuitable material not required for backfilling shall be disposed of at disused borrow pits or other suitable sites to be located by the Contractor. All such sites shall require the approval of the Employer's Agent and the local Authority and community. No additional payment will be made for the transportation of such material.

Dumping shall proceed in an orderly manner with coarse material placed at the bottom and covered with finer material, where possible. Upon completion of dumping the material shall be shaped to provide free-draining surfaces and slopes and finished off to the satisfaction of the Employer's Agent."

PSDB 5.6.6 Completion of backfilling

Replace SANS 1200 DB, sub-clause 5.6.6 with the following:

"The Contractor shall bring on to the site sufficient resources for pipe laying so that trenches do not remain open for longer than one week ahead or behind the pipe laying team."

PSDB 5.7.2 Areas subject to traffic loads

Add the following to SANS 1200 DB, sub-clause 5.7.2:

"All trenches within the sewage works site will be considered to be subject to traffic loads and the backfill material and compaction in these trenches shall comply with the requirements of SANS 1200 DB, sub-clauses 3.5 (b) and 5.7.2."

PSDB 7 TESTING

PSDB 7.1 Testing

Add the following to SANS 1200 DB, sub-clause 7.1:

"The Contractor is to allow in his rates a minimum of one compaction test per 50 meters for every completed layer of blanket and backfill."

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.3.2 Excavation

Add the following to SANS 1200 DB, sub-clause 8.3.2:

"No extra over payment will be made for excavation in material classified in terms of SANS 1200 D, sub clause 3.1.2 as intermediate excavation and boulder excavation Class A and B. The tendered rate for excavation in all materials shall include for the cost of such excavation. Rock quantities are to be measured and agreed with the Employer's Agent prior to backfilling. In the event that backfilling has taken place before rock quantities have been agreed with the Employer's Agent then no rock payment will be made."

SANS 1200 DB, sub-clause 8.3.2 to include payment for:

PSDB 3.7	Selection
PSDB 5.4	Excavation
PSDB 5.5	Trench Bottom
PSDB 5.6.3	Disposal of soft excavation material
PSDB 5.6.6	Completion of backfilling
PSDB 5.6.8	Transport for earthworks
PSDB 7.1	Testing

PSDB 8.3.6.1 Reinstate road surfaces

SANS 1200 DB, sub-clause 8.3.6.1 to include payment for:

PSDB 3.6.1	Subbase and base
PSDB 5.7.2	Areas subject to traffic loads

PSDB 8.3 Schedules items

Add the following new payment items to SANS 1200 DB, sub-clause 8.3:

***PSDB 8.3.8 Crushed stone bedding layerUnit: m³**

"The rate shall include payment for PSDB 5.1.2.1."

***PSDB 8.3.9 Geofabric blanketUnit: m²**

"The rate shall include payment for PSDB 5.1.2.1."

PSDM EARTHWORKS (ROADS, SUBGRADE) (SANS 1200 DM)

PSDM 3 MATERIALS

PSDM 3.1 Classification for Excavation Purposes

Replace SANS 1200 DM, sub-clause 3.1 with the following:

"The Contractor may use any method he chooses to excavate any class of material but the chosen method of excavation shall not determine the classification of the excavation. The Employer's Agent will decide on the classification of the materials. In the first instance the classification will be based on inspection of the material to be excavated and on the criteria given in PSD 3.1.2.

All material encountered in any excavations for any purpose including restricted excavations will be classified as follows:

1. Excavation in all materials, excluding hard rock. This category of excavation includes excavation in all sandy and disturbed material; excavation in Clay; excavation in undisturbed and weathered Shale (clay); Sandstone; Mudstone and excavation in rippable rock.
2. Excavation in hard rock will require blasting or rock splitting. Areas where rock splitting is required will be indicated on site by the Employer's Agent.

Extra-over payment will be made for hard rock excavation provided the surface levels of the hard rock have been recorded on drawings signed by the Employer's Agent's Representative before it is excavated. No extra over payment will be made for excavation in material classified in terms of SANS 1200 D, sub clause 3.1.2 as intermediate excavation and boulder excavation Class A and B. The tendered rate for excavation in all materials shall include for the cost of such excavation. Rock quantities are to be measured and agreed with the Employer's Agent prior to backfilling. In the event that backfilling has taken place before rock quantities have been agreed with the Employer's Agent then no rock payment will be made"

PSDM 3.2.3 Selected Layer

Add the following to SANS 1200 DM, sub-clause 3.2.3:

"The Contractor shall obtain selected sub-grade material from a source of his own choice. The unit rate tendered shall include all procurement related costs, including haulage. The material quality shall comply with that of G7 or G6 natural gravel as specified in SANS 1200 and shall be compacted to the specified MOD AASHTO Density."

PSDM 5 CONSTRUCTION

PSDM 5.2.8.1 Freehaul

Replace SANS 1200 DM, sub-clause 5.2.8.1 with the following:

"All movement of cut to fill and cut and spoil material on site shall be regarded as freehaul. In addition, all movement of topsoil, overburden soil or any other material within the boundary of the site shall be regarded as freehaul."

PSDM 7 TESTING

PSDM 7.3.2 Routine inspection testing

Add the following to SANS 1200 DM, sub-clause 7.3.2:

"No single test result which is below the specified density will be accepted.

The cost of all routine testing done by the Employer's Agent, and of which the results do not comply with the specified minimum requirement for the material, shall be borne by the Contractor and will be subtracted for the monthly payment certificates"

PSDM 8 MEASUREMENT AND PAYMENT

PSDM 8.3.3 Treatment of road-bed

SANS 1200 DM, sub-clause 8.3.3 to include payment for:

PSDM 7.3	Routine inspection and testing
PSDM 5.2.3.3	Treatment of roadbed

PSDM 8.3.4 Cut to fill, borrow to fill

SANS 1200 DM, sub-clause 8.3.4 to include payment for:

PSDM 5.2.8.1	Freehaul
--------------	----------

Add the following to SANS 1200 DM, sub-clause 8.3.4:

"No extra over payment will be made for excavation in material classified in terms of SANS 1200 D, sub-clause 3.1.2 as intermediate excavation and boulder excavation Class A and B. The tendered rate for excavation in all materials shall include for the cost of such excavation. Rock quantities are to be measured and agreed with the Employer's Agent prior to backfilling. In the event that backfilling has taken place before rock quantities have been agreed with the Employer's Agent then no rock payment will be made."

PSDM 8.3.5 Selected layer

SANS 1200 DM, sub-clause 8.3.5 to include payment for:

PSDM 3.2.3	Selected layer
------------	----------------

PSDM 8.3.6 Extra-over items 8.3.4 and 8.3.5 for excavating and breaking down material in

Delete item a) of SANS 1200 DM, sub-clause 8.3.6 and add the following:

"No payment shall be made for intermediate excavation. Excavation normally classified as Intermediate excavation shall be paid as per the rate for normal excavation (8.3.4 or 8.3.5 as appropriate)."

PSDM 8.3.7 Cut to spoil or stockpile from

Delete item b) of SANS 1200 DM, sub-clause 8.3.7 and add the following:

"No payment shall be made for intermediate excavation. Excavation normally classified as Intermediate excavation shall be paid as per the rate for soft excavation (8.3.7(a))."

PSDM 8.3.12 Overhaul

SANS 1200 DM, sub-clause 8.3.12 to include payment for:

PSDM 5.2.8.1	Freehaul
--------------	----------

PSG CONCRETE (STRUCTURAL) (SANS 1200 G)

PSG 3 MATERIALS

PSG 3.2 Cement

PSG 3.2.1 Applicable specifications

Add the following to SANS 1200 G, sub-clause 3.2.1:

"With the exception of non-structural concrete, all binders used in the works shall be either an approved blend of CEM II/A 52,5N and PFA, or CEM III/A 42,5N. Cement type CEM II 32,5N may be used for non-structural concrete. In all cases the cements shall comply with SANS 50197-1.

Pulverised fly ash (PFA) shall conform to the requirements of SANS 1491-2."

PSG 3.2.3 Storage of cement

Add the following to SANS 1200 G, sub-clause 3.2.3:

"Cement shall be used in the order in which it is received (first in, first out basis)

Cement kept in storage for longer than 6 weeks shall be removed from site and not used in the Works.

Any cement that shows signs of hydration, such as the formation of lumps, may not be used and is to be immediately removed from site."

PSG 3.3 Water

Replace SANS 1200 G, sub-clause 3.3 with the following:

"Only potable quality water from an approved source may be used for mixing concrete. Water from a river or stream may only be used for curing."

PSG 3.4 Aggregates

PSG 3.4.1 Applicable specification

Add the following to SANS 1200 G, sub-clause 3.4.1:

"The maximum aggregate size shall be 19 mm. The nominal stone size specified in the concrete grade shall mean stone conforming to SABS 1083 for the nearest equivalent size.

Notwithstanding the provisions of SANS 1200 G, sub-clause 3.4 the aggregates shall be obtained from approved commercial source.

Aggregates with a high potential for influencing the alkali silica reaction (ASR) shall not be used. The alkali content in aggregate shall be less than 1.8 kg of active Na₂O_e per m³. Aggregate tests shall be performed by the Contractor and results submitted to the Employer's Agent in time before implementing work. Payment shall be for concrete with low potential for ASR, either by using the above aggregate, or by adding admixtures, as per SANS 10100-2.

The fineness modulus of the sand delivered to the mixer shall lie between 1,7 and 2,8 and the standard deviation of fineness moduli of samples of sand that is delivered to the mixer during one shift shall be not more than 0,10.

At least one month before commencement of concrete work the Contractor shall supply at his own cost representative samples to the Employer's Agent of the aggregates he intends using, together with certificates from an approved laboratory indicating that the aggregates comply with the specifications. Approximately 50 kg of each sample of aggregate shall be supplied.

After approval these samples shall be taken as standard for the agreed aggregates to be used in the Works. If at any time during the course of the Contract the Employer's Agent considers that there has been any deviation from the approved standard the Contractor shall submit further tested samples of material to the Employer's Agent for approval."

PSG 3.4.2 Use of plums

Replace SANS 1200 G sub-clause 3.4.2 with the following:

"The use of plums will not be permitted."

PSG 3.5 Admixtures

PSG 3.5.1 Approval of admixtures requirements

Add the following to SANS 1200 G, sub-clause 3.5.1:

"The use of admixtures will be subject to the approval of the Employer's Agent. The information listed in SANS 1200 G, sub-clause 3.5.1 shall be provided.

In addition all water retaining structures will include the following admixture: Crystalline Waterproofing Additive (Zypex Admix C- 500 NF) added at the rate of 5kg per 1m³ of concrete during mixing, all to manufacturer's specification.

If two or more admixtures are to be used, the Contractor shall submit all necessary and available data for assessing the interaction and compatibility of the admixtures."

Add the following new sub-clauses to SANS 1200 G, sub-clause 3.5:

***PSG 3.5.3 Pulverized fly ash (PFA)**

***PSG 3.5.3.1 General**

"Concrete containing a percentage of FA shall be termed FA concrete. Pulverized fly ash (PFA) shall conform to the requirement of SANS 1491-2.

All concrete used shall consist of FA in the concrete unless otherwise shown on the drawings or ordered by the Employer's Agent.

FA concrete shall conform to the requirements of SANS 1200 G for concrete and the additional requirements specified below."

***PSG 3.5.3.2 Source and quality**

"Fly Ash shall be procured from an approved source and shall be of a consistent quality conforming to SANS 1491-2. In particular it shall be tested for and shall conform to the following:

- a) the loss on ignition shall not exceed 5%
- b) the percentage by mass retained on 45 micron screen shall not exceed 12.5%"

***PSG 3.5.3.3 Cementitious material**

"The cementitious material used for FA concrete shall consist of a mixture of between 75% and 80% by mass of ordinary Portland cement and of between 25% and 20% by mass of FA.

If instructed by the Employer's Agent, all concrete used for construction of water retaining structures shall contain a post surface treatment that waterproofs by crystallization (Xypex or similar approved) at a rate and application in accordance with manufacturer's recommendation. Reference made to PSG 5.5.8, Curing and protection."

***PSG 3.5.4 Crystalline Waterproofing Additive**

"The Contractor shall be responsible for furnishing all labour, materials, services and equipment necessary for the supply and installation of crystalline waterproofing additive to concrete structures as indicated on the drawings, and as specified herein. The crystalline waterproofing material shall be added to concrete during the mixing cycle, and shall be used in above and below grade walls and slabs including liquid retaining structures where enhanced chemical resistance is required.

The concrete waterproofing system shall be of the crystalline type that chemically controls and permanently fixes a non-soluble crystalline structure throughout the capillary voids of the set concrete. The system shall cause the set concrete to become sealed against the penetration of liquids from any direction, and shall protect the concrete from deterioration due to harsh environmental conditions.

Prior to installation of waterproofing, the Contractor shall conduct a meeting with the Resident Employer's Agent, concrete supplier, concrete placer and waterproofing manufacturer's representative to verify and review the project requirements for waterproofing as well as the manufacturer's product data including application instructions.

After this meeting, the Contractor shall obtain approval to install the crystalline waterproofing additive in writing from the product manufacturer, which written approval shall be given to the Resident Employer's Agent. This requirement shall not absolve the Contractor of his/her obligations in accordance with the contract and project requirements.

The admixture shall be added to the concrete mix at the time of batching. The Contractor shall obtain a completely homogeneous mixture by thoroughly blending the admixture with the concrete mix."

Add the following new sub-clauses to SANS 1200 G, clause 3:

***PSG 3.9 Materials for movement joints**

***PSG 3.9.1 General**

"The various jointing materials, the manufacturers of the materials and the methods of application shall be as approved by the Employer's Agent. Materials shall be stored and protected to avoid damage, degradation, distortion or contamination.

The joint materials shall be resistant to ultraviolet light and to biological degradation."

***PSG 3.9.2 Waterstops**

"Waterstops shall be of approved manufacture and of the pattern and the material and widths scheduled and specified and shown on the drawings. They shall comply with the tolerances specified in clause 6.1. They shall conform to Specifications CKS 388 or 389, for natural rubber or PVC respectively, and have the appropriate physical properties as set out below:

	PVC	Rubber
Tensile strength (@ 25°C)	12,2 MPa	20,7 MPa
Elongation at break (@ 25°C)	250%	500%
Hardness BS degrees (IRHD @ 25°C)	-	60 to 65°
Softness (BS)	28 to 52°	-

All intersections between waterstops shall be prepared by mitring and welding/vulcanising intersection pieces in the factory in accordance with the manufacturer's instructions and to approval of the Employer's Agent. Only straight lengths of waterstop may be field welded using the appropriate jigs and tools.

Where required, waterstops shall have eyelets so that they may be tied securely to the adjacent reinforcement. "Rearguard"-type waterstops shall have flanges or cleats that grip effectively."

***PSG 3.9.3 Fillers**

"Closed cell expanded polyethylene fillers shall comply with the following:

Property	Unit	Value Test Method
Density	kg/m ³ 110	DIN 53420
Compression Stress at		
10%	kPa 175	DIN 53577
25%	kPa 210	DIN 53577
50%	kPa 340	DIN 53577
Compression set after 24 hours recovery	% 14	
Tensile Strength	kPa 680	DIN 53571
Elongation at Break	% 49	DIN 53571
Max. water absorption after 24 hours by volume	% 0,1	ASTM C-177

Fillers shall be pre-cut to suit the application with a tear-out strip for forming the specified recess for the sealant. If so required the filler shall be glued into position with an approved epoxy glue."

***PSG 3.9.4 Bond breakers, primers and sealants**

"The bond breaker between the top of the blinding layer or dry packed mortar screed and the underside of the floor slab shall be either a double coat of a spray grade bitumen emulsion complying with SANS 309 applied at a rate of 1,0 ℓ/m² of net bitumen or a 250 micrometre polythene sheet complying with SANS 952, Type D.

Where bitumen-impregnated resilient fibreboard is specified, it shall comply with American Federal Specification HH-F-341a for Type 1, Class B.

The bond breaker (if specified) shall be self-adhesive PVC tape (or equal, approved material) with a width the same as the joint recess into which it is to be applied.

The primer, if required for the sealant, shall be fully compatible with the sealing compound that is to be used.

The elastomeric sealant shall be either a two-component polysulphide liquid polymer base complying with the requirements of SANS 110 or a polyethylene based polyurethane "pouring grade" for horizontal or near horizontal joints or "gun grade" for vertical/overhead joints and joints steeper than 1 in 10 to the horizontal. All elastomeric sealants shall comply with BS 4254 Type A1 and shall have a movement tolerance of 25%.

Sealants shall have been tested to ensure that they are non-toxic and do not impart any odour or taste to, or otherwise taint, the water.

These sealants shall be suitable for indoor as well as outdoor applications and shall be UV resistant. The sealant shall be suitable for use at movements and connection joints in floors as well as for joints in contact with potable water.

Sealant samples shall be timeously submitted for testing upon the request of the Employer's Agent.

The impervious membrane will be measured by the surface area covered excluding laps and wastage. The rate shall cover the cost of the supply, laying, jointing of sheets as recommended by the supplier and final trimming of outer edges."

***PSG 3.9.5 Joint Protectors**

"Joints protectors shall be installed on joints at the vicinity of inlets to protect floor slab joints from erosion as indicated on the drawings. Joint protectors shall consist of a HDPE strip with a 45 ° bevel on the upstream side. The joint protector shall be secured with chemical anchor bolts into the concrete at 200 mm centres as indicated on the drawings."

***PSG 3.10 Precast paving slabs**

"The paving slabs shall comply with the requirements of SANS 541, shall be as scheduled and with patterned surface, or equal approved. Samples of the types which the Contractor proposes to use shall be submitted for approval prior to construction.

The area to be paved shall be compacted to a minimum of 93% Mod AASSHTO density (100% for sand), trimmed and then treated with an approved weedkiller, with care being taken to avoid contaminating surrounding areas. The paving slabs shall be laid on a sand bed approximately 25 mm thick, which shall be graded to the required levels and slopes as approved by the Employer's Agent. The joints between the slabs shall be 2 mm to 6 mm wide and shall be grouted with cement mortar. Gaps in the pattern of slabs shall be filled with Grade 15MPa/19 concrete and given a wood floated finish."

***PSG 3.11 Waterproofing slurry**

"An approved cementitious in-depth waterproofer shall be used on planned construction joints as indicated on the drawings. Surfaces shall be prepared and the product shall be applied as per the approved manufacturer's instructions.

The waterproofing slurry shall be suitable for use on concrete substrates and should be suitable for use in potable water structures.

The slurry shall have the following typical properties:

Appearance	Grey Powder
Workability at 20 °C	Approximately 30min
Setting time at 20 °C	1-2 hours"

PSG 4 PLANT

PSG 4.3 Mixing plant

PSG 4.3.1 General requirement for mixing plant

Add the following to SANS 1200 G, sub-clause 4.3.1:

“Stand-by mixers of adequate capacity and with an independent power unit shall be maintained on site for immediate use in the event of breakdown of the regular mixers failure of the power supply.”

PSG 4.4 Vibrators

Add the following to SANS 1200 G, sub-clause 4.4:

“Stand-by vibrators of adequate capacity and with an independent power unit shall be maintained on site for immediate use in the event of breakdown of the regular vibrator failure of the power supply.

Vibrators for in-situ concrete shall be of the internal or immersion type.”

PSG 4.5 Formwork

PSG 4.5.1 Design

Add the following to SANS 1200 G, sub-clause 4.5.1:

“Detailed drawings of the formwork shall be issued by the Contractor for its fabrication. All such design and drawings shall be available for inspection by the Employer's Agent if so required.

No formwork which is in the opinion of the Employer's Agent major formwork shall be erected without the Employer's Agent's prior written approval of the design and moving or handling arrangements. The Contractor's proposed design and drawings shall be submitted to the Employer's Agent in ample time to permit examination without delay to the works, and in any event not less than three clear days before the date when the Contractor proposes to commence fabrication of the formwork. The Employer's Agent's approval for use shall not be deemed to relieve the Contractor of his responsibility for the adequacy of the formwork.

Where smooth or special formwork is required, only new or as-new steel shuttering shall be used. Where steel is definitely impractical, an alternative may be used but only as approved by the Employer's Agent.”

PSG 4.5.2 Finish

Add the following to SANS 1200 G, sub-clause 4.5.2:

“All exposed external angles in concrete work shall have 20 mm x 20 mm chamfers unless otherwise specified or ordered, but the top edge of a slab that is to receive an applied finish shall not be chamfered.

Internal corners in concrete work need not have fillets unless such fillets have been specified on the drawings or ordered by the Employer's Agent.”

PSG 4.5.3 Ties

Add the following to SANS 1200 G, sub-clause 4.5.3:

“The use of sleeves for formwork ties through the walls of water retaining structures will not be permitted. Ties, when cast in, shall have some form of positive anchorage to prevent any rotation when loosening formwork and some form of water bar to restrict seepage along the tie.

A sample of the tie to be used must be submitted the Employer's Agent for approval prior to construction.

Where practical, cone recesses shall be plugged with well-rammed dry 3:1 mortar within 48 hours of casting the concrete. Surfaces of the recesses shall first be roughened by wire brushing.

Tie cone recessed which cannot be plugged within 48 hours of casting shall be roughened by scabbling and a wet to dry epoxy shall be applied before plugging the recesses with mortar.”

Add the following new sub-clause to SANS 1200 G, clause 4:

***PSG 4.6 Water-bath**

"A temperature-controlled water-bath with a capacity to cure two hundred cubes shall be provided on site. The water-bath shall be located under cover."

PSG 5 CONSTRUCTION

PSG 5.1 Reinforcing

PSG 5.1.2 Fixing

Add the following to SANS 1200 G, sub-clause 5.1.2:

"Fixing of reinforcing bars by welding and heating of bars will not be permitted.

Fixing blocks for the attachment of fixtures may be embedded in concrete provided that the strength or any other desirable feature (such as appearance of the member) is not, in the opinion of the Employer's Agent, impaired thereby.

Supports shall be of approved precast concrete blocks properly shaped to maintain position or proprietary supports of an approved type. Concrete blocks shall be adequately cured as specified. Wooden supports shall not be used nor shall bars be placed in succeeding layers of fresh concrete nor shall bars be adjusted during the placing of concrete. Tie-wire shall point away from the nearest formwork face.

Where clips, stools and other supports are not shown on the drawings and are structurally not required, the Contractor shall provide those supports he deems necessary to ensure the correct positioning of the reinforcement, to the satisfaction of the Employer's Agent. The cost of such steel, labour, and other fixing materials shall be inclusive in the rate for the scheduled reinforcement and no additional payment shall be made."

PSG 5.2 Formwork

PSG 5.2.1 Classification of finishes

Add the following to SANS 1200 G, sub-clause 5.2.1:

"Rough formwork may be used on the outside faces where the concrete is more than 500 mm below the final ground level. Smooth formwork will be used elsewhere. All honeycombing shall be repaired by cutting back to sound concrete and patching with a suitable epoxy mix to the approval of the Employer's Agent

All concrete surfaces that will be exposed above the final ground levels shall have a special smooth finish to a Degree of Accuracy I. The formwork used shall be high-grade, unblemished and regular in size. Formwork ties shall be placed in a regular pattern. The special smooth finish shall be an off-shutter finish to the concrete such that no after treatment is required other than at the positions of formwork ties.

All honeycombing shall be repaired by cutting back to sound concrete and patching with a suitable epoxy mix to the approval of the Employer's Agent.

Concrete for manholes shall be finished with a steel float or against a steel shutter which has been cleaned and oiled before use."

PSG 5.2.2 Preparation of formwork

Add the following to SANS 1200 G, sub-clause 5.2.2:

"All exposed external angles in concrete work shall have 20 mm x 20 mm chamfers unless otherwise specified or ordered, but the top edge of a slab that is to receive an applied finish shall not be chamfered."

PSG 5.5 Concrete

PSG 5.5.1.1 General

Add the following to SANS 1200 G, sub-clause 5.5.1.1:

“Supervision:

The Contractor shall be responsible for ensuring that the erection of the concrete work is carried out under the supervision of a person with adequate knowledge of the mixing, transporting, placing and curing of concrete.

Programme and Plant:

Prior to carrying out any concrete work, the Contractor shall obtain the approval of the Employer’s Agent in respect of:

- a) Structural programme,
- b) Concrete plant details,
- c) Materials to be used in concrete,
- d) Details of concrete,
- e) Construction joints”

PSG 5.5.1.4 Chloride content

Add the following to SANS 1200 G, sub-clause 5.5.1.4:

“With reference to Table 4, Efflorescence will not be acceptable on any exposed concrete surface.”

PSG 5.5.1.5 Durability

Add the following to SANS 1200 G, sub-clause 5.5.1.5:

“Testing for durability shall be carried out using test panels which are constructed with the same concrete mix, formwork type, and compaction and curing methods as the actual concrete drums. The test panel shall be 150 mm thick, and of at least 0.5 m sides. Samples for testing shall be obtained from the face of the test panel that mimics the cast face of a drum, after a period of 28 days curing. The test panels required for durability testing shall be constructed:

- a) At the start of production
- b) Initially for the first 50m3 batch of concrete.
- c) Thereafter 2 sets for every discreet element namely floors, sloped floors and walls.

The durability tests are to be carried out by an accredited laboratory approved by the supplier in terms his Quality Management System and shall be:

- a) Oxygen permeability index test (OPI)
- b) Water sorptivity index test (including porosity)
- c) Chloride conductivity index test

The test procedures for these tests are obtained from the University of Cape Town Durability Index Test Manual.

Two sets of four cores each (70 mm diam) are required from a test panel: four cores for the oxygen permeability and water sorptivity tests; four cores for the chloride conductivity test.

The required target values for the tests are summarized in the table below. (These are the average values for the four core specimens used for the testing on each occasion). These values are required to be met simultaneously for both sets of cores, i.e. the cores must pass the requirements for both OPI and chloride conductivity.

Durability Test Parameters	
DURABILITY INDEX TEST	TARGET VALUE
Oxygen permeability index	≥ 10 (log scale)
Chloride conductivity index	≤ 0.6 m.sec/cm
Water Sorptivity	≤ 8 mm / hr0.5

In the case that the results do not comply with the above values in the above table, another set of cores shall be drilled from the test panel. Where the second set of cores fails to comply with target values, a drum from that batch of concrete shall be sampled by way of drilling four cores for each of the oxygen permeability test and the chloride conductivity test. If these sets of cores fail either of the target values for OPI or chloride conductivity, all drums from that batch of concrete shall be discarded. The contractor shall keep records of all tests results relating to the samples tested.

The contractor shall ensure that site testing is carried out by a trained person. The contractor shall ensure that all off-site laboratory testing is performed in an approved laboratory approved in terms of their Quality Management System."

PSG 5.5.1.6 Prescribed mix concrete

Add the following to SANS 1200 G, sub-clause 5.5.1.6:

"Notwithstanding the requirements of SANS 1200 G, sub-clause 5.5.1.6, samples of aggregates will not be made available by the Employer's Agent. The Contractor shall supply aggregates from commercial sources located by him, complying with the requirements of PSG 3.4.1, as amended, for the production of prescribed mix concrete."

PSG 5.5.1.7 Strength concrete

Add the following to SANS 1200 G, sub-clause 5.5.1.7:

"With the exception of mixes weaker than 15 MPa, all concrete for the Works shall be considered to be strength concrete.

Unless otherwise specified on the drawings or in the Bill of Quantities, all structural concrete shall be Grade 35 MPa/19. Where blinding layers are specified, the concrete shall be grade 15 MPa/19 placed and finished off to the final level.

The concrete mix design for strength concrete must be prepared in an approved laboratory and the results of actual test mixes must be submitted for approval together with 7-day and 28-day strength test results. Special attention is drawn to the fact that the concrete mix must provide a very dense and impervious concrete.

The Contractor shall submit details of the proposed concrete aggregates, design mix and casting procedures to the Employer's Agent for approval prior to casting, after which he shall be required to make a trial mix and obtain cube test results to validate the proposed mix. Only after receipt of satisfactory cube test results shall the Contractor be permitted to use the mix in the construction of water retaining structures. The cost of designing and proving the proposed concrete mix shall be deemed to be included in the tendered rates.

The Employer's Agent may call for revised mix designs at any stage during the Contract.

Any mix for use in the wall or floor of a water-retaining structure shall have a water/cement ratio not exceeding 0,5, shall contain a cement content not less than 325 kg/m³ and not more than 400 kg/m³ and the proportions of the various aggregates shall be such as to produce a density of at least 2 400 kg/m³. For concrete containing PFA the maximum cement content shall be 450 kg/m³.

In order to facilitate or increase the workability of concrete in the fresh/plastic state, to ensure watertightness without increasing the water/cement ratio, the Employer's Agent may approve the use of an additive.

The workability of concrete shall be assessed by means of the slump test.

"No-fines" concrete:

A nominal aggregate size of 19 mm shall be used in the manufacture of "no-fines" concrete.

No-fines concrete shall be laid under where specified and shall consist of coarse aggregate, cement and water only. No fine aggregate shall be used. Sandwiching or layering of pours will not be permitted. The Contractor shall cast to the profile depth in one pour.

The mixing of the cement and water paste shall have the consistency of paint capable of coating each coarse aggregate particle uniformly and sufficiently to form a small fillet at all the contact points of each stone in the aggregate.

Between 24 and 48 hours after the no-fines layer has been laid it shall be covered with 1:4 cement and mortar layer 20 mm thick. The mix shall be comparatively dry to ensure that it does not penetrate and block the cavities in the no-fines concrete. The surface shall be steel floated to form a plane surface.

The mortar skim shall be cured in the same manner as concrete for a period of not less than 2 days."

PSG 5.5.2 Batching

Add the following to SANS 1200 G, sub-clause 5.5.2:

"Batching of all strength concrete shall be by mass. Prescribed concrete may be batched by volume. Batching shall not be done by wheelbarrow.

All concrete shall be mechanically mixed.

Stand-by mixers of adequate capacity and with an independent power unit shall be maintained on site for immediate use in the event of breakdown of the regular mixers failure of the power supply."

PSG 5.5.3.2 Ready-mixed concrete

Replace SANS 1200 G, sub-clause 5.5.3.2 with the following:

"Concrete from a central concrete production facility other than on the construction site will be permitted if the facility is within a 40 km radius of the site and, apart from test results in terms of SANS 1200 G, sub-clauses 7.3.1, 7.3.2 and/or 7.3.3, test results obtained by such a production facility as part of its quality control system will be accepted for evaluation in terms of SANS 1200 G, sub-clause 7.3.4, provided the cubes are stored and cured on site. All tests to be done by an independent approved laboratory."

PSG 5.5.5 Placing

Add the following new sub-clause to SANS 1200 G, sub-clause 5.5.5:

***PSG 5.5.5.10 Casting of concrete in excavation**

"Structural concrete shall not be cast directly against the side of any excavation without the use of formwork unless prior approval has been obtained in writing from the Employer's Agent.

Concrete used in pipe trenches for encasement and for the thrust / anchor blocks may be cast directly against the side of the excavation.

After vibration, the concrete shall be spaded in corners, in angles and against forms to release air bubbles which may have been trapped in these positions."

PSG 5.5.6 Compaction

Add the following to SANS 1200 G, sub-clause 5.5.6:

"All concrete shall be vibrated with approved internal vibrators of minimum 65 mm diameter and ample power to maintain a speed of at least 7000 rpm when immersed. Electrically driven vibrators shall be used when practicable. Smaller diameter vibrators may be used subject to the approval of the Employer's Agent where areas of rebar congestion restrict the use of large diameter vibrators.

Vibrators shall be inserted only at a sufficient distance from the sloping face of an advancing layer to prevent undue slumping or flow of the face."

PSG 5.5.7 Construction joints

PSG 5.5.7.1 General

Add the following to SANS 1200 G, sub-clause 5.5.7.1:

"The edge of joints, exposed to view in the finished structure, shall be formed with suitable beads to provide a straight edge true to line and level.

All joints, other than expansion, contraction and other movement joints shall be treated as follows:

As soon as practical, but not before 15 hours after placing, the construction joint surface shall be prepared to receive fresh concrete. This preparation, as specified in SANS 1200 G, sub-clauses 5.5.7.3 (a) to (d), shall be such as to remove all laitance or inert and strengthless material which may have formed and the specified chipping or sand blasting shall be such as to produce a roughened surface all over.

When concreting is interrupted concrete surfaces shall be protected from the sun as specified in SANS 1200 G, sub-clause 5.5.8 (d) or by means of hessian kept damp until concreting is resumed.

All constructional joints shall be dealt with as specified in PSG 5.5.7.3, as amended.

Unless construction joints between designated joints shown on the drawings are authorized by the Employer's Agent in writing, concrete in the floor and wall shall be cast continuously between the designated joints shown on the drawings."

PSG 5.5.7.2 Formed joints (generally vertical or near vertical)

Add the following to SANS 1200 G, sub-clause 5.5.7.2:

"Formed joints will be considered to be designated joints as defined in SANS 1200 G, sub-clause 2.4.3. The forming of a straight edge to a construction joint as specified in PSG 5.5.7.1, as amended, does not constitute a formed joint.

Each joint shall be formed as shown on the drawings, complete with shear key rebates, waffle formwork, V-feature, waterstops, "Flexcell" or equal, approved joint filler, dowel bars and their PVC tubes, etc. as indicated."

PSG 5.5.7.3 Non-designated joints

Add the following to SANS 1200 G, sub-clause 5.5.7.3:

"Any non-designated joints shall be identical to designated joints, as shown on the drawings, which would be used in similar positions and shall perform the same function."

Add the following new sub-clause to SANS 1200 G, sub-clause 5.5.7:

***PSG 5.5.7.4 Joints between footings or floors and walls or columns**

"Construction joints between foundations, footings or floors and walls, columns or piers connected to them, shall not be made flush with the supporting surface, but shall be made at a distance above the footing or floor shown as on the drawings or approved by the Employer's Agent. The "kicker" shall be cast as an integral part of the foundation, footing or floor."

***PSG 5.5.7.5 Construction Joints in Circular Reservoirs**

a) Construction Joints in Walls or Footings

Construction joints may only be placed where shown on the drawings or to the approval of the Employer's Agent. No vertical joints shall be permitted in the reinforced concrete reservoirs.

The entire contact surface along the joint in the concrete already cast shall be chipped or water jetted to expose the coarse aggregate to 5 mm beyond the surrounding matrix. Care shall be taken to ensure that the concrete structure is not damaged and that all loose material is removed. The surface must be thoroughly cleaned and wetted before casting against the joint.

All construction joints in the reservoir walls and footing shall be cast with water stops. No construction joints will be permitted in the floor.

b) Construction Joints in Roof Slabs

Construction joints in the roof slab are permitted. The position of these joints shall be approved by the Employer's Agent.

These joints shall be cast against a vertical shutter leaving a 15 mm deep by 20 mm wide recess which is sealed with a one part poly-sulphide sealer on completion. The sealer used and method of application shall be to the Employer's Agent's approval.

No additional payment shall be made for these joints.

c) Expansion and Contraction Joints

Expansion and contraction joints shall be constructed as detailed on drawings using water stops. Water stops extruded from recycled material shall not be permitted.

***PSG 5.5.7.6 Application of primers and adhesives**

"The concrete to which the primer or adhesive is to be applied shall be dry and shall be cleaned of all dust, grit, grease, surface laitance and foreign matter by compressed air and/or water, solvents, or other suitable approved means. The Contractor shall provide on Site an approved moisture meter to measure the degree of dryness of the joint. This meter shall be made available to the Employer's Agent for testing. The joint shall be approved for the application of the primer and adhesive if the moisture content of the concrete is less than or equal to 5%. It may be necessary to dry the concrete surfaces locally to reduce the moisture content to 5% or less."

***PSG 5.5.7.7 Contraction and expansion joints**

"Contraction and expansion joints shall be formed true to line in smooth formwork.

All surfaces shall be thoroughly cleaned of all accretions of concrete or other foreign matter by scraping or other approved means.

Particular care shall be taken to compact the concrete around waterstops, edges, etc.

Rebates for seals shall be formed to required dimensions and lines, or cut true to line and size after floating the surface and before the final set of the cement has taken place. All rebates, etc., shall be adequately protected against damage until the completion of the work; accidental damage which in the opinion of the Employer's Agent will impair the performance or appearance of the joint shall be made good by reconstructing the work as directed by the Employer's Agent. Rebates for seals shall be grit blasted or wire brushed on all faces to remove surface laitance and thoroughly cleaned with soft brushes and/or compressed air jets, and, if necessary, dried by blow-lamp or other approved means before priming."

***PSG 5.5.7.8 Installation of waterstops in joints**

"Waterstops shall be held in the formwork so as to prevent air pockets forming underneath them. Special precautions shall be taken, to the approval of the Employer's Agent, to ensure that all flexible waterstops are in perfect contact with well compacted void-free concrete."

***PSG 5.5.7.9 Installation of joint filler in expansion joints**

"Joints in the filler shall be neatly butted so as to exclude mortar from the joint. Edges of filler strip against waterstops, concrete, formwork, projections, etc., shall also be closely fitted to exclude mortar, so that there is no resistance (other than the compression of the filler) to the expansion movement for which the joint is designed.

Joint filler shall be fixed to the first cast of concrete with an approved adhesive and as directed by the Employer's Agent."

***PSG 5.5.7.10 Application of joint seals**

"Rebates shall be cleaned as required by PSG 5.5.7.5, Application of primers and adhesives, and shall be inspected and approved by the Employer's Agent's Representative before filling.

Joint sealants and primers shall be applied strictly in accordance with the manufacturer's instructions. Flow and non-slumping grades shall be used for horizontal and vertical joints respectively.

Immediately after the compound is applied the joint shall be protected against damage until completion of the Contract."

PSG 5.5.8 Curing and protection

Add the following new sub-clauses to SANS 1200 G, sub-clause 5.5.8:

***PSG 5.5.8.1 Post-Crystallization (Concentrate & Modified) slurry coat and curing**

"The Concrete surfaces to receive a concentrate slurry coat treatment shall have an open capillary system to provide 'tooth and suction', and shall be free from scale, excess form oil, laitance, curing compounds and foreign matter.

In order to improve the effectiveness of the crystallization treatment, the specified minimum time for the removal of the formwork shall be three days. All surfaces shall be pressure cleaned in accordance to the product manufacturer's requirement to remove all oil, laitance, curing compound and foreign matter.

Concrete surfaces must be thoroughly saturated with clean water prior to application in order to ensure the growth of the crystalline formation deep within the pores of the concrete. Wetting to be done must be at least 1hr before application. If concrete surface dries out before application, it must be re-wetted.

The concentrate slurry is applied at a coverage rate of 1kg/m² using a semi-stiff nylon bristle block brush – work slurry well into the surface, filling surface pores and hairline cracks. The coating must be uniformly applied at approximately 1.25 mm thickness. The second modified slurry coat with the same application rate must be applied within 48 hours of the first coat. Light pre-watering between coats may be required when drying out signs appear. Detail coating applications shall be confirmed by the manufacturing.

Cure by spray for minimum of 3 days must be established once the final coat has been applied. Protect from rainfall, puddling of water, wind & frost for at least 48 hours after application. When plastic sheeting is used as protection allowance must be made for the coating to breathe.”

***PSG 5.5.8.2 Curing for normal concrete surfaces**

“The use of membrane curing compounds will be allowed on vertical faces or steeply inclined faces (i.e. steeper than 45° to the horizontal) of cast in situ members of the structures subject to the Contractor producing sufficient, satisfactory cube crushing strength test results where the crushing strength of cubes which have been cured with the proposed curing membrane and left exposed to the elements are compared with those of an equal number of water cured cubes. The crushing strength of cubes cured with the proposed membrane shall be at least 85% of the crushing strength of the water cured cubes.

Before any membrane curing compound is used, each batch shall be tested on a trial surface to ensure that it forms a satisfactory membrane, and any compound which is unsatisfactory in the opinion of the Employer's Agent, shall be rejected. Curing membranes will be disallowed if permanent discolouration of the concrete takes place. Surfaces where curing membranes are used shall be treated in such a manner that the final concrete texture and colour blends in with the rest of the concrete work. Furthermore, the Employer's Agent shall, at his discretion, require the Contractor immediately to adopt an effective alternative means of curing any area of the structure to which a membrane has been applied which, in the opinion of the Employer's Agent, is unsatisfactory. The curing compound used shall be to the approval of the Employer's Agent. Wax based curing compounds will not be permitted.

The curing compound shall be applied immediately as formwork is progressively stripped or, in the case of unformed surfaces, when the concrete has taken its initial set. It shall preferably be applied by spraying and the rate of application shall be strictly in accordance with the manufacturer's recommendations. A method of monitoring the area to which curing compound has been applied and the application rate shall be as approved by the Employer's Agent and rigidly applied by the Contractor.

Surfaces of joint rebates, where elastomeric sealant is to be applied, shall be protected from contamination by curing compound by the use of masking tape.”

PSG 5.5.9 Adverse weather condition

Replace SANS 1200 G, sub-clause 5.5.9.2 with the following:

“No placing of concrete shall take place if the ambient temperature exceeds 32°C, or is likely to rise to above 32°C during the casting period or within eight hours after casting is completed.

If concrete is to be cast during times of high ambient temperature or hot drying winds, the Contractor shall be responsible for taking the necessary steps to keep the placement temperature as low as possible. Such steps include the spraying of the coarse aggregate with water, the painting of silos with a reflecting aluminium paint, the insulation of tanks and pipelines, and the protection of concrete ingredients against the direct rays of the sun. The area of the pour shall be shaded before and during concreting and the concrete shall be shaded from the time of mixing until eight hours after placing.

Windbreaks shall be erected if necessary.”

PSG 5.5.10 Concrete surfaces

Replace SANS 1200 G, sub-clause 5.5.10 with the following:

PSG 5.5.10.1 Screeded finish

“After placing and compacting the concrete on a top (unformed) surface shall be struck off with a template to the designated grades and tamped with a tamping board to compact the surface thoroughly and to bring mortar to the surface, leaving the surface slightly ridged but generally at the required elevation. No mortar shall be added,

and noticeable surface irregularities caused by the displacement of coarse aggregate shall be made good by re-screeding after the interfering aggregate has been removed or tamped."

PSG 5.5.10.2 Wood-floated finish

"Where wood-floating is ordered or scheduled, the surface shall first be given a finish as specified in PSG 5.5.10.1, Screeded finish, as amended, and, after the concrete has hardened sufficiently, it shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface free from screeding marks."

PSG 5.5.10.3 Steel-floated finish

"Where steel-floating is specified or scheduled, the surface shall be treated as specified in PSG 5.5.10.1, Screeded finish, as amended, except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screeded surface shall be steel-trowelled under firm pressure to produce a dense, smooth, uniform surface free from trowel marks."

PSG 5.5.10.4 Brushed finish

"Where brushed finish is specified or scheduled, the surface shall be treated as specified in Sub-clause PSG 5.5.10.1, as amended, Screeded finish except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screeded surface shall be finished/brushed by dragging a broom across the surface of the concrete in order to obtain a non-slip surface."

PSG 5.5.10.5 Power-floated finish

"Where a power-floated finish is specified, the surface shall be trowelled smoothly with a well-balanced power trowel. Care shall be taken to ensure the surface is trowelled when it is at the optimum trowelling consistency."

PSG 5.5.10.6 Rough finish

"In certain special cases where a rough finish is desired or specified on the drawings, the surface shall be screed-tamped to an approximately even dense surface, and shortly after final set of cement the surface shall be wire broomed and washed down to remove any laitance, leaving a clean rough surface with coarse aggregate partially exposed, but not disturbed."

PSG 5.5.10.7 Granolithic screeds

"Granolithic screed shall consist of:

Cement	1 part by mass
Sand	1,25 parts by mass
Coarse aggregate	2 parts by mass

The coarse aggregate shall consist of granite or other approved chips which shall pass a 10 mm sieve and be retained on a 5 mm sieve.

The cement/water ratio of the mix shall be at least 2,0.

Before placing any granolithic screeds the base concrete shall be chipped to expose the aggregate over 100% of the area to be screeded and soaked with water for at least 24 hours.

The base concrete shall be thoroughly cleaned by scrubbing and all standing water removed after soaking. A 1:2 cement/sand grout shall then be brushed into the prepared surface followed by the granolithic screed before the grout sets. The granolithic screed shall be of the driest feasible consistency with a slump not exceeding 50 mm and shall be formed true to profile and shape as required and shown on drawings. Before placing granolithic screed against an adjacent band of granolithic screed, the edge of the latter shall be prepared by chipping back to firm material, wire brushing and brushing with grout as for the base concrete.

Granolithic screed shall be compacted to remove all air and shall be screeded and finished with a steel trowel to Degree of Accuracy 1.

The trowelling shall be carried out in the following stages:

- a) First - as soon as the granolithic screed has been compacted and screeded.
- b) Second - after 2 hours to close the surface and remove laitance.

c) Third - after a further 4 hours.

The time intervals are estimated as appropriate to normal temperature conditions and shall be varied by the Contractor to ensure a smooth dense finish.

Granolithic screed shall be cured as specified in PSG 5.5.8, as amended, but shall additionally be protected from direct sunlight and drying winds as it is being placed.

All screeding necessary to accommodate mechanical equipment shall be done under the equipment supplier's supervision and in strict accordance with his instructions. It shall be commenced as soon as the equipment supplier gives notice on completion of erection and shall be finished expeditiously."

PSG 5.5.11 Watertight concrete

Add the following to SANS 1200 G, sub-clause 5.5.11:

"The floors, walls and roofs of all water retaining structures shall be considered to be watertight concrete structures.

Concrete to manholes shall be watertight concrete."

PSG 5.5.13 Grouting

Add the following new sub-clause to SANS 1200 G, sub-clause 5.5.13:

***PSG 5.5.13.1 Grouting in pipe specials after core drilling of existing structure**

"All stainless steel pipe specials to be grouted into position must be to line and level as shown on drawings. The level of the pipe special must be verified on site with the Employer's Agent before grouting in may commence.

Prior to the placing of any grout, the surface of the existing concrete shall be prepared as specified in the application requirements of the grout. Non-shrink grout shall be used and a water tight seal must be guaranteed. The grout must also be able to withstand the corrosive environment of raw sewage. The Contractor must submit product details and a method statement regarding the grouting, for the approval of the Employer's Agent, before any grouting may commence.

The Contractor shall, where so ordered, carry out a site test for each grouting procedure and each grouting gang to be used. The tests shall be carried out on a dummy core drilled opening similar in configuration to that which is to be grouted, but not exceeding 1 m² in area unless otherwise ordered. The test shall show evidence of good workmanship and materials and the results shall be to the satisfaction of the Employer's Agent.

The Contractor shall, when so ordered, make standard test cubes from various grout mixtures and also subject them to compression tests to determine whether the specified strength has been achieved.

Test procedures shall comply with the relevant requirements of SANS 1200 G, sub-clause 7.2.1 to 7.2.3."

PSG 5.5.14 Defects

Add the following to SANS 1200 G, sub-clause 5.5.14:

"All defects shall be repaired as soon as possible after the formwork has been removed and the Employer's Agent has inspected the concrete. A statement of the method to be used for each repair shall be submitted to the Employer's Agent for his approval before any work is carried out. The Employer's Agent may prohibit the further placing of concrete in the particular area concerned until he is satisfied that the repair has been satisfactorily executed.

Honeycombed or otherwise defective concrete shall be cut out, together with part of the sound concrete, as directed by the Employer's Agent; anchor reinforcement drilled into holes into sound concrete shall be provided if and as ordered by the Employer's Agent. The cavities shall then be filled in flush with the concrete of the same mix but in general a smaller maximum aggregate size to be specified by the Employer's Agent, placed against special formwork; the joint being treated as a construction joint. For minor honeycombing and defects, the Employer's Agent may order a shallower cut-out, the edges of which shall be square to the face, or preferably undercut to a depth of at least 25 mm. Such cut-outs shall be filled with mortar of composition and colour similar to the concrete mortar, and applied by a tradesman or suitably skilled personnel.

Exposed corners, etc., which are patched shall be bonded to sound concrete by approved epoxy resin or similar bonding agents applied in accordance with the manufacturer's instructions. An approved experienced specialist sub-contractor shall be employed for critical work, such as the above, if directed by the Employer's Agent.

Special care shall be taken to ensure that any repair exactly matches the formed surface in colour and texture.

No patching or filling of surface defects other than air holes shall be permitted. If the exposed surface has defects which are in the opinion of the Employer's Agent detrimental to the desired architectural effect, that cast of concrete shall be removed and reconstructed at the Contractor's cost; any adjacent casts damaged in this process shall also be reconstructed."

Add the following new sub-clauses to SANS 1200 G, sub-clause 5.5:

***PSG 5.5.16 Items to be cast in or grouted into concrete**

***PSG 5.5.16.1 Casting pipes and specials in concrete**

"Where the pipe or special is supplied by others or where ordered by the Employer's Agent, the Contractor shall provide a box-out in the wall and cast the unit in at a later stage. When constructing such box-outs reinforcement shall not be cut but shall run through the opening. Reinforcement shall be cut and/or bent out at a later stage to suit the item being cast in. After installation of the item the remaining reinforcement shall be bent back in position.

Where entry holes for pipes/specials have been provided in the walls, the Contractor shall be responsible for the concreting in of such pipes/specials regardless of whether or not these have been supplied by himself.

Before commencing the positioning in holes of any pipes/specials the Contractor shall:

- a) remove all formwork and boxing remaining in the holes;
- b) make any alternations required to the position and shape of the holes and cut reinforcement to suit the item, as directed by the Employer's Agent; and
- c) thoroughly scabble the sides of the holes so as to obtain a satisfactory bond surface for the new concrete and treat the surface as specified.

Immediately prior to the placing of mortar and concrete around the pipes, the surface of the existing concrete shall be saturated with water. All surplus water shall be removed and the surface covered with a layer, approximately 12 mm thick, of mortar made of the same mix as the concrete in which the pipes/specials are to be placed.

The concrete ingredients shall be mixed and placed as dry as possible to obtain a dense, waterproof concrete. The concrete shall be carefully worked around the puddle flange, if any, and the pipe barrel or body of the special, and shall be vibrated in layers so as to obviate a falling away from pipe/special surfaces of the concrete already placed. The whole shall, when set, form a dense, homogeneous, and waterproof mass."

***PSG 5.5.16.2 Fixings for equipment supplied under separate contract**

- a) The Contractor will be responsible for the forming of pockets to the details shown on the drawings to accommodate holding down bolts for equipment supplied under a separate contract. Holding down bolts will be supplied by and positioned by others.
- b) After casting of the concrete all shuttering shall be removed and the sides of the bolt holes and surface on which the machine base is to be placed shall be scabbled to remove all defective concrete, laitance, dirt, oil, grease and loose material.
- c) Upon completion of the positioning and alignment of equipment and when instructed by the Employer's Agent the Contractor shall in collaboration with the mechanical contractor, grout up pockets and baseplates by filling pockets and voids under the baseplates with an approved non-shrink grout.

***PSG 5.5.16.3 Fixings for items supplied under this Contract**

"Holding down bolts or other fixings required for the installation of items supplied under this Contract shall be provided by the Contractor. These fixings shall be cast in or grouted into pockets or installed by other means as approved by the Employer's Agent.

Where anchor bolts are used which are installed into holes drilled into concrete or masonry these shall be of a type approved by the Employer's Agent. All such bolts used shall be manufactured from stainless steel or a metal

with a resistance to corrosion equal to that of grade 304 stainless steel. The metal used for bolts shall be compatible with galvanized mild steel.

Anchor bolts shall have minimum pull-out forces and minimum ultimate lateral loads at least equal to those specified below:"

Specified Anchor Size	Minimum Pull-out Force (kN)	Minimum Ultimate Lateral Load (kN)
M6	10,35	7,60
M8	13,70	11,15
M10	19,44	15,95
M12	31,85	26,90
M16	50,45	45,80
M20	60,50	71,20

***PSG 5.5.16.4 Plastic puddle pipe items supplied under this Contract**

"Plastic puddle pipe cast-in fittings as indicated per drawing required for the installation of items supplied under this Contract shall be provided by the Contractor. These fittings shall be cast in or grouted into pockets or installed by other means as approved by the Employer's Agent.

All such fittings shall be manufactured from uPVC CLASS 16 according to the drawings in accordance with SANS 966. The welded puddle shall be governed in accordance with standards DVS 2207 and SANS 10268. All welded items shall be issued with an accredited quality certificate from an accredited manufacturer."

***PSG 5.5.17 Supervision**

"The Contractor shall be responsible for ensuring that the erection of the concrete work is carried out under the supervision of a person with adequate knowledge of the mixing, transporting, placing and curing of concrete."

***PSG 5.5.18 Programme and Plant**

"Prior to carrying out any concrete work, the Contractor shall obtain the approval of the Employer's Agent in respect of:

- a) Structural programme,
- b) Concrete plant details,
- c) Materials to be used in concrete,
- d) Details of concrete
- e) Construction joints"

***PSG 5.5.19 Core drilling into existing structures to fix pipe specials**

***PSG 5.5.19.1 Core drilling into existing structures**

"The existing structures shall be core drilled to the line and level as indicated on the drawings. The position of the core must be verified on site with the Employer's Agent before drilling may commence. The diameter of the core to be drilled shall be 100mm more than the diameter of the pipe special's puddle to be grouted into place. This shall ensure adequate space for the insertion of the grouting material. The size of the pipe's puddle to be verified on site after manufacture and the size of the core to be drilled must also be verified on site with the Employer's Agent before drilling may commence."

***PSG 5.5.19.2 Substrate preparation**

"In general, the substrate surface must be sound and clean. All loose material shall be removed mechanically with a wire brush or by high pressure water jetting or blasting. The sides of the holes shall thoroughly be scabbled to obtain a satisfactory bond surface. Embedded reinforcement steel shall be free from scale, rust, oil and grease and shall be treated with a suitable protective coating and bonding agent."

***PSG 5.5.19.3 Reinforcement repair systems**

"The exposed reinforcement steel shall be treated with SikaTop Armatec 110 EpoCem (or similar approved product) for protection against corrosion and to act as a bonding agent. The product shall be applied in two phase:

- a) Two layers of 1 mm thick layers for corrosion protection

b) 1.5 – 2.0 kg/m² as a bonding agent

The product shall be applied in accordance with the manufacturer's specifications."

***PSG 5.5.19.4 Breaking into, cutting and removal of existing structures**

"The existing structures shall be saw cut carefully to the extremities indicated on the drawings plus allowing for an additional 25 – 50 mm to ensure that the cover to reinforcement is maintained."

PSG 7 TESTS

PSG 7.1.2 Frequency of sampling

Add the following to SANS 1200 G, sub-clause 7.1.2.1:

"One sample shall consist of three concrete test cubes.

For each sample taken the position in the structure shall be recorded where the batch represented by that sample is placed as also the date sampled."

Replace SANS 1200 G, sub-clause 7.1.2.2 with the following:

"At least 2 samples shall be taken per day from every 0 m³ to 10 m³ of concrete of each grade placed. At least 4 samples shall be taken per day from every 10 m³ to 20 m³ of concrete of each grade placed. At least 6 samples shall be taken per day from concrete of each grade placed in excess of 20 m³."

PSG 7.2 Testing

Add the following new sub-clauses to SANS 1200 G, sub-clause 7.2:

***PSG 7.2.5 Testing watertight concrete**

"The watertightness of the water retaining structures shall be tested as follows:

On completion of a water retaining structure it shall be cleaned and shall be filled with water at an approved rate. After allowing a period of absorption of 3 days, the depth of water shall be recorded and the water allowed to stand for a further 7 days during which the total permissible drop in water level after allowing for evaporation should not exceed 10 mm.

In the event of any leakage or dampness being evident at any stage of the filling or testing or in the event of the Employer's Agent considering the final degree of watertightness to be unsatisfactory, the Contractor, when ordered by the Employer's Agent, shall discontinue such filling or testing and shall, at his own expense, take approved steps immediately to rectify the leakage and to make the work thoroughly sound to the complete satisfaction of the Employer's Agent. All such work of rectification shall be continued assiduously until a satisfactory test is obtained, which shall prove to the Employer's Agent that watertightness has been obtained.

If required by the Employer's Agent, the structure shall be retested before the expiry of the Defects Liability Period.

The Works will not be certified complete until the structure has been proved by testing to be watertight to the satisfaction of the Employer's Agent."

***PSG 7.2.6 Durability tests**

The durability test will be paid by a lump sum separately for the structure.

The sum shall cover the cost of all labour, equipment and materials to carry out the tests, as specified in PSG 5.5.1.5, to rectify faults and to achieve a test result to the satisfaction of the Employer's Agent. Durability tests will include tests for Sorptivity, Oxygen Permeability, Chloride conductivity, Concrete Cover and Shrinkage as specified in PSG 5.5.1.5.

PSG 7.3 Acceptance criteria for strength concrete

Add the following new sub-clause to SANS 1200 G, sub-clause 7.3:

***PSG 7.3.6 Grouting**

"The Contractor shall, where so ordered, carry out a site test for each grouting procedure. The tests shall be carried out on a dummy bedplate similar in configuration to that which is to be grouted, but not exceeding 1 m² in area unless otherwise ordered. When the dummy bedplate is dismantled, the underside shall show a minimum grout contact area of 80% with reasonably even distribution of the grout over the surface grouted except that, in the case of expanding grout, the minimum grout contact area shall be 95%. The test shall show evidence of good workmanship and materials and the results shall be to the satisfaction of the Employer's Agent.

The Contractor shall, when so ordered, make standard test cubes from various grout mixtures and also subject them to compression tests to determine whether the specified strength has been achieved. Test procedures shall comply with the relevant requirements of SANS 1200 G, sub-clauses 7.2.1 to 7.2.3."

PSG 8 MEASUREMENT AND PAYMENT

PSG 8.1.1 Formwork

SANS 1200 G, sub-clause 8.1.1 to include payment for:

PSG 4.5.3	Ties
PSG 5.2.1	Classification of finishes
PSG 5.2.2	Preparation of formwork

Add the following new sub-clauses to SANS 1200 G, sub-clause 8.1.1:

***PSG 8.1.1.7 Edges of blinding layer**

"No separate payment will be made for formwork to the edge of the blinding layer. The rates tendered for concrete to the blinding layer shall cover the cost of such formwork."

***PSG 8.1.1.8 Chamfers and fillets**

"No additional payment will be made for chamfers and fillets up to 40 mm wide. Larger fillets and chamfers will be measured by length in accordance with SANS 1200 G, sub-clause 8.2.5."

PSG 8.1.2 Reinforcement

SANS 1200 G, sub-clause 8.1.2 to include payment for:

PSG 5.1.2	Fixing
-----------	--------

Add the following to SANS 1200 G, sub-clauses 8.1.2.2 and 8.1.2.3:

"Notwithstanding the method of measuring and paying for reinforcement specified in SANS 1200 G, sub-clauses 8.1.2.2 and 8.1.2.3, reinforcement will be measured and paid for as scheduled."

PSG 8.1.3 Concrete

SANS 1200 G, sub-clause 8.1.3 to include payment for:

PSG 3.2.1	Cement: Applicable specifications
PSG 3.2.3	Storage of cement
PSG 3.3	Water
PSG 3.4.1	Aggregates: Applicable specification
PSG 3.4.2	Use of plums
PSG 3.5	Admixtures
PSG 4.3.1	General requirement for mixing plant
PSG 4.4	Vibrators
*PSG 4.6	Water-bath
PSG 5.5.1.1	Quality: General
PSG 5.5.1.4	Chloride content
PSG 5.5.1.5	Durability
PSG 5.5.1.6	Prescribed mix concrete
PSG 5.5.1.7	Strength concrete
PSG 5.5.2	Batching
PSG 5.5.3.2	Ready-mixed concrete
PSG 5.5.5.10	Casting of concrete in excavation
PSG 5.5.8.2	Curing for normal concrete surfaces
PSG 5.5.9	Adverse weather conditions
PSG 5.5.11	Watertight concrete

PSG 5.5.14	Defects
PSG 7.1.2	Frequency of sampling

PSG 8.2 Scheduled formwork items

Add the following new payment item to SANS 1200 G, sub-clause 8.2:

***PSG 8.2.7 KickersUnit: m²**

"Formwork to the edges of kickers will be measured as plane (or circular) vertical (not as narrow widths)."

***PSG 8.2.8 Form slots for sluice and channel gates.....Unit: No**

"Where a sluice or channel gate is to be installed with a flush invert, slots or rebates as per the manufacturer's specifications, shall be formed in the concrete.

The rate shall cover for the installation of all formwork to form the specified slots or rebates."

PSG 8.4 Scheduled concrete items

PSG 8.4.4 Unformed surface finishes

Add the following to SANS 1200 G, sub-clause 8.4.4:

"The rates for unformed surface finishes shall cover the cost of providing the respective surface finish as specified in PSG 5.5.10, as amended, Concrete Surfaces."

PSG 8.5 Joints

Add the following to SANS 1200 G, sub-clause 8.5:

"Only designated joints as shown on the drawings will be measured for payment according to the length of each type of joint constructed. The rate shall cover the cost of all materials, labour and plant required to construct each type of joint specified on the drawings, including the cost of all shuttering, treatment of the joint as specified in SANS 1200 G, sub-clause 5.5.7.3 and PSG 5.5.7.3, as amended, the provision of chamfers as specified where concrete is exposed, as well as testing and repairing where necessary.

Non-designated joints will not be measured for payment."

SANS 1200 G, sub-clause 8.5 to include payment for:

*PSG 3.9	Materials for movement joints
PSG 5.5.7	Construction joints

Add the following new payment items to SANS 1200 G, sub-clause 8.5:

***PSG 8.5.1 Formed jointsUnit: m**

"Formed joints will be measured by the length of the joint.

The rates shall cover the cost of all operations and materials specified in PSG 5.5.7, as amended, and PSG 5.5.7.2, as amended, and detailed on the drawings such as joint filler, dowel bars and tubes, bitumen coats, waterstops or waterbars, etc."

PSG 8.7 Grouting

Add the following to SANS 1200 G, sub-clause 8.7:

"Grouting of base plates and equipment bases will be measured by the volume of grout used.

The rate shall cover the cost of the supply and floating in of grout under the plates to ensure solid and complete filling of the gap.

Grouting in of pipe specials after core drilling of existing structure will be measured by volume of grout used.

The rate shall include all necessary costs for the supply and floating in of grout for the sealing of the pipe specials to line and level, as described in PSG 5.5.13.1."

SANS 1200 G, sub-clause 8.7 to include payment for:

*PSG 5.5.13.1	Grouting in of pipe specials after core drilling of existing structure
*PSG 5.5.16.2	Fixing of equipment supplied under separate contract
*PSG 5.5.16.3	Fixing for items supplied under this Contract
*PSG 7.3.6	Grouting

PSG 8.8 HD Bolts and miscellaneous Metal Work

Add the following to SANS 1200 G, sub-clause 8.8:

"Fixing of holding down bolts will be measured by number. The rate shall cover the cost of all things necessary to ensure that the bolts are effectively and rigidly held in position during casting, complete with sleeved pockets, all as detailed on the drawings."

Add the following new payment items to SANS 1200 G, clause 8:

***PSG 8.9 No-fines concreteUnit: m²**

"No-fines concrete will be measured by area.

The rate shall cover the cost of supplying materials, constructing and placing in position and compaction of the no-fines concrete as specified in PSG 5.5.1.7, Strength concrete, as amended, and shall include for the steel floated 20 mm mortar skim to the approval of the Employer's Agent."

***PSG 8.10 Items cast in concreteUnit: No.**

"Items cast in concrete will be measured by number separately for each type of item.

Notwithstanding SANS 1200 G, sub-clause 8.2.6, the rate shall cover the cost of fixing in position and casting in the item as construction proceeds, irrespective of whether the Contractor chooses to fix the item in the formwork and cast it in directly or to box out a hole and grout the item in subsequently. The rate is to include payment for *PSG 5.5.16.1, Casting pipes and specials in concrete, and *PSG 5.5.16.4, Plastic puddle pipe items supplied under this Contract.

The rate for the puddle pipes shall cover the cost of all things necessary to ensure that the fitting are effectively and rigidly held in position during casting including the certification and all as detailed on the drawings. Repairs for leaking cast in items will not be paid for."

***PSG 8.11 Granolithic screeds.....Unit: m²**

"Special floor finish will be measured by area. The rate shall cover the cost of the supply and application of the specified material, complete as specified by the manufacturer and to the approval of the Employer's Agent. Repairs to unsatisfactory work will not be paid for.

Measurement of granolithic screeds will be by the surface area covered.

The unit rate or lump sum shall cover the cost of all materials, labour and equipment required to provide the screed as specified in PSG 5.5.10.7, Granolithic screeds. The rate shall include the steel float finish."

***PSG 8.12 Precast paving slabs.....Unit: m²**

"Precast paving slabs will be measured by the area paved.

The rate shall cover the cost of compacting the area, application of weed-killer, supplying, laying and bedding the slabs, grouting the joints and filling any gaps, all as specified in *PSG 3.10, Precast paving slabs."

***PSG 8.13 PFA concrete.....Unit: m³**

"Measurement and payment for PFA concrete shall be as specified in PSG 8.1.3, Concrete, as amended.

The tendered rate shall cover all costs in connection with the supply, storage, handling on site and mixing in of PFA."

***PSG 8.14 Watertightness test.....Unit: No.**

"The watertightness test will be paid by a lump sum separately for each structure.

The sum shall cover the cost of all labour, equipment and materials including provision of water to carry out the tests, as specified in *PSG 7.2.5, Testing watertight concrete, to rectify faults and to achieve a test result to the satisfaction of the Employer's Agent."

***PSG 8.15 Slurry coat and curingUnit: m²**

"Supply & apply waterproof treatment with Xypex Concentrate and Xypex modified to all areas as specified.

The rate shall cover for the supply and surface treatment of specified concrete surfaces according to *PSG 5.5.8.1, Post-Crystallization (Concentrate & Modified) slurry coat and curing."

***PSG 8.16 Bond Breaker.....Unit: m²**

"Where a 250 micron black plastic continuous layer is to be laid over the no-fines concrete under floor slabs, the side and end laps shall not be less than 100mm. Just before casting the sheeting shall be perforated in a grid pattern at 1 m centres.

Care shall be taken not to rip or tear the sheeting. All repairs shall be at the Contractor's expense.

The rate shall include payment for *PSG 3.9.4, Bond breakers, primers and sealants."

***PSG 8.17 Core drilling into existing structures to fix pipe specialsUnit: No.**

"The core drilling into existing structures shall be measured per number of cores required. The Bill of Quantities shall state the size of the pipe special which requires core drilling.

The rate shall include all costs for drilling, equipment, substrate preparation, reinforcement repair systems, maintaining the operation of the existing structure, health and safety requirements to work in close vicinity of raw sewage, environmental requirements to prevent, contain and manage any spillages as described in PSG 5.5.19.1, 5.5.19.2 and 5.5.19.3."

***PSG 8.18 Breaking into existing structures.....Unit: m**

"The breaking into existing structures shall be paid per meter length of cutting required. The Bill of Quantities shall state thickness of concrete surface to be cut into. The rate shall include all costs for saw cutting and substrate preparation as described in PSG 5.5.19.2, 5.5.19.3 and 5.5.19.4."

PSLB BEDDING (PIPES) (SANS 1200 LB)

PSLB 3 MATERIALS

PSLB 3.1 Selected granular material

Add the following to SANS 1200 LB, sub-clause 3.1:

"Wherever the words "Selected Granular Material" are used in the specification, these shall be replaced with "Selected Bedding Material". In the case of flexible pipes the selected granular material shall consist of sand.

Wherever practicable, the Contractor shall use suitable material selected from the excavations for selected bedding and selected fill material."

PSLB 3.2 Selected fill material

Replace SANS 1200 DM, sub-clause 3.2 with the following:

"Selected fill material shall be free from vegetation and from lumps and stones of diameter exceeding 30mm, and shall be obtained from the trench excavations or other necessary excavations on the site, all to the approval of the Employer's Agent."

PSLB 3.3 Bedding

Add the following to SANS 1200 LB, sub-clause 3.3:

"Selected bedding material shall comply with the following requirements:

- A maximum particle size of 30 mm
- A minimum grading modulus of 0,5
- A minimum CBR of 15% at 93% of modified AASHTO maximum density
- A maximum plasticity index of 12

The Bedding shall be compacted to at least 93% of modified AASHTO maximum density (100% for sand).

The type of bedding to be used shall be in accordance with the details shown on the drawings."

PSLB 3.4.1 Selection from trench excavation

Add the following to SANS 1200 LB, sub-clause 3.4.1:

"Wherever practicable, the Contractor shall use suitable material selected from the excavations for selected bedding and selected fill material."

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1.2 Sources of bedding material

Add the following to SANS 1200 LB, sub-clause 8.1.2:

"Payment for the provision of imported bedding materials will only be made where they cannot be selected from the excavation within 5km of the point where it is required, and where it is ordered in writing by the Employer's Agent."

PSLB 8.1.3 Volume of bedding material

Add the following to SANS 1200 LB, sub-clause 8.1.3:

"The volume of bedding material will be measured net, excluding the volume occupied by the pipe. The volume of bedding material will be computed from:

- the trench width specified or scheduled, and

-
- the depth of each bedding layer as shown on the drawings, and
 - by deducting the volume occupied by the pipe."

PSLB 8.2.1 Provision of bedding from trench excavation

SANS 1200 LB, sub-clause 8.2.1 to include payment for:

PSLB 3.1	Selected granular material
PSLB 3.2	Selected fill material
PSLB 3.3	Bedding
PSLB 3.4.1	Selection from trench excavation

PSLD SEWERS (SANS 1200 LD)

PSLD 3 MATERIALS

PSLD 3.1 Pipes, fittings and pipe joints

***PSLD 3.1.2 Reinforced concrete pipes**

Add the following to SANS 1200 LD, sub-clause 3.1.2:

"Concrete pipes shall be the spigot / socket type manufactured by means of vertical casting and be supplied with a 3mm thick light green anchor knob sheet (AKS) (integral suitable anchors) high density polyethylene (HDPE) liner, cast into the pipe internally along the full length, and the full circumference of the internal diameter of the pipe. Factories manufacturing these pipes must have an ISO 9001:2009 Certification.

The joints between the concrete pipes are to be covered internally with 3mm thick HDPE capping strips. The capping strips are to be standard light green HDPE lining, manufactured using matching resin to that of the 3mm thick AKS lining cast into the inner walls of the pipes. Capping strips are to be at least 200mm wide and are to be heat tacked to the HDPE lining of the pipes, after which they are to be welded by the extrusion welding technique on both edges, to ensure a proper joint of the HDPE capping strip to the HDPE/AKS lining of the pipes. For each joint the welding of the capping strips are to be continuous for 360 degrees (full circumference) on both sides of the capping strip. HDPE welding rods of the same colour and matching resin are to be used for the extrusion welding. The fitting of the capping strips, extrusion welding and testing procedures shall comply with SANS 10409. Each joint is to be marked with a unique number/mark. Welder is to have a certificate of competence."

Add the following new sub-clauses to SANS 1200 LD, sub-clause 3.1:

***PSLD 3.1.8 Polyethylene pipes**

***PSLD 3.1.8.1 Description**

"Polyethylene pipes shall be HDPE and shall comply with SABS ISO 4427 PE 100, class as specified. All HDPE pipes shall be fusion butt welded unless otherwise shown on the drawings."

***PSLD 3.1.8.2 Flanges**

"The dimensions of all flanges and their drilling shall conform to the dimensions of SANS 1123, Table 600/3.

Loose flanges shall be manufactured from 316 stainless steel unless otherwise shown on drawings. Where flanges are beneath ground surface they shall be packed with a bitumen or tar based mastic and wrapped with "Denso Tape" or an equivalent approved product."

***PSLD 3.1.8.3 Flange gaskets, bolts, nuts and washers**

"Generally, non-asbestos type gaskets not less than 3 mm thick and suitable for aggressive, corrosive or potable water and raw sewage, shall be supplied for flanges.

All bolts shall be class 8.8 to SANS 135 or 1700, nuts shall be to SANS 1700 and washers to DIN 126. The class of a nut shall always be at least equal to the first digit of the class of the bolt with which it is used."

***PSLD 3.1.8.4 Couplings for polyethylene pipes**

"a) Pipe couplings

- i) Polyethylene pipes and specials shall be joined by means of butt fusion welding.
- ii) Slip-on couplings and slip-on flange adaptors shall mean "Viking Johnson" or "Klamflex" type couplings. All stainless steel slip-on couplings shall have a harness arrangement to prevent pipe separation. The end flange (compression flange) shall be such that the tie bolts clear the end flange. Bending of tie bolts will not be allowed. The couplings shall be fusion bonded epoxy coated and lined with a dry film thickness of not less than 275µm.

- iii) Couplings shall be rated as a minimum to the same class as the pipe.

b) Storage of couplings and fittings and stacking of pipes.

The Contractor shall provide adequate storage facilities for pipes, couplings and specials as recommended by the manufacturer."

PSLD 3.5.2 Precast concrete sections

Add the following to SANS 1200 LD, sub-clause 3.5.2:

"Precast concrete sections with an inside diameter of at least 1 250 mm and maximum of 2 450 mm shall be used for manholes. Where the angle between the inlet and outlet of the manhole deviates by more than 45 ° from the straight or where more than one inlet enters a manhole, the invert level of the outlet shall be 30 mm lower than the lowest inlet invert level.

Dolomitic aggregate and dolomitic sand shall be used for the manufacture of precast concrete sections and for precast concrete manholes."

PSLD 3.5.7 Step irons

Replace SANS 1200 LD, sub-clause 3.5.7 with the following:

"Step irons shall be installed in all manholes deeper than 1,2 m. Step irons shall consist of polypropylene coated 12 mm high tensile steel, such as Calcamite or similar. The installation of the step irons shall be in accordance with the specification of the manufacturer."

PSLD 3.5.8 Manhole covers and frames

Replace SANS 1200 LD, sub-clause 3.5.8 with the following:

i) Concrete manhole covers and frames with 3mm HDPE lining according to SANS 558:1973

All precast manholes with a 3mm HDPE lining shall be roofed with a special precast cover slab, which also has the 3mm HDPE internal lining. The precast concrete lid and frame shall be extra heavy duty with a 3mm HDPE lining. Both these components shall be manufactured according to SANS 558-1973 9 (3.5) specifications.

ii) Polymer concrete manhole covers and frames according to SANS1882:2003

Manhole covers and frames, for standard precast concrete manholes, are to be polymer concrete. Where specified manhole covers and frames shall be Type 2A (SANS 558) regardless of whether or not the manholes are subject to traffic loads.

iii) Locking mechanism

All Manhole Covers and Frames shall be equipped with an approved, cast in locking mechanism.

PSLD 3.6 Marker posts

Add the following to SANS 1200 LD, sub-clause 3.6:

"Marker posts shall be manufactured from 150mm diameter x 1,5m FC pipe filled with concrete. The half-length of pipe protruding above the ground shall be painted using approved exterior white enamel paint."

PSLD 5 CONSTRUCTION

PSLD 5.6 Manholes, inspection chambers, etc.

PSLD 5.6.1 General

Add the following to SANS 1200 LD, sub-clause 5.6.1:

"Manholes shall generally be precast concrete rings with sealed joints as detailed on drawing and shall be installed according to the manufacturer's specifications. After the joints have been sealed with an approved sealant the joints shall be covered on the outside by a double wrapping of polyethylene adhesive tape.

Manhole cover levels are to be at least 200mm above natural ground level, except in carriage ways where they are to be flush with the surfacing, unless otherwise specified or ordered.

The flexible connections to the manholes shall be constructed as shown on Drawing SANS 1200 LD-2 (c) for concrete pipes.

Special concrete manholes will be cast on site as per the details on the drawings. These manholes will also be roofed with a special cover slab and concrete lid, which incorporates Xypex admixture as explained in the PSG 3.5.1 specifications. The inside surface of the manhole walls (concrete and plastered), the underside of the cover and/or top slab, the concrete lid and the grooves of the cover slab shall be treated with two coats of high-build epoxy tar coating for chemical resistance (ABECOTE SF 356 or similar approved).

Benching shall be constructed at a slope of 1 (vertical):6 (horizontal) and finished off with a 20mm thick high alumina screed or two coats of water tightness sealant to protect benching from decaying (one coat Xypex concentrate, followed up with one coat Xypex Modified, or similar approved products). The inside surface of the walls and the underside of the top slab to be treated with two coats of bituminous coating to prevent decay due to methane gas build-up in manhole. Contractor must discuss alternatives with the Employer's Agent before any application. (ABE Ravenol or similar approved)."

PSLD 5.9 Connecting sewers

PSLD 5.9.1 Location and details

Add the following to SANS 1200 LD Sub-clause 5.9.1:

"Where new sewers connect into existing pipelines the Contractor shall ascertain the exact position and existing invert level at the connecting point before excavating the connecting pipe trenches upstream. Any apparent discrepancy in the design data shall be brought to the immediate attention of the Employer's Agent.

Where required and after receiving the Employer's Agent's approval of the proposed operation the Contractor shall interrupt or divert the sewage flow, excavate for and expose the existing pipe, construct the new manhole, cut into the pipe, remove the scrap material, or in the case of a manhole, break into the manhole, connect the new pipe and make good."

PSLD 5.9.2 Marker posts

Add the following to SANS 1200 LD, sub-clause 5.9.2:

"At the time of backfilling the marker posts shall be installed at each manhole vertically above the pipeline centreline and not more than 1,5m from the manhole. The post shall protrude 0,9m above ground level or as otherwise specified by the Employer's Agent."

Add the following new sub-clause to SANS 1200 LD, sub-clause 5.9:

***PSLD 5.9.4 As-built information**

"The Contractor shall after completion of a section of pipeline submit the following as-built information:

- Inlet and outlet invert levels at manholes.
- Cover levels at manholes.
- Distances between manholes.
- Y,X Co-ordinates of manholes

The Employer's Agent will issue a form for this purpose.

Non-compliance with this clause will constitute grounds for the withholding of payment from any certificate, at the sole discretion of the Employer's Agent."

Add the following new sub-clauses to SANS 1200 LD, clause 5:

***PSLD 5.11 Jointing Methods**

***PSLD 5.11.1 HDPE pipes**

***PSLD 5.11.1.1 HDPE jointing**

"HDPE pressure pipes shall be butt fusion welded. All welds required for joining the pipe lengths and for the installation of the puddle flanged specials shall be butt welds and shall be protected from dust. The end pieces of each pipe length shall be cut, prepared and cleaned as per the relevant SANS 10268 standard. All welding on the HDPE pipes shall also be carried out according to SANS 10268.

An extra one minute soak time should be allowed for PE100 pipe sizes above 500mm SDR11. This is designed to ensure that fully ductile welds are always obtained under all field conditions.

The Contractor shall also ensure that the pipe is free of waste materials and loose objects and test the pipe, joints, etc. for leaks in accordance with SANS 10268 before backfilling of the pipe trench is allowed. Such tests shall be approved by the Employer's Agent. The Contractor shall provide the Employer's Agent with a method statement prior to any painting, touch ups or testing carried out on the pipe.

Furthermore:

- A record shall be kept of the welding including date, pipe details, weather, welding conditions, welder, initial bead height, welding times, final position of joint in the ground and a record of inspections of completed welds.
- The welder shall have a Test Certificate for HS Welding (heated-tool butt welding) issued within the previous 12 months by an inspector approved by the SAQCC-NPE (Thermoplastics Joining Committee National Panel of Examiners) in accordance with SANS 10269.
- Joints shall be able to withstand without damage the longitudinal force to be transmitted by winching (and/or pushing) equipment.
- Pipework should be inspected before jointing and shall not have cuts, gashes, nicks, abrasions, or any such physical damage which is deeper than 10 % of the wall thickness. Such pipes shall be removed from site and replaced with undamaged pipes.
- Pipes shall be connected using electrofusion welded couplings to the Employer's Agent approval, if joints between installed liner pipes cannot be made by butt welding.
- Welded joints shall be tested in accordance with SANS 6269.
- Before any production welding commences, the following shall be approved in accordance with SANS 10270 for heated-tool butt welding of pipe joints:
 - a Welding Procedure Specification (WPS) and
 - a qualification joint"

***PSLD 5.11.1.2 Equipment**

"The Contractor shall ensure that as a minimum the following equipment is available on site to undertake the welding:

- Generator to supply the heater plate, trimmer and hydraulic pump
- Butt-fusion machine fitted with the correct size clamp shells, trimmer, heater
- Plate, hydraulic pump and timer
- Pipe support rollers
- Welding tent
- Cleaning material, lint free cotton cloth or paper towel
- External/Internal debearing tool
- Bead gauge
- Digital thermometer with surface probe to check heater plate.

- Pipe end covers
- Baseboard
- Pipe cutters
- Air temperature thermometer
- Indelible marker pen
- Timer

***PSLD 5.11.1.3 Pre-welding checks**

"Notwithstanding the requirements of SANS 10268 and WIS 4-32-08, the following minimum pre-jointing checks should be undertaken:

Before commencing a welding operation:

- Ensure that equipment used is clean, in good condition and regularly maintained
- Ensure that the correct jointing parameters for the machine type and pipe are known
- Check that the heater plate is clean and dry
- Check that the trimmer is clean and that the blades are not damaged and in the correct position for required pipe size
- Ensure clamp liners and securing screws are of the correct size
- Ensure that the generator is in good condition and has sufficient fuel
- A tent is available to provide shelter during welding and end caps are available. A non-slip ground sheet (or suitable anti-slip surface), should be used to minimise contamination.
- The pipes and/or fittings to be jointed are of the same size, SDR and material."

***PSLD 5.11.1.4 Dummy Welds**

"To remove any residual dust and other fine contaminants on the heater plate, a dummy joint shall be made at the start of each jointing session. This shall take place whenever the plate has been allowed to cool below 180°C, or at a change of pipe size. Two dummy joints must be made if the pipe size is greater than 180mm."

***PSLD 5.11.1.5 Post-welding Checks**

"Notwithstanding the requirements of SANS 10268 and WIS 4-32-08, the following minimum post-jointing checks should be undertaken:

- Examine the joint for cleanliness and uniformity and check that the bead width is within the specified limits.
- Remove the external bead and internal bead using suitable de-beading tools.
- The beads and joint shall be numbered/coded using an indelible marker pen to correspond with the joint details entered into the butt fusion machine data retrieval system.
- The beads shall be twisted at several positions and if a bead is seen to split at any point or deformities are present on the underside, then the joint should be cut out from the pipeline and remade. If a similar defect reoccurs, all further jointing should cease until the equipment has been thoroughly cleaned, examined and new trial joints made which are shown to be satisfactory.
- Each finished joint shall be marked with a number"

***PSLD 5.11.1.6 Health and Safety**

"Notwithstanding the requirements of the Occupational Health and Safety Act, 1993, the Contractor shall produce method statements and risk assessments for the butt welding, and should ensure that all staff are competent and fully trained."

PSLD 7 TESTING

PSLD 7.2 Tests and acceptance / rejection criteria

PSLD 7.2.1 Air test

Add the following to SANS 1200 LD, sub-clause 7.2.1:

"All acceptance tests shall be carried out in the presence of the Employer's Agent's Representative in accordance with the air test.

Visual inspection of the finished lining and internal jointing of the pipeline shall include the provision of a video camera fitted with a fish-eye lens mounted on a suitable trolley which shall be so arranged as to make continuous record of the completed pipeline throughout. Suitable reference marks related to the pipe chainage which are legible on the video recording and from which the position of each joint can be identified shall be painted on the pipe lining before the video recording is made. Accurate records including exposure serial numbers and the relative pipe chainages shall be kept by the Contractor. All records shall become the property of the Employer. The Contractor shall supply all equipment, facilities and chemicals required for the processing of films. A full description of the equipment and method proposed must be submitted with tenders. Exposures of any completed section of lining shall be processed and be made available immediately after. The Employer's Agent may order repeat tests at any point in the line due to the lack of good definition, lighting or focus, or because a defect in the lining is suspected. Repeat exposures shall be to the account of the Contractor."

PSLD 7.2.6 Watertightness of manholes

Add the following to SANS 1200 LD, sub-clause 7.2.6:

"The following test is to be carried out on completed manholes after backfilling has been completed:

The manhole shall be completely filled with water and allowed to stand for 24 hours. At the end of this period enough water shall be added to refill the manhole and in the subsequent period of 24 hours the water level shall not drop by more than 75 mm per meter of depth of the manhole measured from the channel invert to the underside of the concrete cover slab. Manholes to be tested will be indicated on site by the Employer's Agent. Rectification, if necessary, will be carried out at the Contractor's expense."

Add the following new sub-clause to SANS 1200 LD, clause 7:

***PSLD 7.2.7 CCTV Survey of Sewer Lines**

***PSLD 7.2.7.1 Closed-Circuit Television Camera Inspection of Outfall Pipeline**

a) Scope of Work

The scope of work requires CCTV inspections on existing sewer pipes ranging in size from 500 mm to 1 200 mm.

b) Specifications for Mainline CCTV Inspections

i) Inspection equipment

The Contractor must give full details on their equipment, and their compliance or otherwise with all relevant specifications.

ii) Camera on Tractor

1. The camera must be transported through the pipe on a tractor system, to allow for smooth transportation of the camera through the pipe. The tractor must be controllable at various speeds in forward and reverse and must be able to operate in pipes from 100mm diameter upwards. The tractor speed must be displayed on the video at all times and should never exceed speeds as specified in *PSLD 7.2.7.3.
2. Camera mounted on the tractor must be mounted in such a manner as to transport the camera within 10% of the centre of the pipe.
3. All inspections must be done with a pan-and-rotate camera. The pan-and-rotate camera must have the ability to execute "pre-programmed" commands for effective and efficient scanning of joints. The system must have the capability to down load to the database, the cameras relevant viewing angles. This camera must be fully remote control including remote focus, iris and light control. The camera must pan and rotate to view all critical incidents and laterals.

c) Camera Vehicles

1. All CCTV inspection equipment shall be neatly compartmentalised and transported in a suitable vehicles.

2. All vehicles must have the ability to determine their current location (X & Y GPS position of the vehicle on site) in order to prepare as-built plans.

d) Inspection Range

The Contractor shall ensure that the equipment used has a minimum range of inspection of 180 m allowing for two manhole lengths.

e) Flow control equipment

The Contractor shall have a range of flow control equipment to be able to block pipe diameter from 100 mm to 1 200 mm diameter.

f) Recordings

1. As a minimum requirement, recordings on DVD medium shall be accepted.
2. The format of the DVD video file format must be approved by the Employer's Agent.
3. Correct adjustment of the recording apparatus and its associated electronic equipment shall be demonstrated by a recording, at the commencement of each new DVD, of a colour test pattern showing colour definition and picture resolution for a minimum period of 30 seconds.
4. DVD's are to be labelled with the following information:
 - Council name
 - Contract number
 - DVD number
 - Contractor's name
 - Date

Ownership of and copyright on the data will vest in the Employer.

***PSLD 7.2.7.2 Equipment Characteristics**

a) Camera Equipment

The Contractor shall make use of a push-pull type camera (ELS) with distancing device (sleigh, brushes, packing). The camera alone will have maximum dimensions of 70 mm x 100 mm long. The camera must be colour and can be fixed-focus forward looking. The flexible rod spool will have 100 m capacity and the system should be able to negotiate 90 degree bends in 100 mm private drains. On average the system should be able to negotiate at least 50 m in a 100 mm house drain.

The camera control unit must be portable and equipped with an integrated video unit. Video recordings must be made.

b) Flow control equipment

This will not normally be necessary provided the Contractor can make suitable arrangements with house owners but the equipment should be at hand to ensure a dry inspection.

c) Linear Measurement

1. The CCTV monitor display shall incorporate an automatically updated record in metres and tenths of metres of the camera location within the pipelines accurate to + 1% or 0.3 m whichever is the greater.
2. The metre reading entered onto the display at the start of the survey must represent the actual distance from the accepted start of the length of sewer or pipeline. This then requires that the meter reading can be zeroed from the control console as well as the ability to enter any distance that may be required. The meter-age shall start to register immediately the camera starts to move.
3. The Contractor shall ensure that precise location of defects or missing manholes can be made from the surface to a depth of at least 6 m.

The Contractor will be held liable for any inaccuracies in linear measurement beyond the allowed tolerances resulting in extra excavation, delays etc.

4. The accuracy of linear measurement shall be checked by plotting laterals (as inspected) and laterals (as-built) on a thematic map. In addition the Contractor shall be required from time to time to double inspect at random if the Employer is not satisfied as to linear accuracy by comparison between inspections before cleaning with inspections after cleaning and inspections after rehabilitation.
5. In addition, if on any specific section of pipe to be rehabilitated, laterals marked out according to CCTV reports are not found within the tolerances specified, then the CCTV contractor will be asked to re-inspect at their cost, with radiosonar attached to the camera, and to mark the position of laterals on the surface.
6. A calibrated flexible rod system will be accepted.

d) Slope Measurement

1. The camera system must be capable of measuring the slope of the pipe being inspected. The instantaneous angle must be filtered and is to be displayed on the screen and recorded on DVD. Raw inclinometer data is also to be stored for downloading to the database for the purpose of pipe profiling. The camera system must be capable of down loading to the database, no less than three readings per meter of pipe inspected.
2. Where available as-built slopes on all sewerage pipes to be inspected will be provided to the contractor. The "as-built" slopes must be installed into the database by the contractor in order to enhance the accuracy of the resultant pipeline profile.
3. The as-built line on the display must be surrounded by buffer zones in different colours or shades representing at least where critical backfalls would start (where a critical backfall represents an invert level deviation of more than 50% of the internal diameter).
4. In addition, start and end backfall incidents must be displayed on the pipeline profile and the "depth" of backfall (fall in invert level) must be computed and displayed.
5. The start and end of a critical backfall as determined by inclinometer must be fed to the database and logged as an incident.
6. The system must be able to import and display manhole cover reduced levels (when available). This together with design/as-built slopes manhole depths determined at manhole inspections can then be used to control the accuracy of inclinometer readings displayed as pipeline profiles/control the value of as-built slopes etc. The measured manhole depths, design/as-built slope, manhole cover reduced levels or difference in reduced levels must all be displayed.

e) Data Display (Viewed on the Monitor Screen and DVD)

1. A data generator shall electronically generate and clearly display on the viewing monitor and video recording a continuous record of data in an alpha numeric form containing the following minimum information:
 - i) Automatic update of the camera's meter-age position in the pipeline from adjusted zero to relevant point.
 - ii) Pipe dimensions
 - iii) Pipeline, location, road name and manhole reference numbers.
 - iv) Instantaneous angle and upstream/downstream direction of inspections.
2. The size and position of all text including meterage must be such that it can be adjusted or moved anywhere on the screen, so as not to interfere with the main subject of the picture.
3. The text generator must have a function that will remove and replace all data on screen so as to allow an unobstructed view of the entire screen when required.
4. The text generator shall have a real time clock and calendar on screen to indicate the progress on the survey.

f) Picture Quality Control (Minimum Standards)

1. The electronic systems, television camera and monitor, shall provide a live picture of not less than 400 lines definition in real full colour and with no interference. The pictures shall be sufficiently sharp so that any fault can be seen clearly.
2. Pan-and-rotate cameras must have adjustable focus. The adjustment of focus and iris shall provide a focal range from 3 mm to infinity with at least 62° angle of view lens. The distance along the pipe in focus from the initial point of observation shall be a minimum of twice the vertical height of the pipe.
3. The combination of object illumination and light sensitivity of the camera shall be adequate to obtain an effective picture of the structure of the sewers or pipelines to be surveyed without loss of contrast or flare out of picture or shadowing.
4. The camera system must provide lighting to illuminate the pipe sufficiently to allow for the detection of cracks and other structural defects in the pipe. The lighting must be of such a nature that the natural colour of the pipe is recorded (No black & white CCTV will be acceptable).
5. Suitable test devices shall be provided and be available throughout the contract, to enable practical demonstration of the systems abilities.
6. For colour tube type cameras, the test card shall be the Marconi Regulation Chart No 1 or equivalent with a colour bar, clearly defined with no tinting to show the following:
 - (i) Black
 - (ii) Blue
 - (iii) Cyan
 - (iv) Green
 - (v) Magenta
 - (vi) Red
 - (vii) White
 - (viii) Yellow
7. The camera shall be positioned centrally and parallel to the test card at a distance where the full test card just fills the monitor screen. The card shall be illuminated evenly and uniformly without any reflection.
8. The electronic systems, television camera and monitor shall be of such quality as to enable the following to be achieved:
 - a. Shades of Grey

The grey scale shall show equal changes in brightness ranging from black to white with a minimum of five stages.
 - b. Linearity

A background grid shall show squares of equal size, without convergence/ divergence over the whole of the picture. The centre circle should appear round and have the correct height/width relationship.
 - c. Resolution

For colour tube type cameras, the live picture shall be capable of registering a minimum of 250 lines and can be clearly visible with no interference. The resolution shall be checked with the monitor colour turned down.
 - d. Colour

For colour CCTV, with the monitor control adjusted for correct saturation, the six colours plus black and white shall be clearly resolved with the primary and complementary colours in order of decreasing luminance. The grey scale shall appear in contrasting shades of grey with no tint.

e. Colour Contrasting

For colour CCTV, to ensure the camera shall provide similar results when used with its' own illumination source, the lighting shall be fixed in intensity prior to commencing the survey and the white balance set to the colour temperature emitted. In order to ensure colour constancy, ideally no variation in illumination shall take place during the survey.

g) Sample of DVD Medium

The Contractor shall include with their tenders submission, a DVD medium of at least 100 m of sewer filmed with equipment intended for use on this contract. If the tender is accepted, these shall define the required standard of picture quality for the contract. Where the Employer's Agent rejects any survey pictures, the Contractor shall take remedial action to provide that survey file of an acceptable standard.

***PSLD 7.2.7.3 Reporting and Quality Assurance Plan**

a) Reporting

All reporting shall be done according to the latest version of the concept Standardized Specifications for CCTV inspections, when available. An abridged version with photographs shall be within the operator's sight within all times.

All CCTV operators must be able to present certification on request that they have within the last year completed successfully a CCTV Operator Training/Revision Course.

The Contractor shall maintain the following accuracies:

- Header accuracy: 100%
- Incident and grading accuracy: 90%

The maximum camera speeds wherefrom reporting is done shall be:

- 0.2 m/s for inspections on newly laid or newly replaced/rehabilitated pipe.

***PSLD 7.2.7.4 Report Specifications**

All inspections to be done according to the South African Standardized CCTV inspections (when available). CCTV inspection report consisting of:

- Pipe Number (referenced to adjacent manholes)
- Pipe diameter
- Inclinator data
- Defects reported and graded
- Lateral identification (including orientation)
- End inspection data
- Digitised photographs representative of all major and critical faults in a section of pipeline.

PSLD 8 MEASUREMENT AND PAYMENT

PSLD 8.2.1 Supply, lay, joint, bed and test pipeline

PSLD 3.1	Pipes, fittings and pipe joints
*PSLD 3.1.2	Concrete pipes
*PSLD 3.1.8	Polyethylene pipes
*PSLD 3.1.8.1	Flanges
*PSLD 3.1.8.2	Flange gaskets, bolts, nuts and washers
*PSLD 3.1.8.3	Couplings
*PSLD 5.9.4	As-built information
*PSLD 5.11.1	HDPE jointing
*PSLD 5.11.1.1	Equipment
*PSLD 5.11.1.2	Pre-welding Checks
*PSLD 5.11.1.3	Dummy Welds
*PSLD 5.11.1.4	Post-welding Checks
*PSLD 5.11.1.5	Health and Safety

PSLD 7.2 Test and acceptance / rejection criteria

PSLD 8.2.3 Manholes

SANS 1200 LD, sub-clause 8.2.3 to include payment for:

PSLD 3.5.2	Precast concrete sections
PSLD 3.5.7	Step irons
PSLD 3.5.8	Manhole covers and frames
PSLD 5.6.1	Manholes, inspection chambers, etc.: General
*PSLD 5.9.4	As-built information
PSLD 7.2.6	Water tightness of manholes

Add the following to SANS 1200 LD, sub-clause 8.2.3:

"For the purpose of measurement and payment, the depth of a manhole, inspection chamber, etc., is defined as the depth from the top of the cover to the invert level of the manhole, inspection chamber, etc.

The rate for manholes shall cover the supply and installation of the complete manhole castings, lockable polymer concrete and 'normal' concrete manhole covers and frames and concrete footings (as scheduled), for the prevention of filtration where applicable."

PSLD 8.2.9 Marker posts

SANS 1200 LD, sub-clause 8.2.9 to include payment for:

PSLD 3.6	Marker Posts
PSLD 5.9.2	Marker Posts

PSLD 8.2.10 Permanent Plug Stoppers

Add the following to SANS 1200 LD, sub-clause 8.2.10:

"The rate shall cover the cost of permanently sealing off an existing 700mm diameter sewer pipeline with a concrete plug and making good."

PSLD 8.2.11 Connecting to Existing Sewer at...

Add the following to SANS 1200 LD, sub-clause 8.2.11:

"The rates shall cover the cost of location, excavation, exposure and surveying of the positions and levels of the connecting points, cutting into and the making good of the existing works, the cutting, fitting and building in of the new pipes, the additional/full cost of building the new manhole or structure on the existing sewer, as applicable, and any other costs of completing the connection as specified, including dealing with the sewage.

The Rate must include the level control of existing structure and assure no spilling occurs"

Add the following new payment item to SANS 1200 LD, sub-clause 8.2:

***PSLD 8.2.13 CCTV camera surveys..... Unit : m**

"The unit of measurement shall be the metre of each pipe inspected, measured centre to centre of adjacent manholes or to stopping point whichever is applicable.

The tendered rate shall include full compensation for, inter alia, the Closed-circuit television inspection lengths of sewer lines and any other related activity such as manhole inspections, reporting, etc. The tendered rate shall include for PS LD 7.2.7."

PSLE STORMWATER DRAINAGE (SANS 1200 LE)

PSLE 3 MATERIALS

PSLE 3.4.1 Bricks

Replace the first sentence of SANS 1200 LE, sub-clauses 3.1.4 with the following:

"Bricks used in stormwater structures shall be burnt clay engineering bricks, having a nominal compressive strength of 28 MPa, and complying with the requirements of SANS 227."

Add the following new sub-clause to SANS 1200 LE, clause 3:

***PSLE 3.6 Composite drainage system**

"The fin drain system shall consist of a geonet drainage core and geopipe enclosed within a geotextile filter jacket. The fin drain shall be supplied prefabricated with geopipe for assembly on site. The fin drain shall have a minimum flow capacity of 0,19 l/s per metre (hydraulic gradient of unity and a pressure of 10 kPa) and shall not decrease in thickness by more than 20% under confining pressure of 10 kPa.

(a) Geonet Drainage Core

The core shall be non-corroding, rot-proof and manufactured from low density polyethylene with minimum characteristics as follows:-

Mass	:	822 g/m ²
Thickness	:	5mm
Tensile Strength	:	2,4 kN/m
Discharge capacity	:	3,0 l/sec under 100 kPa at a hydraulic
gradient of unity		

(b) Drainage Pipe

The geopipe to be used in conjunction with the prefabricated fin drain shall be manufactured from high density polyethylene with not less than 60% of the surface perforated."

PSLE 5 CONSTRUCTION

PSLE 5.2 Bedding and laying

PSLE 5.2.2 Pipe culverts

Add the following to SANS 1200 LD, sub-clause 5.2.2:

"Pipes with ogee joints, where they pass under roads and also on curved pipelines in verges, shall be wrapped with two layers of hessian soaked in cementitious grout. The wrapping shall be 400mm wide and placed centrally over each joint.

Unless otherwise scheduled or indicated on the drawing, pipes with ogee joints shall be used.

Butt-ended pipes will not be permitted.

Lifting holes should be visible at the top of the pipe after laying and suitably closed off to prevent the ingress of soil.

Pipes may protrude up to 300mm into a manhole / catchpit. This relaxation will only be permitted if the pipe does not have to be cut. The "dead space" formed at the end of the manhole is to be suitably benched off to prevent the collection of silt and rubbish."

PSLE 5.5.6 Benching

Delete "granolithic plaster" of SANS 1200 LD, sub-clause 5.5.6 and replace by "concrete topping consisting of a 1:2:3 cement, sand and 7mm stone mix by weight. The sand proportion may be varied between 1,5 and 2,5 to obtain ideal workability."

Add the following new sub-clause to SANS 1200 LE, clause 5:

*PSLE 5.8 Installation of composite drainage system

"The geopipe shall be placed at the bottom of the geonet with the channel section of the geopipe as the invert of the drain.

The geotextile filter shall then be wrapped around the geopipe and stapled/joined at 300mm intervals. The complete system shall then be placed in the trench ensuring that during the fin remains vertical. The system shall discharge into a manhole, catchpit or headwalls."

PSLE 8 MEASUREMENT AND PAYMENT

PSLE 8.2.1 Supply and lay concrete pipe culverts

SANS 1200 LE, sub-clause 8.2.1 to include payment for:

PSLE 5.2.1	General
PSLE 5.5.6	Benching

PSLE 8.2.9 (a) Brickwork

SANS 1200 LE, sub-clause 8.2.9 (a) to include payment for:

PSLE 3.4.1	Bricks
------------	--------

Add the following new payment items to SANS 1200 LE, sub-clause 8.2:

***PSLE 8.2.14 Composite drainage system Unit : m**

"The composite drain will be measured linearly on slopes overall as laid. Separate items will be scheduled for different diameters of pipes, where relevant.

The rate shall cover the cost of providing the composite drain and the cost of excavation, laying, bedding, backfilling, jointing and making connections into manholes. The rate shall include payment for *PSLE 3.6, Composite drainage system, and *PSLE 5.8, Installation of composite drainage system"

PSM 2.2 Definitions

"The road construction material codes that are used in this Project Specification and drawings refer to TRH 14: 1985 - Guidelines for road construction materials".

Add the following new sub-clause to SANS 1200 M, clause 5:

“When roads to be constructed under this contract join onto existing surfaced trafficked roads, the Contractor shall take all the necessary precautions to ensure the safety of the traveling public. To this end, signs warning through traffic of vehicles encroaching into the travelled way shall be erected by the Contractor prior to such work being undertaken. In addition flagmen shall be installed along the through road. These control measures shall be checked and recorded on a daily basis.

Under no circumstances shall drums be permitted to be used as traffic demarcation devices.

All signs must comply with the latest edition of the South African Road Traffic Sign Manual.”

Add the following new sub-clause to SANS 1200 M, clause 6:

"The Contractor shall submit to the Employer's Agent, at the time of requesting acceptance of a road layer, a record of the surface levels of that section, taken at metre intervals to coincide with the level pegs. A sample form will be obtainable from the Employer's Agent."

PSM 7.1 General

Add the following to SANS 1200 M, sub-clause 7.1:

"The random sampling method of TMH 5, for the location of positions, for field density testing will not necessarily be applied by the Employer's Agent. Density testing shall be carried out where, in his opinion, the density of the compacted layer is suspect. The Contractor shall present the full width of the layer, between the stated linear stake values, for acceptance. Only in exceptional cases will partial widths of a layer be accepted for testing."

PSM 7.3.2 Routine inspections and tests

Add the following to SANS 1200 M, sub-clause 7.3.1:

"The request for acceptance of a layer shall be submitted in writing, specifying the exact location of the section and type of layer. On receipt of all these details the Employer's Agent will arrange for the necessary inspections and tests to satisfy himself that the road layer complies. Testing will be carried out as expeditiously as possible, and the results will be available within 24 hours of receipt of test request. The Contactor shall backfill the test holes left in the layer with a similar material to that of the layer tested and compact the material to a similar density. Concrete shall not be used."

Add the following to SANS 1200 M, sub-clause 7.3.2:

"Notwithstanding the requirements for minimum densities for single tests, as set out in the relevant standardized specification, no lot for which any single test result is below the specified density will be deemed to comply with the requirements for density.

The Contractor shall bear the cost of all tests carried out by the Employer's Agent at the request of the Contractor or as specified for process control."

PSM 7.4 Compaction control

Add the following to SANS 1200 M, sub-clause 7.4:

"Density test shall be carried out by the Contractor on each layer of the selected subgrade, subbase, base-course and shoulders/layers as soon as possible but not later than twenty-four hours (24) after compaction of that layer has been completed, and the results of the test shall be submitted to the Employer's Agent without delays and in any case not later than twelve hours (12 hours) after they become available.

The contractor shall locate and test any soft or wet areas evident in any layer and shall, if these tests fail, re-compact and retest such areas for density before requesting the Employer's Agent to carry out check tests.

The Contractor shall provide adequate equipment and facilities for carrying out the tests required to be performed by him. Should the Employer's Agent at any time consider that the equipment and facilities are inadequate for this purpose, he may instruct the Contractor to cease work on the completion of subgrade, sub-base and base course until such time as the Contractor has remedied the deficiency of equipment, labour and facilities.

The results of the test carried out by the Employer's Agent shall be regarded as final."

Add the following new sub-clause to SANS 1200 M, clause 7:

***PSM 7.5 Engineer's discretion**

"Notwithstanding the provision of SANS 1200 M, clause 7 and of PSM 7, testing of a section of completed work shall be at the sole discretion of the Employer's Agent who may refuse to check test and consequently not approve a section of work which contains obvious defects such as loose patches, over-wet material etc."

PSM 8 MEASUREMENT AND PAYMENT

SANS 1200 M, clause 8 to include payment for:

PSM 2.2	Definitions
PSM 5.1	Traffic control/safety measures
PSM 6.4	Level control of road layer
PSM 7.1	General
PSM 7.3	Routine inspection and testing
PSM 7.4	Compaction control
PSM 7.5	Engineer's discretion

Add the following new sub-clause to SANS 1200 M, clause 8:

***PSM 8.1 Inspection and testing of a road layer**

"The cost of refilling and compacting the density test holes shall be included in the rate tendered for the construction of that layer."

PSMJ SEGMENTED PAVING (SANS 1200 MJ)

PSMJ 3 MATERIALS

PSMJ 3.3 Sand for bedding and jointing.

Add the following to SANS 1200 MJ, sub-clause 3.3:

"The sand used for the bedding layer shall not contain proportions of silt and clay materials smaller than 0.075 mm that exceed 15%."

PSMJ 5 CONSTRUCTION

PSMJ 5.3 Placing and compacting of sand bed.

Replace "compacted thickness of 25 ± 10 mm" of SANS 1200 MJ, sub-clause 5.3 with "compacted thickness of 20mm."

Add the following to SANS 1200 MJ, sub-clause 5.3:

"The Contractor must make allowance for the penetration of the bedding sand layer into the compacted subbase layer. Only the 20 mm homogenous bedding sand layer will be measured for payment purposes."

PSMJ 5.4 Laying of units

Replace the first paragraph of SANS 1200 MJ, sub-clause 5.4 with:

"Blocks shall be laid in the herringbone pattern."

PSMJ 5.6.2 Paving subject to wheel loads exceeding 30 kN

Add the following to SANS 1200 MJ, sub-clause 5.6.2:

"The paving proposed will be subjected to wheel loads exceeding 30kN."

PSMK KERBING AND CHANNELLING (SANS 1200 MK)

PSMK 3 MATERIALS

PSMK 3.2 Precast kerbing and channelling

PSMK 3.2.1 General

Add the following to SANS 1200 MK, sub-clause 3.2.1:

"Precast units as indicated on the drawings shall be required in 1m lengths. Lengths of 300 mm shall be used in bellmouths and for radii less than 20 m. These kerbs shall be cast and not saw-cut."

PSMK 3.9 Bedding material

Replace SANS 1200 MK, sub-clause 3.9 with the following:

"The material on which precast kerbs and channels are bedded shall consist of Grade 15/19 concrete to SANS 1200 GA and to the dimensions indicated on the drawings."

PSMK 5 CONSTRUCTION

PSMK 5.2 Precast concrete kerbing and channelling

Replace the second paragraph of SANS 1200 MK, sub-clause 5.2 with the following:

"Provision shall be made for expansion joints of width 10 mm at intervals not exceeding 10 m for kerbing, channelling and edging. The joints shall be filled with a suitable silicone or polysulphide sealant."

Notwithstanding the fact that vertical curves have not been specified where changes to grade of up to 2% occur, the kerbs and channels shall be laid to levels based on a minimum vertical curve length of 20 m.

No change in grade shall be applied on kerbs in bellmouths unless specific levels are indicated."

PSMK 8 MEASUREMENT AND PAYMENT

PSMK 8.1 Basic principles

Add the following new sub-clause 8.1.4 to SANS 1200 MK, sub-clause 8.1:

"Measurement and payment for bedding as well as the backing of kerbs as specified in PSMK 5.2, as amended, shall be included in the separate items scheduled in terms of SANS 1200 MK, sub-clause 8.2.1 and 8.2.2. The rates shall cover the cost of supplying and installing the bedding as specified in PSMK 3.9, as amended. The rates shall include payment for PSMK 3.2.1, as amended."

PSLG PIPE JACKING (SANS 1200 LG)

PSLG 5 CONSTRUCTION

PSLG 5.1.1 Authority to jack pipeline under facility controlled by third parties

Replace the contents of SANS 1200 LG, sub-clause 5.1.1 with the following:

"Prior permission and permits for the pipe jacking shall be obtained from the relevant authority e.g. Municipality, by the Contractor. The Contractor shall notify the relevant authorities at least six weeks prior to the commencement of the pipe jacking and apply for the necessary permissions. Proof of this is to be provided two weeks prior to work commencing.

Adequate warning signs and safety precautions shall be provided by the Contractor during the operations."

PSLG 5.1.3 Design calculations by contractor

In the fourth line of SANS 1200 LG, sub-clause 5.1.3, after the word "required", add: "two weeks" and after the word "commences", add "for the approval of the authorities concerned as also the Employer's Agent."

PSLG 5.2.3 Recording of movements

PSLG 5.2.3.1 General

Add the following to SANS 1200 LG, sub-clause 5.2.3.1:

"The Contractor shall, on a daily basis, record line and level of the road surface or railway track being traversed and submit them to the Employer's Agent within 24 hours after being recorded."

Add the following sub-clauses to SANS 1200 LG, sub-clause 5.2.3:

***PSLG 5.2.3.3 Road Crossings**

"The Contractor shall ensure that a line of levels taken along lane centre lines (every panel centre) and at least 20 metres on either side of the jacking operation. The level points shall be marked by means of a stud and numbered clearly on the road. Two (2) concrete reference beacons shall be built in a safe place to serve as height datum for the levels.

The Contractor shall ensure that a final set of levels are taken six months after completion of the jacking to determine if any settlement has taken place. Each set of levels shall be forwarded to the Employer's Agent and the relevant person within the authority responsible for the road being jacked under."

PSLG 5.3 Sleeve pipes

Add the following to SANS 1200 LG, sub-clause 5.3:

"Sleeve pipes are to be provided under all existing and proposed road reserves as specified on the drawings."

PSLG 5.4 Excavation

PSLG 5.4.2 Thrust pit

Add the following SANS 1200 LG, sub-clause 5.4.2:

"The thrust pit shall be incorporated in the road reserve at the position indicated on the drawing. The thrust pit shall be of sufficient size to accommodate the jacking operation and any manhole structure to be constructed upon completion of the jacking. The approximate dimensions of the pit shall be agreed with the Employer's Agent before work commences.

The Contractor shall design and construct all thrust blocks, bases and other temporary works required to execute the work and shall demolish and remove these from site on completion. A minimum clearance of 0.5m between the thrust pit and the fence around the thrust pit should be maintained at all times. The thrust pit shall be fenced off and the necessary warning signs shall be erect on the fence. The roads in the area of the pipe jacking must be kept clean of all excavated material. All water pumped out from the thrust pit must be discharged into the storm water system at an agreed position."

PSLG 5.5 Jacking procedure

Add the following new sub-clause to SANS 1200 LG, sub-clause 5.5:

***PSLG 5.5.4 Pipe jacking to be done by experienced personnel**

"Unless the Contractor has satisfied the Employer's Agent that he has suitable successful past experience in jacking operations similar to those required for this project and also that he has available all the necessary equipment in sound working order, the Contractor shall employ a suitably experienced specialist Sub-Contractor who shall be subject to the approval of the Employer's Agent."

PSLG 5.6 Backfilling and disposal of excavated material

Add the following to SANS 1200 LG, sub-clause 5.6:

"On completion of the pipeline, the jacking pit shall be backfilled with suitable material in layers not exceeding 150mm and compacted to 95% MOD AASHTO (100% MOD AASHTO for sand)."

PSLG 6 TOLERANCES

PSLG 6.2 Permissible deviations

Replace the following tolerances in SANS 1200 LG, sub-clause 6.2:

"The tolerance in the jacked sleeve will be $\pm 100\text{mm}$ in the vertical direction and $\pm 200\text{mm}$ in the horizontal direction."

PSLG 8 MEASUREMENT AND PAYMENT

PSLG 8.2 Scheduled items

Add the following new payment item to SANS 1200 LG, sub-clause 8.2:

***PSLG 8.2.11 Sleeve pipes which do not require to be jacked..... Unit : m**

"The tendered rate shall include fabrication, supply, delivery and installation of the sleeve pipes. Excavation and backfill to be measured elsewhere."

***PSLG 8.2.12 Provide stable bedding (mixture of sand and cement) for pipe inside jacking sleeve to assure pipe falls with correct slope**

"The tendered rate shall include a stable bedding for the pipe to be resting on. The levels of the bedding must be confirmed by the surveyor before the pipe is placed. The bedding mixture must be stable and permanent. A mixture of soil and cement can be accepted. The Employer's Agent is to confirm mixture before placement. fabrication, supply, delivery and installation of the sleeve pipes. Excavation and backfill to be measured elsewhere."

***PSLG 8.2.13 Strap the pipe to assure to prevent the pipe from floating**

"The tendered rate shall include a steel strap every 5 meters in which he must tiedown the pipe to the stable bedding material clause mentioned in clause *PSLG 8.2.12. The Employer's Agent is to approve the straps before installation."

C3.4.2 Plant and Materials

C3.4.2.1 Plant and Materials Supplied by the Employer

The Employer may be able to provide some materials associated with this Contract. The material shall be measured and handed over to the Contractor before the commencement of the Works. Once these materials have been handed over to the Contractor, the Contractor will be responsible for the safeguarding of these materials. Should any materials be lost after the handover from the Employer to the Contractor, the Contractor will replace the materials at his own cost.

C3.4.2.2 Materials, Samples and Shop Drawings

Contractor to provide the following:

- proof of compliance with materials specifications,
- samples of materials and finishes.

Unless otherwise instructed in writing by the Employer's Agent, all proprietary materials are to be used, mixed, applied, fixed, etc., strictly in accordance with the manufacturer's recommendations and the relevant specification. The work is to be executed with materials of the best quality and in the most suitable manner under the inspection and to the entire satisfaction of the Employer's Agent. The terms "approved" and "directed" shall mean approved or directed by the Employer's Agent.

C3.4.2.3 Material Delivery Programme

The Contractor must prepare a programme showing their planned material delivery dates, and to this end, he must ensure that orders are placed timeously with suppliers to meet their programme. Extension of time may be granted for non-availability of materials, subject to the Contractor satisfying the Employer's Agent that the orders were timeously placed.

C3.4.3 Construction Equipment

C3.4.3.1 Requirements for Equipment

The Contractor shall use equipment that is capable of performing the required activities within the Contract period. Where applicable, vehicles shall be licensed and roadworthy.

All Construction Plant shall be in good and safe working order and of the type listed in Returnable Documents: Schedule of Construction Plant.

C3.4.3.2 Equipment Provided by the Employer

No equipment will be provided by the Employer.

C3.4.3.3 Recording of Plant on Site

Information relating to plant on Site shall be recorded in the Daily Site Diary. In addition, the Contractor shall deliver to the Employer's Agent, on a monthly basis, a detailed summary of construction plant kept on the Site, full particulars given for each day of the month. Distinction shall be made between plant in working order and plant out-of-order. Such inventory shall be submitted by the first day of the month following the month to be reported.

C3.4.4 Existing Services

C3.4.4.1 Known Services

Existing known services, both underground and overhead, insofar as they are known, are indicated on the drawings, but the positions of existing services on the drawings are not guaranteed nor does the Employer or the Employer's Agent accept any liability in this regard.

C3.4.4.2 Treatment of Existing Services

The Contractor shall, within 20 working days or 10% of the construction period after taking possession of the site (whichever is the lesser), satisfy himself that the dimensional accuracy, alignment, levels and setting out of

existing structures or components thereof are compatible with the proposed works, and notify the Employer of any areas of dissatisfaction.

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

The Contractor must 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 Employer's Agent 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.

All connections to the existing services shall be undertaken in a manner and at times to be approved by the Employer's Agent.

C3.4.4.3 Use of Detection Equipment for the Location of Underground Services

The Contractor may use his own detection equipment to locate underground services before exposing services by hand.

C3.4.4.4 Damage To Services

The Contractor must make provision for the possible existence of numerous services within and in close proximity to the work areas.

The Contractor shall take necessary steps to protect any existing services whatsoever against damage which may arise as a result his operations on site. Adequacy in terms of protection of existing services shall be at the discretion of the Employer's Agent. The Contractor is to make good the protection of and any breakages to existing services.

The Contractor 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).

The Contractor 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.

Under no circumstance is the Contractor to alter or in any way interfere with existing works or underground services unless authorised by the Employer's Agent.

NOTA BENE: Drawings indicating other existing services in the vicinity of the Works are not guaranteed as being accurate, as all other services may not have been recorded or properly recorded. It shall remain the responsibility of the Contractor to perform preoperational work, to locate existing services in advance of the commencement of the Works.

C3.4.4.5 Reinstatement of Services and Structures Damaged During Construction

The Contractor shall be held responsible for any damage to services known as set out in Clause 5.3 and Clause 5.4 of the SANS 1200 A specification. The reinstatement of the damaged services and structures will be as set out in Clause 5.3 and Clause 5.4 of the SANS 1200 A specification.

C3.4.5 Site Establishment

C3.4.5.1 Services and Facilities Provided by the Employer

No services and facilities will be provided by the Employer.

C3.4.5.2 Facilities Provided by the Contractor

i) Access to Site

The Contractor may only gain access to the site to commence with the Work, after the Construction Work Permit has been approved and granted by the Department of Labour regional head office. This is a new requirement based on the legislation of the Construction Regulations, 2014.

The Construction Work Permit has a 30-day approval period, after all the relevant documents have been submitted to the Department of Labour regional Head office.

The Contractor has 14 days to submit the required documentation specified above and Contract Data (Special Conditions of Contract and Contract Specific Data): Clause 5.4: "Access to Site".

ii) Location of Site Office and Depot

The establishment of all labour, plant and materials on site and all arrangements in this respect is the responsibility of the Contractor. The Contractor shall inform the Employer's Agent in regard to the land to be used and arrangements made with the owner(s) of the property(ies).

The Contractor shall provide within his own on-site facilities, a suitably furnished office or other venue for meetings where required.

The Contractor shall provide for the use of the Employer's Agent, maintain and service, as applicable, the facilities as specified in SANS 1200 AB and PSAB.

Before the erection of his camp, office, stores, plant and accommodation units or any facilities, the Contractor shall satisfy the Employer's Agent that he is familiar with and has taken due cognizance of any pertinent local by-laws, availability of services and statutory regulations. The Contractor's attention is specifically drawn to the regulations pertaining to the accommodation of labourers.

iii) Source of Water Supply

The Contractor shall be responsible under the Contract for the supply and distribution at his cost of all water that he may require for purposes of constructing the Works. Accordingly, the Contractor shall pay all connection fees and consumption charges, and at his cost provide all connections, consumption meters, pipework, storage tanks, transport and other items associated with the supply of water for the Works. All of the above are to be preceded by the necessary application and approval by the local authority.

iv) Source of Power Supply

The Contractor shall be responsible under the Contract for the supply and distribution at his cost of all electricity that he may require for purposes of constructing the Works. Accordingly, the Contractor shall pay all connection fees and consumption charges, and at his cost provide all connections, transformers, consumption meters, cables, distribution boards and other items that are associated with the supply of electricity for construction of the Works. All of the above are to be preceded by the necessary application and approval by the local authority.

v) Housing

The Contractor shall be permitted to house Key Personnel only within his camp site(s). At the commencement of the Contract, the Contractor shall inform the Employer's Agent of his intentions regarding the housing of Key Personnel on Site, and he shall thereafter ensure that all such accommodation is kept neat and tidy, hygienic and properly controlled at all times. Should at any stage of the Contract the Employer and/or the Employer's Agent be of the opinion that the housing of Key Personnel within the camp site(s) of the Contractor is causing disturbance or inconvenience to the landowner or to nearby residents, then the authority granted by this clause for the Contractor to house Key Personnel on Site may be withdrawn, either partially or entirely.

The Contractor shall at all times conform to all requirements contained in law or bylaws, as well as any other requirements set by the controlling local authority.

vi) Sanitation

The Contractor shall ensure that the OHS Act, local requirements and regulations in respect of sanitation and site toilets are complied with at all times. Due to the extended nature of the area of works, the provision of portable chemical toilets that can be moved along the pipeline route, to the specific area of works, is compulsory.

vii) Storage And Laboratory Facilities

Storage of plant and materials must be within the Contractor's designated, fenced off camp site.

viii) Other Facilities and Services

Pipes and piping materials may be placed adjacent to the trench position prior to installation, fully supported in full compliance with the manufacturer's requirements clear of any contamination all at the Contractors own risk.

ix) Vehicles and Equipment

The Contractor shall provide for the use of the Employer's Agent, maintain and service, as applicable, the facilities as specified in SANS 1200 AB and PSAB.

C3.4.5.3 Advertising Rights

The Contractor may display his own advertising board, equal in size and number to the project name boards, and adjacent to the notice board only.

C3.4.5.4 Notice Boards

Two notice boards, design supplied by the Employer's Agent, shall be supplied and erected by the Contractor at designated areas.

Notices, signs and barricades as well as advertisements may only be erected where approved by the Employer's Agent. The Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his tendered rates.

The Employer's Agent shall have the right (at no cost to the Employer) to have any sign, notice or advertisement moved to another location, or to have it removed from the Site of the Works, should it in any way prove to be unsatisfactory, inconvenient or dangerous to the general public.

Any damage to the two notice boards shall be repaired within 14 days of a written instruction received from the Employer's Agent. For details of the boards refer to the Standard Drawings contained in this document.

The notice boards shall be manufactured from materials specified in Clause 3.1 of SANS 1200 AB but shall conform in the painting, decorating and detail with the recommendations for the Standard Board of the South African Association of Consulting Engineers (CESA).

All name boards shall be removed 14 days prior to the date of the Final Approval Certificate.

C3.4.6 Site Clearance

A clearing and earthworks plan shall be submitted to the Employer's Agent for approval prior to the commencement of such works. Building rubble from demolishing of structures, kerbs, paving, etc. shall be disposed of at registered dump sites. Charges for the use of such dump sites or any other costs involved with the disposal of material, including transport, will be deemed to be included in the rates for cleaning and demolishing operations.

Burning of any materials on site will not be allowed. Tree stumps shall be disposed of offsite at a registered dump site at no cost to the Employer.

The Contractor shall plan the work in such a way that wind-blown dust is kept to a minimum. Earthworks shall commence immediately after a section is cleared and approved. Alternatively, the Contractor will have a water-

truck or other means on standby for spraying the cleared and excavated areas. Cost of water-spraying will be deemed to be included in clearing and excavation items in the Bill of Quantities.

C3.4.7 Site Usage

The Contractor is to confine his activities strictly to the working area defined as being within 10 metres on either side of the pipelines, spoil sites and the direct access roads to these. He shall not encroach upon any roadway except with the prior approval of the Employer, in writing.

Trenches may not be left open during the builder's holidays and fenced off and made safe in full compliance with the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended, on any other non-working days, and shall be safeguarded at all times from danger to the public and workforce. Safe trench-crossings shall be provided at all intersections with accesses to properties and with public roads and paths. The length of trench left open at any one time is set out under PSDB 5.4. This length may be further restricted by the Employer's Agent, should it be considered that such a restriction to be in the interest of public safety.

C3.4.8 Permits and Way Leaves

Environmental Authorization is required under this Contract and has been obtained from the Department of Economic Development and Environmental Affairs. Any other permits and wayleaves required under this contract shall be obtained by the Employer's Agent.

However, it remains the Contractor's responsibility to ensure that all required wayleaves have been secured and/or outstanding wayleaves are issued by the relevant authority before commencement of the works.

C3.4.9 Inspection of Adjoining Properties

The Contractor shall record the condition of, and photograph all adjoining properties before commencing with construction.

C3.4.10 Water for Construction Purposes

Refer to C3.4.5.2 (iii) for source of water supply.

C3.4.11 Survey Control and Setting Out of the Works

For the setting out of the Works, refer to SANS 1200 A: Sub clause 5.1.1.

Sufficient beacons will be provided on site to allow the Contractor to set out the works. An accurate land survey of the site was carried out during the design process but the information shown on the drawings may not be accurate due to other activities, which were conducted on the site. It is the Contractor's sole responsibility to ensure that these beacons as pointed out to him on site are not covered, disturbed or damaged. All costs for the reinstatement of such beacons are to be borne by the Contractor.

Setting-out to be confirmed by the Employer's Agent before any construction commences. No claims related to the inaccuracy of existing survey information shall be entertained. The Contractor shall arrange for a detail survey of the site prior to the commencement of work to verify site levels and submit their levels to the Employer's Agent. Failure to survey the site will be considered as acceptance of the Employer's Agent's site survey for the determining of bulk earthwork's quantities.

No separate payment will be made for any setting-out, the providing of permanent beacons and reference pegs, staking, detail surveys, taking cross sections, checking benchmarks, referencing existing road markings or any work described in this clause.

Any section or portion of the work, which has been set out by the Contractor must be checked and verified by a registered Land Surveyor prior to the commencement of any work. Depending on the findings of the registered Land Surveyor, the Employer's Agent will **allow** or **not allow** the Contractor to proceed with the construction of that section or portion of the work. The Contractor will be responsible for hiring and paying for the services of a registered Land Surveyor. The Contractor will be able to recover this cost under the relevant item in the Preliminary and General Section of the Bill of Quantities (BOQ).

C3.4.12 Dealing with Water on the Works

It is required that adequate preventative measures are taken, and maintained to ensure that the works is protected from damage due to water from any source. In the event of these measures failing to protect the works, action shall be taken immediately to protect the works from further damage, the costs of which shall be carried by the Contractor. The damage caused by the water shall be made good as directed by the Employer's Agent.

The Contractor shall be responsible for and shall repair at his expense any damage to the foundations, structures or any part of the works caused by floods, water or failure of any part of the dewatering and flood protection works.

The cost of all dewatering measures shall be included in the relevant items in the Bill of Quantities.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C3.5. Management

C3.5.1 Management of the Works

C3.5.1.1 Applicable SANS 1921 Standards

- SANS 1921-1:2004 Part 1 General Engineering and Construction Works
- SANS 1921-2:2004 Part 2 Accommodation of Traffic on Public Roads Occupied by the Contractor
- SANS 1921-3:2004 Part 3 Structural Steelwork
- SANS 1921-4:2004 Part 4 Third-party Management Support in Works Contracts
- SANS 1921-5:2004 Part 5 Earthworks Activities which are to be Performed by Hand
- SANS 1921-6:2004 Part 6 HIV/AIDS Awareness

C3.5.1.2 Particular Specifications

Refer to section C3.4.1.3 Particular Specifications for:

- Variations to SANS 1200

Refer to C3.6 Annexes for:

- Health and Safety Specifications by the Employer
- Construction Environmental Management Plan

C3.5.1.3 Planning and Programming

a) Construction Programme

The Contractor shall submit a detailed programme within 14 days of the Commencement Date as stipulated in the General Conditions of Contract 2015. The programme shall clearly show the order in which the Contractor proposes to carry out the Work, the critical path, the proposed rate of progress and a linked cash flow forecast. The programme shall be updated monthly.

This programme shall be in the form of a bar chart with the critical path clearly defined and will include the allowance for abnormal climatic conditions as specified in the Tender Data.

The Contract time span shall include all Saturdays, Sundays, non-working days (public holidays etc.) as well as an allowance for expected inclement weather and consequential delays during normal working days. The programme shall be agreed between the Employer and the Contractor prior to the implementation of the construction works.

b) Material Delivery Programme

The Contractor must prepare a programme showing their planned material delivery dates, and to this end, they must ensure that orders are placed timeously with suppliers to meet their programme. Extension of time may be granted for non-availability of materials, subject to the Contractor satisfying the Employer's Agent that the orders were timeously placed.

c) Time delays and extension of time

Extension of the Contract Period due to inclement weather will only be considered when the number of agreed lost days exceeds the allowance.

Extension of time granted shall not automatically result in an overall extension of time unless the effect is clearly applicable to the critical path of the agreed Construction programme activities.

C3.5.1.4 Sequence Of The Works

In order to complete the contract timeously, it is proposed that some of the activities listed be undertaken concurrently. All areas of the proposed construction site will be available to the Contractor from the start of the contract. Construction activities must however be undertaken according to the approved programme and disruption of traffic and usual activities on the site must be kept to a minimum.

C3.5.1.5 Software Application for Programming

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

C3.5.1.6 Methods And Procedures

The Contractor is required to produce method statements for all construction activities.

The Contractor's attention is drawn to the requirement for Method Statements for various activities as detailed in the Construction Environmental Management Plan (CEMP).

Environmental method statements must be submitted to the Environmental Control Officer (ECO) for approval and copied to the Employer's Agent.

The Employer's Agent must approve all method statements regarding construction activities prior to any construction work commencing.

C3.5.1.7 Quality Plans and Control

Prior to any work commencing on site the Contractor must submit for approval by the Employer's Agent, a Quality Control System for the control of work done on site indicating Hold, Monitor, Witness and Verify points. This Quality Control System must make provision for quality check lists to be signed off by the Contractor's supervisory staff as the work progresses and finally signed off by the Site Agent before he requests the Employer's Agent or his representative to witness or verify the completed work.

The Contractor will be responsible for the quality control on site.

In the case of high risk construction activities, the Contractor must submit a method statement to the Employer's Agent, for his approval. The Contractor will only be allowed to continue with this activity after receiving the Employer's Agent's approval. Standard construction methods will not require method statements.

The Contractor must undertake any test required by the Employer's Agent in terms of the Contract, and must submit all the test results to the Employer's Agent for approval.

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and of the Drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced engineer, foremen, surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the quality of the Works at all stages of the Contract.

The cost of the Contractor's supervision and process control, including all testing carried out by the Contractor, will be deemed to be included in the rates tendered for the various items of work. The Contractor's attention is drawn to the provisions of the various Standardised Specifications regarding the minimum frequency of process control testing that is to be executed. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control of the quality of the Works at all times.

Upon completion and submission of each portion of the Works to the Employer's Agent for examination, the Contractor shall furnish the Employer's Agent with the results of relevant tests, measurements and levels, thereby indicating compliance with the Specifications. The Employer's Agent will not examine or inspect any portion of work submitted for approval unless the request for inspection and approval is accompanied by relevant tests, measurements and levels indicating compliance.

Prior to any examination, by the Employer's Agent, of work completed, the Contractor will supply the Employer's Agent with an approved (by the Employer's Agent) check sheet showing that all the required steps have been correctly completed, signed off by competent staff, and signed off by the Site Agent.

The approval of any section of the works by the Employer's Agent does not release the Contractor of his obligation to take full responsibility for the provision of any portion of the works to comply fully with all the requirements of the Specifications and the Drawings applicable to this Contract.

Any approval by the Employer's Agent of any material, any plant and its operation, any construction procedure, or any section of the finished work, does not imply any relaxation of the requirements governing the quality of the materials or of the finished work, or relieve the Contractor of his obligations and responsibilities under the Contract (Refer to clause 2.6 of the SANS 1200 A Specification).

All tests required to be done in a laboratory must be conducted by an independent SANAS approved laboratory. All test results must be submitted directly to the Employer's Agent by the said laboratory.

The cost of all the testing of materials and workmanship are included in the relevant billed items as per SANS 1200 and these results are thus the property of the Employer.

C3.5.1.8 Environment

The Contractor shall comply with the Construction Environmental Management Plan of this document. The Environmental Control Officer, appointed by the Employer, shall liaise directly with the Contractor on general environmental matters but shall be required to channel environmental matters affecting the construction works through the Employer's Agent.

C3.5.1.9 Accommodation of Traffic on Public Roads Occupied by the Contractor

The Contractor must ensure public safety measures are applied when crossing roads or excavating adjacent to roads. The Contractor shall ensure the safe accommodation of traffic at all areas where the work may impact traffic and shall provide all delineators, watching, lighting, signs and barricades required by the road authorities, and in accordance with the South African Road Traffic Signs Manual.

Half width road crossings shall be utilised to ensure permanent public access during construction. 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.

The Contractor shall provide a structurally sound and safe bridge with side rails across dangerous excavations crossing sidewalks to allow pedestrians safe access to such sidewalk. Associated costs for the provision of pedestrian access to sidewalks shall be deemed to have been included under the various excavations or combined activity rates and/or prices in the pricing schedules.

C3.5.1.10 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.

C3.5.1.11 Testing Principles

Every completed layer or section of the Works shall be subjected to check testing by the Contractor. Once the Contractor has satisfied himself with the standard of his works, the Employer's Agent will be requested to perform acceptance testing for the particular section. When giving notice, the Contractor shall provide the Employer's Agent with the results of his check testing indicating that the work is to specification.

Failure by the Contractor to notify the Employer's Agent or to provide the required information or, where specified, to perform the required test, will be grounds to exempt the Employer from payment for the associated work and for all subsequent work which would be affected by the failure of the work to be tested.

The Employer's Agent will be under no obligation to the Contractor to perform the tests. If the Employer's Agent elects not to perform a particular test after notification by the Contractor, he will issue the Contractor with a written instruction to proceed with the relevant works without the acceptance test being performed.

Nothing contained in this clause will relieve the Contractor of his responsibilities under the specification or in any way limit the tests, which the Employer's Agent may call for or perform in terms of the specification.

C3.5.1.12 Approved Laboratories

Acceptance testing shall be done by a SANAS accredited laboratory selected by the Employer's Agent. The Employer's Agent requires twenty four hours' notice from the Contractor in order to perform the relevant acceptance test. All acceptance testing by the Employer's Agent shall be paid by the Contractor.

The costs of such tests which meet the specification requirements will be reimbursed to the Contractor in the monthly payment certified. This payment shall consist of the billed amount plus the tendered mark-up. A Provisional Sum has been provided in Provisional and General Section of the Bills of Quantities to allow for the cost of such testing. The Contractor shall make due allowance for testing procedures in his construction programme.

C3.5.1.13 Completion

The Certificate of Completion shall only be issued upon the submission of all the as-built information and operating instructions as necessary.

C3.5.1.14 Recording of Weather

The Contractor shall provide a rain gauge and maximum/minimum thermometer. He shall erect them according to the requirements of the weather bureau. The Contractor shall record and keep a record of the daily rainfall and maximum/minimum temperatures and supply the data to the Employer's Agent on a daily basis.

The cost of complying with these requirements is deemed to be covered by the tendered rates for the Contractor's General Obligations.

No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds, extremes of temperature and any consequential delays as a result thereof. However, in the event that delays to critical activities due to the above causes exceed the number of allowed working days as given in the Tender Data, then abnormal climatic conditions shall be deemed to exist, and an extension of time shall be granted for each day or half-day delay in excess of the defined normal conditions.

Accurate rain gauging shall be taken at a suitable point on the site daily at 08:00 unless otherwise agreed to by the Employer's Agent, and the Contractor shall, at his own expense, take all necessary precautions to ensure that the rain gauges cannot be interfered with by unauthorised persons.

C3.5.1.15 Format of Communications

All instructions or requests need to be confirmed in writing through:

- Site instructions
- Requests for inspections
- Refer to Occupational Health and Safety requirements
- Refer to CEMP requirements

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

C3.5.1.16 Key Personnel

The Contractor and Employer's Agent must compile a schedule of their Key Personnel with their contact numbers and keep it updated. The list must be made available to the Employer's Agent, Employer and Contractor.

C3.5.1.17 Management Meetings

The following formal project meetings will be held at the office of the Employer's Agent's Representative or boardroom between the representatives of the Employer, Employer's Agent and the Contractor:

- Technical meetings (every four weeks – alternating fortnightly with Site meetings)
- Site meetings (every four weeks – alternating fortnightly with Technical meetings)

The representatives must have the necessary delegated authority in respect of aspects such as planning, change management and health and safety. The Contractor shall allow for regular on-site project co-ordination meetings in their programme. It will be required that the Contracts Director and Site Agent attend all project meetings.

The cost of the requirements above shall be included in rates for Time Related Items

C3.5.1.18 Forms for Contract Administration

The Employer's Agent's Representative has an ER Manual on site which contains pro-forma documents for recording test results, claims and administrative issues.

C3.5.1.19 Electronic Payments

Payment Certificates will be processed electronically by the Employer.

C3.5.1.20 Daily Records

The Contractor must keep accurate daily records of resources (people and equipment employed) and site diaries in respect of work performed on the site. A signed copy of the previous day's daily record must be provided to the Employer's Agent on a daily basis.

C3.5.1.21 Bonds And Guarantees

Bonds and guarantees are to be submitted to the Employer's Agent from whom they can be collected when they are released in accordance with the contract.

C3.5.1.22 Payment Certificates

Measurements for interim and final certificates must be agreed with the Employer's Agent prior to the issuing of a VAT invoice by the Contractor.

The Payment Certificates should comprise the following: a cover letter, invoice, schedule of quantities and a summary page. Quantities must be agreed by site staff, and then submitted to the Employer's Agent for payment.

The Employer's Agent's certificate will be issued only after receipt by him of a draft certificate prepared by the Contractor at his own expense in the form prescribed by the Employer's Agent. The cost of duplicating and delivering copies of the certificate to the Contractor, the Employer's Agent and the Employer shall be borne by the Contractor. The Employer's Agent and the Employer shall require three (3) sets of A4-sized paper copies in total.

Before any payment for materials on site is certified by the Employer's Agent, the Contractor shall submit to the Employer's Agent for approval cessions from each of the Contractor's suppliers vesting ownership of materials delivered for use on the site or any authorised extended site to the Contractor.

Furthermore, in order to claim payment for Materials on Site (MOS), the Contractor must provide the Employer's Agent with proof that the aforesaid materials have been paid in full by the Contractor, and have been delivered and stored on site.

C3.5.1.23 Supporting Documents (refer to Sub-Clause 6.6.4 of GCC 2015 3rd Edition)

The Contractor shall produce all invoices, vouchers and receipts in respect of payments made by him in connection with provisional or prime cost items when he requires payment for these items.

C3.5.1.24 Permits

It shall be the Contractor's responsibility to acquire permits for hazardous work done and if required by legislation.

C3.5.1.25 Proof of Compliance with the Law

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

- Wages and conditions of work.
- Health and Safety
- Environmental Requirements

C3.5.1.26 Insurance Provided by the Employer

The Employer does not provide insurance. The Contractor is responsible for providing full insurance cover for the contract.

C3.5.2 Health and Safety

C3.5.2.1 Health and Safety Requirements and Procedures

The Tenderer must take note of the following conditions:

All tenderers are required to submit a Health and Safety Plan with their tenders as required by the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended, and the Construction Regulations, 2014. The Health and Safety Plan shall include all requirements to comply with the COVID-19 regulations as set out by Government.

The successful tenderer will be required to construct the works in accordance with the Act and Regulations, and to sign an undertaking in this respect.

The detailed Health and Safety Plan submitted with the tender for approval, must identify, as far as is practically possible, the hazards that the Contractor will be expected to contend with.

The site will not be handed over to the Contractor until either proof of the Contractor's good standing with the Compensation Commissioner, or proof of valid Employers Common Law Liability insurance, has been provided. Where the validity of the letter of good standing (or insurance policy) expires during the contract period, the Contractor will be required to submit new and valid documentation in this regard, failing which, the work will be stopped.

The Contractor shall conform to the Health and Safety Specifications of the Employer appended to the Contract Documents. The Health and Safety Officer appointed by the Employer shall liaise directly with the Contractor on safety matters but shall be required to channel safety matters affecting the construction works through the Employer's Agent.

The Contractor shall take special care during construction activities, of the following:

- Possibility of collapsing trenches in sandy soils.
- Protection of existing services; especially live electrical cables.
- Utilisation of plant and vehicles.
- Accommodation of traffic and pedestrians.
- Storage and stacking of materials.
- Good housekeeping and site tidiness.
- Provision of welfare facilities.
- Dust control.
- Erection of structural steel canopies and buildings

The Contractor's safety plan shall be approved and the Contractor's safety officer shall be appointed prior to the commencement of any construction activities.

C3.5.2.2 Protection of the Public

The Contractor is responsible for the erection, maintenance and removal upon completion of hoardings with gantries, fans, safety screens, barriers, access gates, covered gangways, etc., as necessary for the enclosure of the works or portions thereof, to ensure the safety of the public and the operation staff, in addition to providing safe access to operational facilities at all times.

C3.5.2.3 Barricades and Lighting

With regard to watching, barricading and lighting the site the Contractor is fully responsible for the safety of the site and shall comply fully with the provisions of the relevant acts.

Provision shall be made for the safety of the public and the Contractor's employees. The onus is solely on the Contractor to provide adequate watching, barricading and lighting at excavations by day and by night in accordance with the relevant acts and specifications, no claims in this regard will be considered by the Employer.

C3.5.2.4 Community Participation

a) Appointment of Community Liaison Officer (CLO)

The Contractor shall make allowance for the employment of a CLO in accordance with the following terms of reference (ToR).

b) Terms of Reference of the CLO

- i. The CLO will be responsible to the Project Steering Committee (PSC), who will be involved in the appointment of the CLO. The CLO should be the person with a good standing and respect in the local community and would be selected according to the set criteria by the interviewing panel consisting of Local Municipality, ISD Consultant, PSC, Ward Councillor and selected local leadership.
- ii. The minimum requirement for the appointment of a Community Liason Officer are given below:
 - Should have a Grade 12 school leaving certificate with ability to read and write in English and the relevant language spoken by the community.
 - Should be able to demonstrate or provide evidence of knowledge of the community and forming good relations with the community.
 - Should be able to recruit local labour for contract employment.
 - Should be able to identify local enterprises as suppliers or subcontractors.
 - Should be reliable and accountable.
 - Should have an understanding of construction and be able to communicate with contractors and subcontractors.
 - Should reside in the community.
- iii. The CLO is appointed for the period of physical construction, plus a period of 14 days prior to this period. The period will include times where the Contractor's responsibilities are limited to the construction of small works in the area, e.g. chambers, standpipes and reservoirs. The period will end when no further work is required.
- iv. The Contractor will provide office space and stationery for the CLO to carry out his / her duties.
- v. Remuneration for the CLO will be agreed with the Employer (a provisional sum allowance for payment has been provided under P&G Section of the Schedule of Quantities). Where the CLO is engaged for part of the month, the CLO shall be paid an equivalent daily amount. The unit for measurement shall be the man-month of CLO employment.
- vi. A CLO who fails in their responsibilities may be replaced in consultation with the Employer, Employer's Agent and Contractor.

vii. Duties and Responsibilities of the CLO :

The Community Liaison Officer shall:

- Represent the community and assist the Employer, the Employer's Agent and the Contractor with communication between them and the community.
- Inform community regarding the project detail, safety precautions and programme.
- Be available at the site offices generally between the hours of 07:00 and 09:00 and again from 15:00 until end of working day. Normal working hours will be from 07:00 am till 17:00.
- Assist with relocation of people, where applicable.
- Maintain an up-to-date record of potential employees within the community and provide the contractor with copies of this information.
- To identify, screen and nominate labour from the community in accordance with the contractor's requirements and determine, in consultation with the contractor, the needs of local labour for employment and relevant technical training, where applicable.
- Liaise between Contractor and labour regarding wages and conditions of employment.
- Communicate daily with the contractor on labour related issues such as numbers and skills.
- Have a good working knowledge of the contents of the contract document regarding labour and training matters.
- Attend all meetings at which the community and/or labour is represented or discussed.
- Co-ordinate and assist with the obtaining of information regarding the community's needs (questionnaires, etc.).
- Inform local labour of their conditions of temporary employment, to ensure their timeous availability and to inform them timeously of when they will be relieved.
- Ensure that all labour involved in activities when tasks have been set, are fully informed of the principle of task based work.
- Attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- Arrange venues for training if required.
- Assist with the training and education of the community regarding the correct usage of the services, where applicable.
- Any other duties that may become necessary as the works progress.
- Organise and assist the Contractor in explaining to all workers the labour-based construction model.
- Keep written record of interviews and community liaison which should be summarised and included in the monthly progress reports.
- Collect monthly welfare reports and submit to social facilitators.
- Ensure that Contractor's workers are paid what is due to them and in time.
- Assist in the recruitment of labour.
- Promote and maintain sound relations with community stakeholders and other role players.
- Screen the supplied labour by the community through Project Steering Committees (PSC) to ensure compliance with the agreed upon recruitment policy and the government's labour employment targets.
- Keep the labour register of labour and manage records of project local labourers and be able to provide reports on employment statistics.
- Consult on all decisions regarding local problems and any matters of importance that, in any way will be of relevance to the Contract.
- To register concerns / perceptions and raise them in the PSC meetings.
- Attend site and PSC meetings to present monthly report on the local community labour involvement and site matters.
- Identify possible labour dispute and any disciplinary matter and advise the site agent / foreman. Assist in the resolution and where necessary call for the assistance of the Social Consultant for the resolution of the conflicts.
- Assist the Contractor in preparing records of project employees. Assist the Contractor in making task measurements and the records thereof.
- Monitor the production of individual task workers and arrange replacement of those workers who fail to produce a reasonable task output.
- Communicate daily with the Contractor to determine additional labour requirements with regard to numbers and skills and pass this on to the PSC.

- Attend weekly meetings with the Contractor and make a weekly written report which shall be a prerequisite to being paid.
- viii. The Community Liaison Officer shall liaise with the Social Facilitators to:
- Assist In convening of workshops.
 - Disseminate information to PSC members.
 - Articulate implementing agency policies to PSC members.
 - Communicate labour requirements.
 - Attend induction training programmes for workers and induct labourers.
 - Submit monthly welfare reports to the Social Facilitators PSC.
 - Communicate labour and skills requirements to the PSC.
 - Assist in the recruitment and engagement of workforce.
 - Verify labour records and ensure all engaged qualify as per the Contract requirements.
 - Investigate and report all labour dispute matters to the PSC, and advise site agent regarding the adopted resolution.
- ix. The residents of each village being served by the scheme are represented by a PSC. All liaisons with the community and the committees are the responsibility of the Social Facilitator in conjunction with the Employer and the Employer's Agent.

C3.5.2.5 Certificate of Service

The Contractor shall provide each employee with a certificate of service upon the termination of employment.

C3.5.2.6 Limitations on the Use of Mechanical Plant

Whenever possible, the use of labour intensive methods must be given priority and must be maximized without compromising timeframes.

C3.5.2.7 Sub-Letting of the Works

The Contractor may not sub-let more than 25 % of the value of the Works to any other single enterprise that does not have an equal or higher B-BBEE status level than the Contractor concerned, unless the contract is sub-let to an EME that has the capacity and ability to execute the sub-contract.

Furthermore, the Contractor may not sub-let more than 25 % of the value of the Works to any other single enterprise that does not have a CIDB Contractor grading designation equal or higher than the Contractor concerned, unless the contract is sub-let to an EME that has the capacity and ability to execute the sub-contract.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C3.6. Annexes

	<u>Page</u>
C3.6.1	BBBEE Sub-Contract Expenditure Report 252
C3.6.2	Project Labour Report 253
C3.6.3	Targeted Labour Contract Participation Expenditure Report 254
C3.6.4	Targeted Enterprises Contract Participation Expenditure Report 255
C3.6.5	Health and Safety Specifications by the Employer 256
C3.6.6	Construction Environmental Management Plan 328
C3.6.7	Drawings and Photographs 332

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Annex C3.6.1 BBEE Sub-contract Expenditure Report

CONTRACT NO. AND NAME:

CONTRACTOR:

B-BBEE SUB-CONTRACT EXPENDITURE REPORT BASED ON PAYMENT CERTIFICATE NO.

Value of the contract (as defined in Schedule 19: Preferencing Schedule) (P*)	R	B-BBEE Status Level of Prime Contractor	
---	---	---	--

Name of Sub-contractor (list all Sub-contractors)	B-BBEE Status Level of Sub-contractor ¹	Total Value of Sub- contract (Excl VAT) ¹	Value of Sub-contract work to date (Excl VAT)	Value of Sub-contract work to Sub-contractors with a lower B- BBEE Status Level than Prime Contractor
Sub-contractor A				
Sub-contractor B				
Sub-contractor C				
¹ Documentary evidence to be provided			Total:	

	Contractor	Employer's Agent	Employer's Agent's Representative
Name			
Signature			
Date			

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Annex C3.6.2 Project Labour Report

Project/Contract Name:						Budget: (tick one) Capital		✓	Operating		
Project/Contract Number:						WBS No./Cost Centre No.: C11.30456 –F1					
Contractor:						Project/Contract Start Date:					
Consultant:						Project/Contract End Date:					
CLO Name:			CLO ID Number:			Project/Contract Value (incl. allowance for escalation/excl. VAT):					
Month:						Project Labour Intensity Target/ Specified Minimum Targeted Labour Contract Participation Goal:					
Total value of work done to date (incl. escalation/excl. VAT):											
Number of workers	Name	Surname	ID Number/DOB	Targeted Labour (Y/N)	Daily Rate	Number of days worked this month (incl. training)	Disabled (Y/N)	Number of training days this month	Course Name	Training Service Provider	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
Totals for sheet											
Sheet of											

	Contractor	Employer's Agent	Employer's Agent's Representative
Name			
Signature			
Date			

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Annex C3.6.3 Targeted Labour Contract Participation Expenditure Report

CONTRACT NO. AND NAME:

CONTRACTOR:

TARGETED LABOUR CONTRACT PARTICIPATION EXPENDITURE REPORT BASED ON CERTIFICATE NO.

Value of the contract (as defined in Schedule 18: Preferencing Schedule) (P*)

R

Specified Targeted Labour Contract Participation Goal

%

Name of Contractor/Sub-contractor (list all)	Total previous expenditure on wages in respect of targeted labour	Net Amount for this month ¹	Total expenditure on wages in respect of targeted labour
Contractor			
Sub-contractor A			
Sub-contractor B			
Sub-contractor B			

¹Documentary evidence to be provided

Total:
Expressed as a
Percentage of P*

%

	Contractor	Employer's Agent	Employer's Agent's Representative
Name			
Signature			
Date			

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Annex C3.6.4 Targeted Enterprises Contract Participation Expenditure Report

CONTRACT NO. AND NAME:

CONTRACTOR:

TARGETED ENTERPRISES CONTRACT PARTICIPATION EXPENDITURE REPORT BASED ON CERTIFICATE NO.

Value of the contract (as defined in Schedule 18: Preferencing Schedule) (P*)	R	Specified Targeted Enterprises Contract Participation Goal	%
---	---	--	---

Name of targeted enterprise (list all)	Total previous expenditure (excl. VAT) to targeted enterprises	Net Amount for this month ¹	Total expenditure (excl. VAT) to targeted enterprises
Targeted Enterprise A			
Targeted Enterprise B			
Targeted Enterprise C			
¹ Documentary evidence to be provided			Total:
			Expressed as a Percentage of P* %

	Contractor	Employer's Agent	Employer's Agent's Representative
Name			
Signature			
Date			

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY
MAIN TO PUMP STATION 2

Annex C3.6.5 Health and Safety Specifications by the Employer

Project Health and Safety Specification

In terms of Construction Regulations 2014

Project Employer

Department of Water and Sanitation

Description of Project Works

Replace an existing gravity main by constructing a new 1,3 km long 710mm diameter HDPE gravity main from the existing stilling chamber of Pump Station 10 to Pump Station 2.

Project Location

**The Works are located within Emfuleni Local Municipality, near the Vaal Showgrounds, to the south-east of the R59 and Boy Louw Street crossing.
The works location is at approximately Latitude 26°40'30"S and Longitude 27°54'32"E.**

Preparation Date

July 2021

PROJECT HEALTH AND SAFETY SPECIFICATION

TABLE OF CONTENTS

1. Specific Project Information

- 1.1 Introduction and Definitions
- 1.2 Background to the Health and Safety Specification
- 1.3 Purpose of the Health and Safety Specification
- 1.4 Implementation of the Health and Safety Specification
- 1.5 Project Directory
- 1.6 Project Details
- 1.7 Existing Environment
- 1.8 Available Drawings
- 1.9 Project Health and Safety Requirements
- 1.10 Interface and Restrictions by Employer
- 1.11 Project Close Out
- 1.12 Safety File Return to Employer

2. Further Requirements

- 2.1 Duties of Principal Contractor / Contractor in terms of Construction Regulations 2014
- 2.2 Management and Supervision of Construction Work
- 2.3 Notification of Intention to Commence Construction Work
- 2.4 Construction Work Permit
- 2.5 Assignment of Contractor's Responsible Persons to Manage Health and Safety on Site
- 2.6 Competency for Contractor's Responsible Persons
- 2.7 Compensation of Occupational Injuries Act 130 of 1993 (COIDA)
- 2.8 Occupational Health and Safety Policy
- 2.9 Health and Safety Organogram
- 2.10 Risk Assessments
- 2.11 Health and Safety Representative(s)
- 2.12 Health and Safety Committee
- 2.13 Medical Certificate of Fitness
- 2.14 Health and Safety Training
 - 2.14.1 Induction
 - 2.14.2 Awareness
- 2.15 Competency
- 2.16 General Record Keeping
- 2.17 General Inspection, Monitoring and Reporting
- 2.18 Emergency Procedures
- 2.19 First Aid Box and First Aid Equipment
- 2.20 Accident / Incident Reporting and Investigation
- 2.21 Hazards and Potential Situations
- 2.22 Occupational Health and Safety Signage
- 2.23 Management of Contractors by Principal Contractor
- 2.24 Stacking of Materials
- 2.25 Housekeeping and General Safeguarding on Construction Sites
- 2.26 Construction Vehicles and Mobile Plant
- 2.27 Electrical Installations and Machinery on Construction Sites
- 2.28 Use and Temporary Storage of Flammable Liquids on Construction Sites
- 2.29 Water Environments
- 2.30 Fire Precautions on Construction Sites
- 2.31 Construction Employees' Facilities
- 2.32 Fall Protection
- 2.33 Temporary Works
- 2.34 Excavation
- 2.35 Demolition Work
- 2.36 Tunnelling
- 2.37 Scaffolding
- 2.38 Bulk Mixing Plant
- 2.39 Rope Access Work

- 2.40 Hazardous Chemical Substances (HCS)
- 2.41 Noise Induced Hearing Loss
- 2.42 Explosives and Blasting
- 2.43 Personal Protective Equipment (PPE)
- 2.44 Asbestos
- 2.45 Pressure Vessels (Including Gas Bottles)
- 2.46 Fire Extinguishers and Fire Fighting Equipment
- 2.47 Lifting Machinery and Tackle
- 2.48 Ladders and Ladder Work
- 2.49 General Machinery
- 2.50 Portable Electrical Tools
- 2.51 High Voltage Electrical Equipment
- 2.52 Public Health and Safety
- 2.53 Night Work
- 2.54 Environmental Conditions and Flora and Fauna
- 2.55 Occupational Health
- 2.56 Suspended Platforms
- 2.57 Material Hoists
- 2.58 Explosive Actuating Fastening Devices
- 2.59 Confined Spaces
- 2.60 Alcohol and Drugs
- 2.61 COVID-19
- 2.62 General Practices when Working at Heights
- 2.63 Traffic Accommodation
- 2.64 Ventilation and Lighting in the Work Place
- 2.65 Nuclear Density Gauge (Troxler)
- 2.66 Ergonomics Regulation of 2019

- Annexure A** Requirements for the Safety Plan Assessment
- Annexure B** Legal Appointments
- Annexure C** Baseline Risk Assessment
- Annexure D** Baseline Risk Assessment for Project – COVID-19
- Annexure E** COVID-19 Site Safety Signage
- Annexure F** Guidelines to Health and Safety Bill of Quantities
- Annexure G** Safety Specification and Baseline Risk Assessment Issue Register

1.0 SPECIFIC PROJECT INFORMATION

1.	1	INTRODUCTION AND DEFINITIONS
----	---	-------------------------------------

THE REQUIREMENTS OF THE CONSTRUCTION REGULATIONS 2014 (AND GUIDANCE NOTES OF 2017) HAVE BEEN IN EFFECT SINCE 7TH AUGUST 2014. THE REGULATIONS PLACE LEGAL DUTIES UPON PRINCIPAL CONTRACTORS AND CONTRACTORS. ALTHOUGH THIS HEALTH AND SAFETY SPECIFICATION INCLUDES MUCH OF THE CONTENT OF THE REGULATIONS, THE CONTRACTOR WILL BE DEEMED TO BE FAMILIAR WITH THE REQUIREMENTS OF THESE REGULATIONS, AND OTHER ASSOCIATED HEALTH AND SAFETY REGULATIONS, AND TO HAVE FACTORED IN ALL THE DUTIES PLACED UPON CONTRACTORS AND PRINCIPAL CONTRACTORS IN THE TENDER. A COPY OF THE REGULATIONS CAN BE VIEWED ON THE DEPARTMENT OF LABOUR'S WEBSITE.

PLEASE NOTE THAT THE TERMS "CONTRACTOR" AND "PRINCIPAL CONTRACTOR" HAVE THE SAME MEANING AS THAT IN THE CONSTRUCTION REGULATIONS AND ARE USED INTERCHANGEABLY IN THIS DOCUMENT, I.E., REFERENCES TO "CONTRACTOR" REFER TO PRINCIPAL CONTRACTOR AND/OR CONTRACTOR AS THE REGULATIONS PERTAIN TO THEIR FUNCTIONS.

This Health and Safety Specification contains clauses that are generally applicable to construction activities, as well as imposing pro-active controls associated with activities that impact on Health and Safety as it relates to work on site. Compliance to the requirements of the Occupational Health and Safety Act 1993 is an additional requirement of this Health and Safety Specification and is part of the Contractor's responsibility. The Employer, and/or their agents, will monitor that all Contractors comply with the requirements of such legislation.

ALL REFERENCES TO EMPLOYER IN THIS HEALTH AND SAFETY SPECIFICATION ALSO REFER TO SAFETY AGENT, WHERE SO APPOINTED.

Definitions (as per the Construction Regulations 2014) applicable to this Health and Safety Specification:

"agent" means a competent person who acts as a representative for a Employer;

"angle of repose" means the steepest angle of a surface at which a mass of loose or fragmented material will remain stationary in a pile on the surface, rather than sliding or crumbling away;

"bulk mixing plant" means machinery, appliances or other similar devices that are assembled in such a manner so as to be able to mix materials in bulk for the purposes of using the mixed product for construction work;

"Employer" means any person for whom construction work is being performed;

"competent person" means a person who has, in respect of the work or task to be performed, the required knowledge, training and 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, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and is familiar with the Act and with the applicable regulations made under the Act;

"construction manager" means a competent person responsible for the management of the physical construction processes and the coordination, administration, and management of resources on a construction site;

"construction site" means a workplace where construction work is being performed;

"construction supervisor" means a competent person responsible for supervising construction activities on a construction site;

"construction vehicle" means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

"construction work" means any work in connection with -

- the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
- the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

"construction work permit" means a document issued in terms of regulation 3;

"contractor" means an employer who performs construction work;

Note:

a) Includes organisations and or self-employed person that contracts with a Employer, principal contractor, or a contractor to carry out construction work.

"demolition work" means a method to dismantle, wreck, break, pull down or knock down of a structure or part thereof by way of manual labour, machinery, or the use of explosives;

"design" in relation to any structure, includes drawings, calculations, design details and specifications;

"designer" means a competent person who-

- prepares a design;
- checks and approves a design;
- arranges for a person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer; or
- designs temporary work, including its components;
- an architect or engineer contributing to, or having overall responsibility for a design;
- a building services engineer designing details for fixed plant;
- a surveyor specifying articles or drawing up specifications;
- a contractor carrying out design work as part of a design and building project; or
- an interior designer, shop-fitter, or landscape architect;

"ergonomics" means the scientific discipline concerned with the fundamental understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and methods to design in order to optimise human well-being and overall system performance;

"excavation work" means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

"explosive actuated fastening device" means a tool that is activated by an explosive charge and that is used for driving bolts, nails, and similar objects for the purpose of providing fixing;

"fall arrest equipment" means equipment used to arrest a person in a fall, including personal equipment, a body harness, lanyards, deceleration devices, lifelines, or similar equipment;

"falsework" means a combined system of formwork and support work;

"formwork" means temporary or permanent shutters used to form wet concrete into elements of a structure, and includes both horizontally and vertically placed shutters;

"fall prevention equipment" means equipment used to prevent persons from falling from a fall risk position, including personal equipment, a body harness, lanyards, lifelines or physical equipment such as guard-rails, screens, barricades, anchorages or similar equipment;

"fall protection plan" means a documented plan, which includes and provides for -

- all risks relating to working from a fall risk position, considering the nature of work undertaken;
- the procedures and methods to be applied in order to eliminate the risk of falling; and
- a rescue plan and procedures;

"fall risk" means any potential exposure to falling either from, off or into;

"health and safety file" means a file, or other record containing the information in writing required by these Regulations;

"health and safety plan" means a site, activity or project specific documented plan in accordance with the Employer's health and safety specification;

"health and safety specification" means a site, activity or project specific document prepared by the Employer pertaining to all health and safety requirements related to construction work;

"material hoist" means a hoist used to lower or raise material and equipment, excluding passengers;

"medical certificate of fitness" means a certificate contemplated in regulation 7(8);

"mobile plant" means any machinery, appliance or other similar device that is able to move independently, and is used for the purpose of performing construction work on a construction site;

"National Building Regulations" means the National Building Regulations made under the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), and promulgated by Government Notice No. R. 2378 of 30 July 1990, as amended by Government Notices No's R. 432 of 8 March 1991, R. 919 of 30 July 1999 and R. 547 of 30 May 2008;

"person day" means one normal working shift of carrying out construction work by a person on a construction site;

"principal contractor" means an employer appointed by the Employer to perform construction work;

"Professional Engineer or Professional Certificated Engineer" means a person holding registration as either a Professional Engineer or Professional Certificated Engineer in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000);

"Professional Technologist" means a person holding registration as a Professional Engineering Technologist in terms of the Engineering Profession Act, 2000;

"provincial director" means the provincial director as defined in regulation 1 of the General Administrative Regulations, 2003;

"scaffold" means a temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both;

"shoring" means a system used to support the sides of an excavation and which is intended to prevent the cave-in or the collapse of the sides of an excavation;

"structure" means-

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

"support work" means the temporary structure erected to support the formwork before the casting of a concrete element of a structure.

"suspended platform" means a working platform suspended from supports by means of one or more separate ropes from each support;

"temporary works" means any falsework, formwork, support work, scaffold, shoring or other temporary structure designed to provide support or means of access during construction work;

"the Act" means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

"tunnelling" means the construction of any tunnel beneath the natural surface of the earth for a purpose other than the searching for or winning of a mineral.

i) **Reference should be made to the following documentation in conjunction with this Safety Specification (including existing surveys, drawings, and reports):**

Tender documents
Drawings

IMPORTANT NOTE:

This Health and Safety Specification has been prepared to comply with the requirements of the Construction Regulations 2014.

1.2 BACKGROUND TO THE HEALTH AND SAFETY SPECIFICATION

Historically, the Construction Industry has had a poor health and safety record. Due to the complex and potentially dangerous operations being undertaken, there is a high risk of incidents, accidents, and injuries. In many instances poor adherence to the Act and Regulations has resulted in severe consequences for Health and Safety performance. The Employer is determined that the highest Health and Safety standards will prevail throughout the Contract and that there will be full commitment from all parties involved.

To achieve this goal the Employer has arranged for the preparation of this Health and Safety Specification. The Health and Safety Specification sets out guidelines and minimum levels of awareness and guidance for Health and Safety requirements for the project. Contractual responsibility for adhering to these requirements rests with the Contractors. All employees are encouraged to be pro-active in compliance.

The Employer is committed to ensuring the highest Health and Safety standards for all work undertaken within the Contract.

Contractors as employers are fully responsible and accountable for compliance with all Health and Safety requirements.

IMPORTANT NOTE:

Compliance with the Occupational Health and Safety Act and Regulations shall not be limited to this Health and Safety Specification and definitions contained in this document.

Contractors shall be conversant with the requirements and effects of Health and Safety legislation upon their activities, in particular the Construction Regulations, 2014, and the Occupational Health and Safety Act, 1993, and to have made adequate resource in their tender submission to comply with all legislative requirements.

Failure to comply with the requirements of this Safety Specification will result in severe sanction and the severity of the sanction will depend on the severity of the non-compliance.

The Contractor's personnel will be responsible for the auditing of the implementation of the Health and Safety Specification and maintaining the document control and record systems associated with the Health and Safety Specification. The Employer will arrange for Health and Safety audits to be conducted on site on their behalf to monitor health and safety compliance by contractors.

1.3 PURPOSE OF THE HEALTH AND SAFETY SPECIFICATION

The purpose of this site-specific Health and Safety Specification is to comply with legal requirements and to provide health and safety information about specific project risks known by the Employer, Designer and Safety Agent to be applicable to this project. This document also provides minimum health and safety requirements, standards, and expectations that the contractor must adhere to.

The Contractor must take into account all information in this specification and ensure that their tenders include adequate resource and competence to deal with the matters detailed herein so that all relevant contents are dealt with in a way which is in compliance with legislation and the ethical concerns for the safeguarding of employees, contractors and other persons affected by the construction activities. Please note that a detailed OHS bill of quantities must be provided by the contractor on all Construction Work Permit projects. The Bill of Quantities will form part of the Construction Work Permit application presented to Department of Labour for approval.

The Health and Safety Specification will be implemented during construction of the works and any construction activity that the Employer has control over.

This will also assist in ensuring that all the costs related to the compliance with Occupational Health Act 85 of 1993 and the Construction Regulations 2014, as well as this Health and Safety Specification, are taken into consideration at Tender stage.

No advice, approval of any document required by the Health and Safety Specification such as hazard identification and risk assessment action plans or any other form shall be construed as an acceptance by the Employer of any obligation that absolves the Contractor from achieving the required level of performance and compliance with legal requirements.

Further, there is no acceptance of liability by the Employer which may result from the Contractor failing to comply with the Health and Safety Specification unless the Employer has issued an instruction to any requirement, i.e. the Contractor remains responsible for achieving the required performance levels.

1.4 IMPLEMENTATION OF THE HEALTH AND SAFETY SPECIFICATION

This Health and Safety Specification forms an integral part of the Contract, and Contractors shall make it an integral part of their Contracts with other Contractors and Suppliers. Contractors employed by the Employer are to ensure that the provisions of the Health and Safety Specification are applied both on the site and in respect of all off site activities relating to the project, in particular in transport activities and project dedicated off site fabrication works.

The Contractor shall enforce the provisions of the Health and Safety Specification amongst all Contractors and suppliers for the project.

The Contractor shall sign the acknowledgment on the last page of this safety specification that he/she has familiarized him/herself with the content of the Health and Safety Specification and shall comply with all obligations in respect thereof.

The successful Contractor will be required to compile a Health and Safety Plan based on the requirements of the Occupational Health Act 85 of 1993 and these Specifications, which will need to be approved by Employer (or their appointed safety agent) prior to commencement with construction work.

1.4.1 Employer Duties

In terms of the Construction Regulations 2014 the Employer (or their Agent, where appointed) has legal duties. Where an Agent (refer to “definitions” section of this document) is appointed in terms of this project, these Health and Safety duties assigned will also apply.

All references to “Employer” will apply to their appointed “Safety Agent”, where so appointed, in this Health and Safety Specification.

The Employer must:

- Prepare a baseline risk assessment for the construction work
- Prepare a suitable, sufficiently documented, and coherent site specific Health and Safety specification for the intended construction work, based on the baseline risk assessment
- Include the health and safety specification in the tender documents
- Ensure that potential principal contractors submitting tenders have made adequate provision for the cost of health and safety measures
- Ensure that the principal contractor to be appointed has the necessary competencies and resources to carry out the construction work safely
- Take reasonable steps to ensure co-operation between all contractors appointed by the Employer to enable each of those contractors to comply with the regulations
- Ensure, before work commences, that every principal 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 (Act no 130 of 1993)
- Appoint each principal contractor in writing for the project, or part thereof
- Discuss and negotiate with the principal contractor the contents of the principal contractor’s safety plan and thereafter finally approve that plan for implementation
- Ensure that a copy of the principal contractor’s health and safety plan is implemented and maintained
- Ensure that periodic health and safety 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
- Ensure that a copy of the health and safety audit report is provided to the principal contractor within 7 days after the audit
- Stop any contractor from executing a construction activity which poses a threat to the health and safety of persons which is not in accordance with the principal contractor’s health and safety plan for site
- Where changes are brought about to the design or construction work, make sufficient health and safety information and appropriate resources available to the principal contractor to execute the work safely
- Ensure that the health and safety file is kept and maintained by the principal contractor.
- Where the Employer requires additional work to be performed as a result of a design change or error in construction due to the actions of the Employer, the Employer must ensure that sufficient safety information and appropriate additional resources are available to execute the required work safely.
- Where more than one principal contractor is appointed, the Employer must take reasonable steps to ensure co-operation between all principal contractors and contractors to ensure compliance with the Regulations
- Where the Employer has appointed a Safety Agent for the project, their details for this project are contained in the Project Directory section of this health and safety specification.

1.4.2 Designer Duties

It must be noted that the Designer also has Health and Safety duties assigned in terms of the Construction Regulations. Where the contractor fulfils a design function in terms of this project (refer to “definitions” section of this document), these duties will also apply. Please refer to Regulation 6 of the Construction Regulations 2014.

Please note that the designer of temporary works must ensure that:

- all temporary works are adequately designed so that it will be capable of supporting all anticipated vertical and lateral loads that may be applied;
- the designs of temporary works are done with close reference to the structural design drawings issued by the contractor, and in the event of any uncertainty consult the contractor;
- all drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector; and
- the loads caused by the temporary works and any imposed loads are clearly indicated in the design.

1.5 PROJECT DIRECTORY		
Project Employer	Department of Water and Sanitation	Tel: (012) 392 1435
Contact Person	Lusanda Dlamini	e-mail: DlaminiLu@dws.gov.za Cell: 082 722 0143
Project Manager	GIBB	Tel: (011) 519 4746
Contact Person	Vinnie Naidoo	e-mail: vnaidoo@gibb.co.za Cell: 082 567 8853
Employer's Agent	GIBB	Tel: (011) 519 4816
Contact Person	Vinnie Naidoo	e-mail: vnaidoo@gibb.co.za Cell: 082 567 8853
Design Engineer	GIBB	Tel: (011) 519 4816
Contact Person	Victor De Wet	e-mail: vdewet@gibb.co.za Cell: 082 575 8181
Safety Agent/Manager /Officer	To be Confirmed	e-mail: To be Confirmed
Contact Person		Cell: To be Confirmed

OTHER PARTIES DIRECTORY	
Department of Labour for submission of Annexure 2: Notification of Construction Work (Phone for confirmation that Annexures will be signed there) 25 Mitchell St, (Municipality) Meyerton, 1961 64 Eric Louw St, Vanderbijlpark C. C. Vanderbijlpark 1911 18 Joubert St, Vereeniging, 1939	Tel: 078 705 7040 Tel: (016) 981 0280 Tel: (016) 430 0000
Department of Labour http://www.labour.gov.za/Contacts/Labour-centres/Pages/default.aspx	

<p>Telecommunications Contractor to refer all queries on location and nature of existing services to the Project Manager / Employer, etc. OR Contractor to apply for and refer to wayleave information from service providers for the nature and location of services. Refer all queries Project Manager.</p> <p>25 Mitchell St, (Municipality) Meyerton, 1961</p>	<p>Tel: 078 705 7040</p>
<p>Water:</p> <p>Rand Water</p> <p>Head Office 522 Impala Road Glenvista 2058 South Africa</p> <p>PO Box 1127 Johannesburg 2000 South Africa</p> <p>Customer Service Centre: 0860 10 10 60</p> <p>customerservice@randwater.co.za</p> <p>https://www.randwater.co.za/Pages/ContactUs.aspx</p>	<p>Tel: (011) 682 0911</p>
<p>Electricity</p> <p>Company: Eskom</p> <p>Dutton St, Meyerton, 1960</p>	<p>Tel: (016) 362 4499</p>
<p>COVID-19 Hotlines</p> <p>National Coronavirus Hotline</p>	<p>Tel: 0800 029 999</p>

1.6 PROJECT DETAILS

Overview of the Works

The purpose of the contract is replacing an existing gravity main by constructing a new 1,3 km long 710mm diameter HDPE gravity main from the existing stilling chamber of Pump Station 10 to Pump Station 2.

Extent of the Works

The Works consists of Civil Works and the Scope of Works includes, but is not limited to, the following complying with the specifications:

- a) Emptying and cleaning of the existing gravity pipeline
- b) Inspecting the existing gravity pipeline with closed circuit television (CCTV) to confirm the grades and levels
- c) Testing the existing gravity pipeline for incorporation into the new gravity main
- d) Clearance of the new proposed pipe route
- e) Supply, lay, bed and commissioning of a new 710mm Ø HDPE gravity main from the existing stilling chamber of Pump Station 10 to Pump Station 2. The Contractor shall install the pipeline starting from the downstream end, thus commencing at Pump Station 2 and working in the upstream direction.
- f) Sewage pumping and/or handling during construction
- g) Locating, exposing and protecting existing services
- h) Connecting new gravity main to the existing infrastructure
- i) Reinstatement of surfaces to original condition
- j) CCTV inspection upon completion of all infrastructure.

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.

Temporary Works

- a) The Contractor shall, as relevant, provide for the following temporary works:
- b) Provide temporary drainage works, temporary pumps and other equipment as might be necessary for the protection, draining and dewatering of the works.
- c) Design, supply, install, operate and maintain a sewer conveyance system capable of temporarily transferring sewage from Manhole 1 (as per drawings) to Pump Station 2 over a distance of approximately 1 300m (along the route of the proposed pipeline). This system will be required to accommodate an average daily flow of 90 l/s and a peak daily flow of 216 l/s. This system will also be required to stay in operation for the full duration of construction up to the commissioning of the proposed gravity sewer pipeline.
- d) Construct and maintain haulage, temporary access and construction roads, subject to the approval of the Employer, and permit the Employer, other Contractors, statutory bodies or any other person who might require legitimate access to or through the site for the purpose of executing legitimate business, free and unhindered usage of such roads.
- e) 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.
- f) 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.
- g) The camp shall be adequately guarded during or outside working hours.
- h) Include the works required to locate, verify and protect existing services within the works area.
- i) Be such to ensure no or limited interruption to vehicular and pedestrian traffic.
- j) Be such as to allow the continued or uninterrupted sewage flow. The Contractor, under the supervision of an experienced manager (from the Contractor personnel), may install plugs in the sewers to prevent the flow of sewage during inspection for a period of no longer than 10 minutes. The plugs must then be removed for a minimum of 10 minutes after which time they may be installed again for the period stated above. Plugs shall only be installed when and for the time period directed by the Employer's Agent where the existing flow hinders proper inspection.
- k) Be such that existing stormwater flow shall not be impeded during survey and construction activities.

Furthermore, the Contractor shall note that no stockpiling of materials, plant, 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.

Anticipated Construction Duration

6 – 8 months

Provisional Start Date June 2022
Provisional Completion Date February 2023
Construction Work Permit Required for the Project? No

1.7	EXISTING ENVIRONMENT
Hazards particular to this project by virtue of location: Pedestrian and vehicle traffic can be expected on the site. All necessary measures must be in place to protect the safety of members of the public/visitors, including: Closed skips to be used for the storage of debris and materials. Safety signage that clearly stipulates access routes, PPE that must be used (hard hats, safety boots, ear and eye protection, safety harnesses and high visibility vests. Clear display of emergency numbers and procedures. Caution to be taken when working near overhead services. Extra care should be taken in marking all entrance and exit routes. Possible use of flag personnel to control delivery of materials. No material may be used that is classified as foreign material (eg: danger tape). Measures to be implemented for works near possible contaminated land due to leaks from existing services. Environmental control to be implemented for works. Various snakes may be found in the area.	
Overhead, Above Ground and Underground Services crossing the site: Overhead: Telkom, Eskom Underground: Water, electrical, storm water, sewage Ground level: Electrical Service Drawings available: Yes Wayleaves required: Yes Permits required: Yes Isolations required: Yes, for sewer and electrical	
Existing structures on site and surrounding land use (with a significant impact on Health & Safety): The site is live / operating. Therefore, all buildings and structures on the property can be assumed to be working or occupied. There are however some buildings, structures that may not be operational. A proper site analysis to be done prior to works	
Existing ground conditions and ground survey report: A geotechnical report must be made available. All recommendations must be followed in the Geotech report.	
Existing Traffic Systems The site consists of mixed land use including both municipal and privately owned property as well as the Vaal show grounds. The site is also adjacent to a cemetery, Access to the site can be obtained via the R28 (Boy Louw Street) Restrictions to access: The entrance to site should be manned by security at all times, visitor book to be provided and completed.	

Speed restrictions:

Speed restriction on site should be no more than 20km/h

1.8 AVAILABLE DRAWINGS

Refer to tender documentation.

1.9 PROJECT HEALTH AND SAFETY REQUIREMENTS

Significant health and safety hazards identified by Employer, Designer and Safety Agent:

Asbestos (possible)
Confined Spaces
Contaminated Land
COVID-19
Demolition
Excavations
Explosive use (If required, can identify during construction)
Fire
Flammable Liquids / Gas
Fragile Materials
Hazardous Substances
Hot Works
Lead
Members of Public
Night Work
Overhead Services (Working near)
Railway Work (Working near)
Road Working – in or next to (including Traffic Management)
Snakes
Underground Services
Working at Height
Work over or next to Water
Working with Effluent

Other construction hazards that the contractor can reasonably expect are as follows:

Asphalting
Bricklaying
Brush cutting
Bulk Mixing Plant
Chainsaw Use
Compacting and Filling
Compactor Operations
Concrete Pumping
Crusher Operation
Cutting Kerbs
Cutting Off Disc
Electric Tools and Electrical Installations
Explosive Actuated Fastening Devices
Goods / Passenger Hoist Operation
Hand tools
Kerb Laying
Lifting Operations
Manhole Rings and Pipes Storage
Manual Handling of General Items
Mobile Crane

Noise and Dust
Painting
Paving (Laying)
Plant/Vehicle and Equipment Operation
Plastering
Plumbing
Precast Slab / Unit Laying and Fixing
Road Construction
Road Marking
Rope Access Work
Scaffold Erection / Dismantling
Shuttering Walls, Beams, Columns
Site Strip
Steel Erection
Steel Fixing
Street Lighting
Temporary Work (include False Work, Formwork, Support Work Scaffold and Shoring)
Tower Scaffold
Troxler Use
Working at Height (excluding scaffold)

NOTE: Please refer to end of this Health and Safety Specification for the baseline risk assessment for these hazards and risks.

ACTIVITIES REQUIRING APPROVED METHOD STATEMENTS (FOR HEALTH AND SAFETY & COVID-19)

Every activity conducted on site will require a method statement supported with a risk assessment.

ACTIVITIES REQUIRING PERMITS (FOR HEALTH AND SAFETY PURPOSES)

Permit to Dig: Yes

Permit to Enter Excavations: Yes

Road Works Permit: N/A

Permit to Work with Electricity: Yes

Confined Space Permit: Yes

Hot Works Permit: Yes

Permit to Work under Power Lines: Yes

Blasting: (If required)

Employer issued permit for work in restricted areas: To be arranged if necessary

Temporary Works: Yes

CONTRACTOR SAFETY OFFICER PROVISION

Records of safety audits undertaken by the Contractor's Safety Officer must be kept on site in the safety file and nonconformances reported by the Safety Officer to the Contractor's management team. All nonconformances identified by the Safety Officer and Employer's safety agent must be investigated and corrective action taken by the Contractor to prevent re-occurrence.

Please note that as from 7th August 2018 the safety officer must be professionally registered with the SACPCMP. Proof of registration with the SACPCMP must be provided.

If registered as a Candidate proof of mentorship and weekly visits by mentor must be available on site.

The requirement for this site is that a full time Safety Officer be appointed by the Contractor.

MEDICAL CERTIFICATE OF FITNESS (ANNEXURE 3)

The contractor must ensure that their employees on site have a valid medical certificate of fitness, specific to the construction work being performed, issued by an occupational health practitioner in the form of an Annexure 3 template.

MANAGEMENT AND SUPERVISION OF CONSTRUCTION WORK

A principal contractor must, in writing, appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate competent person must be appointed by the principal contractor. Proof of an all-inclusive assessment by the Principal Contractor of the Construction Manager's Competency in construction management and health and safety competency must be available in the Safety File.

The Construction Manager, Alternate Construction Managers, Assistant Construction Managers, and designated construction supervisor/s must, as a minimum, have training in Legal Liability, Construction Regulation 2014 and the OHS Act and Regulations.

TRAFFIC MANAGEMENT AND TRAFFIC SAFETY OFFICER PROVISION

The Traffic Management Plan must be approved by the Project Manager and, as required, the Traffic Chief as per the National Road Traffic Act, No. 93 of 1996. The Traffic Safety Officer must have training as per Unit Standard 14561 or similar.

ENVIRONMENTAL CONDITIONS

Contractor must take into account adverse weather conditions on site activities and implement control measures to mitigate risk. This includes risk of exposure to excessive heat, cold, rain, lightning and wind. The open nature of the site works will not preclude any of the above.

ARRANGEMENTS FOR ACCESS, PARKING, DELIVERIES, ETC.

Access to site by Construction Vehicles: PC to arrange

Access to site by Construction Workers and Visitors: PC to arrange

All service providers must sign a 37.2 Mandatory Agreement and must be inducted before they can be allowed on site.

ARRANGEMENTS FOR SITE CAMP, ABLUTIONS AND YARD, INCLUDING FOR COVID-19

Site camp location and set up

- **Restrictions / requirements:** Contractor to advise in consultation with Employer/Employer's Agent
- **Storage areas:** Contractor to advise in consultation with Employer/Employer's Agent
- **Security:** Contractor to advise in consultation with Employer/Employer's Agent

Ablutions and Welfare Arrangements

Contractor to supply ablutions and facilities in line with the Construction Regulations 2014, refer to section 2.31 of this health and safety specification regarding the below. Toilets should be provided with built in facilities for hand washing. Please note further that COVID-19 control measures form an important part of ablutions provision on site ref soap and water/hand sanitiser, signage, etc:

- **Toilets:** Contractor to provide as per Regulations
- **Washing facilities:** Contractor to provide as per Regulations
- **Drinking Water:** Contractor to provide as per Regulations
- **Shelter:** Contractor to provide as per Regulations
- **Showers:** Contractor to provide as per Regulations

Mobile site facilities requirements:

A camping toilet/mobile toilet will be required for sites that cannot facilitate a permanent location for ablution units and must be available for each gender per location.

The use of a camping toilet must be prepared and setup correctly with additional anchors and available toiletries prior to each working day and to be first priority when changing location of works along a set working path.

Teams are to ensure that the toilets are cleaned correctly and suitable for easy and hygienic uses and recorded on a daily register.

PROTECTION OF SITE AGAINST UNAUTHORISED ACCESS BY PUBLIC

Excavation Fencing: Note that excavations accessible to public, or adjacent to public roads / thoroughfares, must have (1) barrier / fence of at least 1m in height, and (2) warning illuminants at night or when visibility is poor, or have other suitable precautionary measures if of both these are not practicable. Only diamond mesh fencing will be accepted based on the depths of the excavations.



General Fencing of Site: Note that construction sites in built up areas adjacent to public walkway must be fenced off and have controlled access points with the correct signs to indicate the site office for any relevant enquiries.

Warning Notices: Sufficient signage and warning notices to be in place.

Look Outs: All deep excavations been dug will have an appointed excavation supervisor on look out and / or any responsible persons that has been trained.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

The Employer requires the Contractor to ensure that employees (and others under his/her control) wear the following minimum PPE:

Overalls:
Reflective overalls

Safety Harnesses:
One per person working at heights or areas where there is a risk of falling that can cause from minor to serious injuries

Hard Hats:
Hard hats that have not expired to be issued, no hard hat will be allowed that have been tampered with, painted on or the integrity of the hard hat has been affected by any means.

Reflective Vests:
Proper zip up reflective vests are required.

Goggles / gloves / ear defenders / respiratory protection:
All must be provided.

Safety Footwear:
Safety boots will be provided and gumboots with steel toe caps should contractors work in water, wet cement or any wet conditions

Specialist Equipment (e.g. for confined Spaces):
Full respiratory masks

COVID-19 PPE:

Disposable Gloves:
Compulsory for cleaners and first aiders or anyone assisting persons in quarantine.

Disposable Overall:

If in close contact with positive cases or persons in quarantine.

Respiratory Protection (i.e. any face mask endorsed by Department of Labour):

2 masks must be provided by the employer. Daily inspections to be done and masks replaced if damaged or dirty. Masks should be washed if cloth masks, inspection of these masks must also be done daily.

Eye Protection (i.e. goggles or face shield that fully covers the front and side of the face):

If required and especially when dealing with or in close contact with positive cases or persons in quarantine.

HAZARDOUS SUBSTANCES

The following materials and substances have, or may have, to be used in the works and are identified as potentially posing special health and / or safety hazards during the project. Appropriate measures will need to be specified for their control:

A complete hazardous substance register will be required from the contractors on site with MSDS's available (16-point MSDS's). An appointed competent hazardous substance supervisor will be appointed to monitor, inspect and issue. Hazardous substances are to be kept in a well-ventilated area or room, drip trays are to be provided and a bund built for large quantities.

1.10 INTERFACE AND RESTRICTIONS BY EMPLOYER

Contractor must note that the following Employer activities will continue during construction:

Waste Water Treatment Works will remain active during construction.

The following Employer safety rules and/or requirements are to be observed:

All workers are to receive induction prior to commencement of work on site.
Other safety rules and requirements to be advised at induction.
Please also refer to tender document.

Restrictions on times, access or other restrictions by Employer

Please refer to tender document.
Other restrictions may be advised at induction.

1.11 Project Close Out

The Health and Safety files for the Principal Contractors and all Contractors require closure and handover to the Employer at the completion of the project in the form of a consolidated safety file. The following list is an example of what should be included but is not exhaustive. The Safety Agent or the Employer may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are responded to. Documentation would include all health and safety related records from the start of the project. All records to be in hard copy or electronic format and submitted to the Safety Agent for approval in adequately formatted lists and folders. Layout should be logical and in the same order as in the site files.

Consolidated Health and Safety close out file requirements include:

- Health and safety specification (most recent version)
- Principal Contractor's health and safety plan/s
- Site safety organograms
- Legal appointments
- Notification to Department of Labour of commencement of work / Construction Work Permit
- Workman's Compensation Letters of Good Standing for the project
- Full safety files for all contractors as well as their close out reports
- List of all contractors who worked on site
- Letters of safety plan approval of contractors by the Principal Contractor
- Mandatory agreements (section 37.2 agreements)
- Incident and accident records / Occupational Disease records
- Contractor Nonconformance records
- Safety agent's audit reports
- Safety Officer reports
- Method Statements
- Risk assessments
- Safe work procedures

- Medical surveillance certificates of fitness. Medical records are to be kept according to the Occupational Health and Safety Act, as amended.
- All temporary works drawings (suspended beams/scaffolds, etc.)
- Copies of test results, policies, and procedures for environmental monitoring (silica, noise, dusts, etc.)
- Detailed registers of all material used
- Copies of all Checklists completed

1.12 SAFETY FILE RETURN TO EMPLOYER

The consolidated Health and Safety Files for the Project is to be handed over by the Principal Contractor to the Employer upon Project Completion in either hard copy or electronic format.

2.0 FURTHER REQUIREMENTS

2.1 Duties of Principal Contractor / Contractor in terms of Construction Regulations 2014

A Principal Contractor must:

- provide and demonstrate to the Employer a suitable, sufficiently documented and coherent site specific health and safety plan, based on the Employer's documented health and safety specifications, *which* plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses;
- open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be made available on request to an inspector, the Employer, the Employer's Safety Agent, or a Contractor; and
- on appointing any other contractor, in order to ensure compliance with the provisions of the Act –
 - provide contractors who are tendering to perform construction work for the principal contractor, with the relevant sections of the health and safety specifications pertaining to the construction work which has to be performed;
 - ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
 - ensure that no contractor is appointed to perform construction work unless the principal contractor is reasonably satisfied that the contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely;
 - 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 Employer'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;
- where changes are brought about to the design and construction, make available sufficient health and safety information and appropriate resources to the contractor to execute the work safely;
- discuss and negotiate with the contractor the contents of their health and safety plan and finally approve that plan for implementation;
- ensure that a copy of both the principal contractor and contractor's health and safety plan is available on request to an employee, an inspector, a contractor, the Employer, or the Employer's Safety Agent;
- hand over a consolidated health and safety file to the Employer upon completion of the construction work, to include a record of all drawings, designs, materials used and other similar information concerning the completed structure;
- in addition to the documentation required in the health and safety file 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;
- 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.

A contractor must prior to performing any construction work-

- provide and demonstrate to the principal contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the Employer's health and safety specification and provided by the principal contractor, which

plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses;

- open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, and which must be made available on request to an inspector, the Employer, the Employer's Safety Agent or the principal contractor;
- before appointing another contractor to perform construction work be reasonably satisfied that the contractor that he or she intends to appoint has the necessary competencies and resources to perform the construction work safely;
- co-operate with the principal contractor as far as is necessary to enable each of them to comply with the provisions of the Act;
- as far as is reasonably practicable, promptly provide the principal contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

Where a contractor appoints another contractor to perform construction work, the duties that apply to the principal contractor will apply to the contractor as if he or she were the principal contractor.

A principal contractor must take reasonable steps to ensure co-operation between all contractors appointed by the principal contractor to enable each of those contractors to comply with these Regulations.

No contractor may allow or permit any employee or person to enter any site unless that employee or person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

A contractor must ensure that all visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.

A contractor must at all times keep on his or her construction site records of the health and safety induction training and such records must be made available on request to an inspector, the Employer, the Employer's Safety Agent or the Principal Contractor.

A contractor must 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 (a template of which can be found in the Construction Regulations, 2014).

2.2 Management and Supervision of Construction Work

A principal contractor must, in writing, appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor. Proof of all-inclusive assessment of the Construction Manager's Competency in construction management and H & S competency must be available in the Safety File. The Construction Manager must, as a minimum, have a Construction Regulation course. No contractors may be left unsupervised on site by the principal contractor.

A principal contractor must upon having considered the size of the project, in writing appoint one or more assistant construction managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in his or her management duties in terms of this regulation.

Where the construction manager has not appointed assistant construction managers, or, in the opinion of an inspector, a sufficient number of such assistant construction managers have not been appointed, that inspector must direct the construction manager in writing to appoint the number of assistant construction managers indicated by the inspector, and those assistant construction managers must be regarded as having been appointed.

No construction manager appointed in terms of the Regulations may manage any construction work on or in any construction site other than the site in respect of which he or she has been appointed.

A contractor must, after consultation with the Employer and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a construction health and safety officer is necessary, the decision of an inspector is decisive.

No contractor may appoint a construction health and safety officer to assist in the control of health and safety related aspects on the site unless he or she is reasonably satisfied that the construction health and safety officer that he or she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor

A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site. Proof of all-inclusive assessment of the Construction Supervisor's competency in construction supervision and H&S competency must be available in the Safety File. The Construction Supervisor must, as a minimum, have a supervision course as per Unit Standard 262845 (Civil Engineering), 119080 (Building Construction) and 262884 (Civil Engineering).

A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor, and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties.

Where the contractor has not appointed such an employee, or, in the opinion of an inspector, a sufficient number of such employees have not been appointed, that inspector must instruct the employer to appoint the number of employees indicated by the inspector.

No construction supervisor appointed may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated on all the relevant construction sites, the appointed construction supervisor may supervise more than one site.

2.3 Notification of Intention to Commence Construction Work

The Contractor shall notify the Provincial Director of the Department of Labour of the intention to commence construction work at least 7 days prior to the works commencing if the intended construction work will:

- Include excavation work
- Include work at height where there is a risk of falling
- Include the demolition of a structure, or
- Include the use of explosives to perform construction work.

If the construction work involves construction of a single storey dwelling for a Employer, and such Employer will be residing in such dwelling upon completion, the contractor must also notify the Provincial Director of the Department of Labour at least 7 days before the works commence.

This must be done on a form similar to an Annexure 2 (template of which can be found in the Construction Regulations, 2014). A copy of the notification letter to the Provincial Director shall be forwarded to the Employer for record purposes.

2.4 Construction Work Permit

A Employer who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work on projects that will –

1. exceed 365 days and will involve more than 3600 person days of construction work; or
2. the tender value limit is grade 7, 8 or 9 of the Construction Industry Development Board (CIDB) grading.
 - Grade 7 = R60 000 000
 - Grade 8 = R 200 000 000
 - Grade 9 = No limit

A Employer may appoint a Construction Health and Safety Agent or Construction Health and Safety Manager to apply for this permit from the Provincial Director and construction work may not commence until the permit has been issued by the Provincial Director.

A copy of this permit will be required to be kept in the principal contractor's safety file, and the site specific number issued by the Provincial Director must be displayed at the site entrance.

A Employer may appoint a Construction Health and Safety Agent, or Construction Health and Safety Manager based on the scope and risk profile of construction work to represent him/her on matters of health and safety. Provided that, where the question arises as to whether a Construction Health Safety Agent or a Construction Health and Safety Manager is necessary, the decision of an inspector is decisive.

The following minimum documentation will be required during the permit application process:

- Principal Contractor's Health and Safety Plan CR 5(1)(m)
- Baseline Risk Assessment CR 5(1)(a)

- Appointed Principal Contractor's Letter for Good Standing as per CR 5(1)(j)
- Issue Register signed by Designer CR 5 (1)(c)
- Issue Register signed by Principal Contractor
- Declaration signed by Designer CR 5(1)(d) and CV
- Principal Contractor made adequate provision for the cost of health and safety measures (Bill of Quantities) CR 5(1)(g)
- Proof of Principal Contractor's competency and resources to carry out the construction work safely CR 5(1)(h)
- Appointment Letter for Construction Manager, CV, Certificates and List of projects
- Appointment Letter of Safety Officer & Safety Officer's Registration for SACPCMP
- Principal Contractor's Appointment Letter CR 5(1)(k), Company Profile and CIDB grading

After approval of the Construction Work Permit any changes made to the appointed persons on the annexure 1 must be submitted to Department of Labour for approval before the appointed persons are allowed to commence with their tasks.

PLEASE NOTE THAT THE CONSTRUCTION MANAGER (8(1)) NAMED ON THE CONSTRUCTION WORK PERMIT MUST BE THE SAME PERSON THAT ACTS AS THE CONSTRUCTION MANAGER ON SITE. IF THIS WILL NOT BE THE CASE FOR SOME REASON THEN THE SAFETY AGENT MUST BE NOTIFIED OF THE CHANGE BY THE PRINCIPAL CONTRACTOR AT LEAST 7 DAYS BEFORE THE CHANGE IS MADE SO THAT THE SAFETY AGENT CAN AMEND THE CONSTRUCTION WORK PERMIT APPLICATION AND ADVISE THE DEPARTMENT OF EMPLOYMENT AND LABOUR ACCORDINGLY.

2.5 Assignment of Contractor's Responsible Persons to Manage Health and Safety on Site

The Contractor shall submit management and supervisory appointments as well as any relevant appointments in writing (as stipulated by the Construction Regulations 2014 and the Occupational Safety and Health Act 1993), prior to commencement of work (refer to **Annexure B** at the end of this Health and Safety Specification).

2.6 Competency for Contractor's Responsible Persons

The Contractor's responsible persons shall be competent in health and safety and be familiar with the Occupational Health and Safety Act 1993, and applicable regulations. Valid proof of pertinent health and safety courses attended by such persons will be required to be presented to the Employer.

2.7 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDA)

The successful Contractor shall submit to the Employer a valid letter of good standing with the Compensation Insurer prior to appointment.

2.8 Occupational Health and Safety Policy

The Contractor shall submit their Health and Safety Policy, prior to construction commencement, signed by the Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented within the company operations. The Policy must be communicated to all employees and proof thereof must be available in the Safety File.

2.9 Health and Safety Organogram

The Contractor shall submit an organogram, prior to construction commencement, outlining the Health and Safety Site Team that will be assigned to the project, if successful with the tender. In cases where appointments have not been made, the organogram shall reflect the position. The organogram shall be updated when there is a change in the site team.

2.10 Risk Assessments

Baseline Risk Assessment

The Employer shall cause a baseline risk assessment to be conducted by a competent person before the design process and tender process commence, and the assessed risks shall form part of the health and safety specifications.

The Contractor must, before commencement of any construction work, and during construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site and must include:

- The identification of the risks and hazards to which persons may be exposed to;
- An analysis and evaluation of the risks and hazards identified; based on a documented method
- A documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
- A monitoring plan; and
- A review plan

The Contractor must ensure that, as far as is reasonably practicable, ergonomic related hazards are analysed, evaluated, and addressed in a risk assessment.

The Contractor must ensure that all employees under his control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures and/or control measures **before any work commences** and thereafter **at the times determined in the risk assessment monitoring and review plan of the relevant site**.

The Principal Contractor must ensure that all contractors are informed regarding any hazard that is stipulated in the risk assessment **before any work commences** and thereafter **at the times determined in the risk assessment monitoring and review plan of the relevant site**.

The Contractor must consult with the health and safety committee or with a representative trade union or representative group of employees if no health and safety committee exists, on the monitoring and review of the risk assessments for the site.

The Contractor must ensure that copies of risk assessment for this site are available on site for inspection purposes by interested parties (inspector, the Employer, Employer's Safety Agent, any contractor, any employee, a representative trade union, a health and safety representative or safety committee member).

A Contractor must review the relevant risk assessment where changes are effected to the design and/or construction that result in a change to the risk profile, or when an incident has occurred.

Preventative measures must first address the elimination of the hazard or risk. Should PPE be required to reduce risk, the equipment or clothing to be used must be SABS approved.

In general, the Contractor must ensure that the Risk Assessment involves identifying the hazards present in a work activity on site. This is followed by an evaluation of the extent of the risk involved taking into account those precautions already being taken. The following general principle should be followed when conducting a risk assessment:

- All relevant risks and/or hazards should be systematically addressed;
- The risk assessment should address what actually happens in the workplace during the work activity;
- All employees and those who may be affected must be considered, including maintenance staff, security guards, visitors, and Contractors;
- The risk assessment should highlight those groups and individuals who may be required to work alone or who have disabilities;
- The risk assessment process should take into account the existing safety measures and controls.
- The level of detail on a risk assessment should be appropriate to the level of risk.

2.11 Health and Safety Representative(s)

The Contractor shall ensure that Health and Safety Representative(s) is/are elected and trained to carry out his / her functions. The Safety Representative(s) must be democratically nominated, elected, and appointed in writing. The Health and Safety Representative(s) shall carry out regular inspections, keep records and report to the supervisor to take appropriate action. The Safety Representative(s) shall attend Health and Safety Committee Meetings. The Health and Safety Representative shall be part of the team that will investigate incidents, accidents, and non-conformances. The Safety Representative(s) must be (a) full time employee(s) who is/are acquainted with conditions and activities at that workplace or section thereof. The Safety Representatives must have Safety Representative training and must be capable of performing their duties.

2.12 Health and Safety Committee

Where two or more health and safety representatives have been appointed on site, the Contractor shall ensure that monthly health and safety meetings are held with such representatives and minutes are kept on record. Meetings must be organized and chaired by the Contractor's Health and Safety Committee Chairperson. Minutes of these meetings must be available for the employees of the contractor to refer to.

PLEASE NOTE THAT THE SAFETY AGENT MAY REQUIRE THAT THE PRINCIPAL CONTRACTOR CONVENES A SAFETY COMMITTEE MEETING ON SITE IN THE INTERESTS OF HEALTH AND SAFETY ON SITE. SUCH COMMITTEE MEETING MAY REQUIRE ATTENDANCE OF CONTRACTORS SAFETY OFFICERS/SAFETY REPRESENTATIVES, CONSTRUCTION SUPERVISION AND THE SAFETY AGENT.

2.13 Medical Certificate of Fitness

The contractor must ensure that their employees on site have a valid medical certificate of fitness, specific to the construction work being performed, issued by an occupational health practitioner in the form of an Annexure 3 template (refer to the Construction Regulations 2014 on the Department of Labour website for a sample of this form).

Employees required to perform work at heights or from fall risk position must be medically fit to perform such work, such employee's medicals must specify "Fall Risk" or "Working at heights" in the exposure section of the annexure 3 template.

2.14 Health and Safety Training

The Contractor shall quarterly conduct a training needs analysis to ascertain what health and safety training is required. A plan of action should be devised and forwarded to the Employer for records. Once the identified people have attended the training, the Contractor must provide the Employer with copies of certificates obtained.

2.14.1 Induction

No Contractor may allow or permit any employee or person to enter site unless they have undergone health and safety induction training pertaining to the hazards prevalent on site at the time of entry. This includes visitors to site. The Contractor must ensure that visitors to site have the necessary protective equipment (PPE). A copy of attendance registers of all employees who attend inductions shall be kept.

2.14.2 Awareness

The Contractor shall conduct periodic toolbox talks on site, weekly or before any hazardous work takes place. The talks shall cover the relevant activity and an attendance register must be signed by all attendees. This record of who attended and the content of the topic will be kept on the site health and safety file as evidence of training.

2.15 Competency

After the Contractor has identified the training to be conducted as part of the competency requirement, and based on Risk Assessment, he shall send the relevant persons on appropriate courses and keep certificates of training for reference. Familiarity with the Health and Safety Act and Regulations is an integral part of the definition of competence. All training must be conducted by an accredited training provider and the certificates must display the applicable unit standards and the expiry dates thereof.

2.16 General Record Keeping

The Contractor shall keep and maintain Health and Safety records to demonstrate compliance with the Health and Safety Specification and the Occupational Health and Safety Act. The contractor shall ensure that all records of incidents, spot fines, training, etc. are kept on site. All documents shall be available for inspection by the Employer, or the Department of Labour's Inspectors.

2.17 General Inspection, Monitoring and Reporting

The Contractor shall carry out inspections as required by this Health and Safety Specification, as well as by health and safety legislation.

2.18 Emergency Procedures

The Contractor shall submit a detailed Emergency Procedure for approval by the Employer prior to commencement on site. The procedure shall detail the response plan including the following:

- List of key personnel;
- Details of emergency services;
- Actions or steps to be taken in the event of the emergency; and
- Information on hazardous materials / situations, including each material's hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, dangers as a result of riot / service delivery protests / intimidation, etc. The Contractor shall advise the Employer in writing of any on-site emergencies, together with a record of action taken, within 24 hours of the emergency occurring. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and available to site personnel.

2.19 First Aid Box and First Aid Equipment

The Contractor shall provide first aid box/es and appoint, in writing, First Aider(s) for this project in line with the results of the Contractor's risk assessment for the project, this health and safety specification as well as the provisions of the General Safety

Regulations. The appointed First Aider(s) are to be sent for accredited first aid training before starting on site. Valid certificates are to be kept on site.

- First Aid box/es must be adequately stocked at all times, accessible and be controlled by a qualified First Aider.
- Perishables to be checked and replaced when expired.
- Stock per content list as per the General Safety Regulations Annexure.
- Signage to be in place.
- To be numbered and sealed with name of first aider on or above the First aid box.
- Dressing logbook to be available in the first aid box.
- If more than 5 employees are present, there must be a first aid box available.
- Register to be checked by a Competent person.

If required by the Employer, the Contractor shall have a stretcher on site to be used in case of a serious incident.

2.20 Accident / Incident Reporting and Investigation

The Contractor shall, in addition to the prescribed requirements of the Occupational Health and Safety Act and General Safety Regulations, investigate, record, and report all Section 24 reportable incidents to the Employer within 24 hours of the incident occurring. Incident investigations shall be conducted by the Contractor's appointed Accident Investigator – this Investigator must be a competent person or persons who have sufficient knowledge to carry out an investigation.

In the event of a fatality or a permanent disabling injury the Contractor must submit proof of reporting of incident to Department of Labour as well as proof of preventative measures to the Employer. The Employer reserves the right to conduct investigations into any incidents that they deem fit and the Contractor is required to provide full co-operation in this regard.

2.21 Hazards and Potential Situations

The Contractor shall immediately notify other Contractors of any hazardous or potentially hazardous situations, which may arise during performance of the activities.

2.22 Occupational Health and Safety Signage

The Contractor shall ascertain and provide adequate on site health and safety signage. This signage shall include, but shall not be limited to, Hard Hat / Helmet Area; Safety Shoes to be worn on site; Dust Masks to be worn in areas where there might be exposure to excessive dust; Ear Plugs / Muffs to be worn where there might be noise exposure over 85 dB; Gloves; Safety Goggles; Safety Harness, Workers in Excavation, traffic management, etc. The Contractor shall be responsible to maintain the quality and replacement of signage. Signage must comply with the requirements of SABS.

2.23 Management of Contractors by Principal Contractor

The Principal Contractor shall ensure that all contractors under his control are complying with the respective Health and Safety Plans, as well as Health and Safety Legislation.

2.24 Stacking of Materials

In addition to the provisions for the stacking of articles in the General Safety Regulations, 2003, the contractor must ensure that

- a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
- adequate storage areas are provided;
- there are demarcated storage areas; and
- storage areas are kept neat and under control.

2.25 Housekeeping and General Safeguarding on Construction Sites

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987, ensure that suitable housekeeping is continuously implemented on each construction site, including-

- the proper storage of materials and equipment;
- the removal of scrap, waste and debris at appropriate intervals;
- ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
- ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
- ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in the regulations;

- ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and
- ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

2.26 Construction Vehicles and Mobile Plant

A contractor must ensure that all construction vehicles and mobile plant-

- are of an acceptable design and construction;
- are maintained in a good working order;
- are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
- are operated by a person who-
 - has received appropriate training, is certified competent and in possession of proof of competency and is authorised in writing to operate those construction vehicles and mobile plant;
 - has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3.
- have safe and suitable means of access and egress;
- are properly organized and controlled in any work situation by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
- are prevented from falling into excavations, water, or any other area lower than the working surface by installing adequate edge protection, which may include guard-rails and crash barriers;
- are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
- are equipped with an acoustic warning device which can be activated by the operator;
- are equipped with an automatic acoustic reversing alarm;
- are equipped with fire extinguishers (2.5 – 4.5 kg); and
- are inspected by the authorised operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspection are recorded in a register kept in the construction vehicle or mobile plant.

A contractor must ensure that-

- no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
- every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
- the traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size;
- every traffic route is, where necessary, indicated by suitable signs;
- all construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
- all construction vehicles or mobile plant when not in use, have buckets, booms, or similar appendages, fully lowered, or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set, and ignition secured;
- whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
- tools, material, and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees;
- vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
- all construction vehicles or mobile plant travelling, working, or operating on public roads comply with the requirements of the National Road Traffic Act, 1996.
- all plant and vehicles are be fitted with amber rotating beacons and reverse alarms.
- ALL construction site vehicles must be inspected daily especially if it has dangerous "items" (fuel, explosives, etc.) on vehicle, completed inspection registers must also be available for inspection.
- the vehicles must resemble the original manufacturer's product. Levers, alarms, and amber lights to be fitted to construction vehicle for notification of vehicle.
- fire extinguishers, signage, and licence disc to be correctly mounted and displayed.
- when the vehicle is stationary no key to be left in or on vehicle or plant.
- Drip tray must be present when stationary.

2.27 Electrical Installations and Machinery on Construction Sites

A contractor must, in addition to compliance with the Electrical Installation Regulations and the Electrical Machinery Regulations, ensure that –

- before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
- all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
- the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;
- all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and
- all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

2.28 Use and Temporary Storage of Flammable Liquids on Construction Sites

A contractor must, in addition to compliance with the provisions for the use and storage of flammable liquids in the General Safety Regulations, 2003, ensure that –

- where flammable liquids are being used, applied, or stored at the workplace concerned, it is done in a manner that does not cause a fire or explosion hazard, and that the workplace is effectively ventilated;
- no person smokes in any place in which flammable liquid is used or stored, and the contractor must affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking;
- an adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognized symbolic signs;
- only the quantity of flammable liquid needed for work on one day is taken out of the store for use;
- all containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, are removed from the construction site and safely disposed of;
- where flammable liquids are decanted, the metal containers are bonded and earthed; and
- no flammable material, including cotton waste, paper, cleaning rags or similar material is stored together with flammable liquids
- proper containers are to be used for fuel. Marked and labelled as per the content.
- diesel on site; more than 800 litres must have a certificate, fire safe certificate. Locked in a ventilated, secure area with a drip tray and have a designated, responsible person to use it.

2.29 Water environments

A 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.

A 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.

2.30 Fire precautions on Construction Sites

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, ensure that –

- all appropriate measures are taken to avoid the risk of fire;
- sufficient and suitable storage is provided for flammable liquids, solids, and gases;
- smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials;
- in confined spaces and other places in which flammable gases, vapours or dust can cause danger-
 - only suitably protected electrical installations and equipment, including portable lights, are used;
 - there are no flames or similar means of ignition;
 - there are conspicuous notices prohibiting smoking;
 - oily rags, waste, and other substances liable to ignite are without delay removed to a safe place; and
 - adequate ventilation is provided;
- combustible materials do not accumulate on the construction site;
- welding, flame cutting, and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire;
- suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order;

- the fire equipment contemplated above is inspected by a competent person, who has been appointed in writing for that purpose, in the manner indicated by the manufacturer thereof;
- a sufficient number of workers are trained in the use of fire-extinguishing equipment;
- where appropriate, suitable visual signs are provided to clearly indicate the escape routes in the case of a fire;
- the means of escape is kept clear at all times;
- there is an effective evacuation plan providing for all -
 - persons to be evacuated speedily without panic;
 - persons to be accounted for; and
 - plant and processes to be shut down; and
- a siren is installed and sounded in the event of a fire.

2.31 Construction Employees' Facilities

A contractor must, in terms of the Construction Regulations 2014, provide:

- Shower facilities after consultation with the employees or employees' representatives, or at least one shower facility for every 15 persons;
- at least one sanitary facility for each sex and for every 30 workers;
- Toilets to be within walking distance
- Hygiene registers to be completed
- Proof of safe disposal of effluent waste disposal certificates to be obtained
- changing facilities for each sex;
- and sheltered/shaded eating area.
- Protection from the Elements and raised off the ground.
- Every employer shall provide sanitary facilities at the workplace in accordance with the provisions of Parts F, P and Q of the National Building Regulations.
- Sufficient clean water for all employees. 500ml to each employee every hour.

A contractor must provide reasonable and suitable living accommodation for the workers at construction sites who are far removed from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available.

2.32 Fall protection

The Contractor must:

- designate a competent person to be responsible for the preparation of a fall protection plan
- ensure that the fall protection plan contemplated above is implemented, amended where and when necessary and maintained as required; and
- take steps to ensure continued adherence to the fall protection plan.

A fall protection plan contemplated above must include-

- a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;
- the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;
- a programme for the training of employees working from a fall risk position and the records thereof;
- the procedure addressing the inspection, testing, and maintenance of all fall protection equipment; and
- a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

A contractor must ensure that a construction manager appointed under regulation 8(1) is in possession of the most recently updated version of the fall protection plan.

A contractor must ensure that all unprotected openings in floors, edges, slabs, hatchways, and stairways are adequately guarded, fenced, or barricaded or that similar means are used to safeguard any person from falling through such openings;

Also that no person is required to work in a fall risk position, unless such work is performed safely as contemplated in above and fall prevention and fall arrest equipment are approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and securely attached to a structure or plant, and the structure of plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and person who could fall, and fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.

2.33 Temporary works

A contractor must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

A contractor must ensure that all temporary works operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose.

A contractor must ensure that-

- all temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the structure that the structure is not designed to withstand;
- all temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer should be consulted;
- detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the Employer, the Employer's Safety Agent, or any employee;
- all persons required to erect, move, or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely;
- all equipment used in temporary works structure are carefully examined and checked for suitability by a competent person, before being used;
- all temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least on a daily basis until the temporary works structure has been removed and the results have been recorded in a register and made available on site;
- no person may cast concrete, until authorization in writing has been given by the competent person contemplated above;
- if, after erection, any temporary works structure is found to be damaged or weakened to such a degree that its integrity is affected, it is safely removed or reinforced immediately;
- adequate precautionary measures are taken in order to-
 - secure any deck panels against displacement; and
 - prevent any person from slipping on temporary works due to the application of release agents;
- as far as is reasonably practicable, the health of any person is not affected through the use of solvents or oils or any other similar substances;
- upon casting concrete, the temporary works structure is left in place until the concrete has acquired sufficient strength to safely support its own weight and any imposed load, and is not removed until authorization in writing has been given by the competent person
- the foundation conditions are suitable to withstand the loads caused by the temporary works structure and any imposed load in accordance with the temporary works design.
- provision is made for safe access by means of secured ladders or staircases for all work to be carried out above the foundation bearing level;
- a temporary works drawing, or any other relevant document includes construction sequences and methods statements;
- the temporary works designer has been issued with the latest revision of any relevant structural design drawing;
- a temporary works design and drawing is used only for its intended purpose and for a specific portion of a construction site; and
- the temporary works drawings are approved by the temporary works designer before the erection of any temporary works.

No contractor may use a temporary works design and drawing for any work other than its intended purpose.

2.34 Excavation

A contractor must-

- ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing for that purpose; and
- evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins.

A contractor who performs excavation work-

- must take reasonable and sufficient steps in order to prevent, as far as is reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation;
- may not require or permit any person to work in an excavation which has not been adequately shored or braced: Provided that shoring and bracing may not be necessary where-
 - the sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or
 - such an excavation is in stable material: Provided that-
 - permission has been given in writing by the appointed competent person contemplated above upon evaluation by him or her of the site conditions; and

- where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations is decisive and such a decision must be noted in writing and signed by both the competent person and the professional engineer or technologist, as the case may be;
- must take steps to ensure that the shoring or bracing contemplated above is designed and constructed in a manner that renders it strong enough to support the sides of the excavation in question;
- must ensure that no load, material, plant or equipment is placed or moved near the edge of any excavation where it may cause its collapse and consequently endangers the safety of any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing;
- must ensure that where the stability of an adjoining building, structure or road is likely to be affected by the making of an excavation, steps are taken to ensure the stability of such building, structure or road and the safety of persons;
- must cause convenient and safe means of access to be provided to every excavation in which persons are required to work, and such access may not be further than six metres from the point where any worker within the excavation is working;
- must ascertain, as far as is reasonably practicable, the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of excavation work that may affect any such service, take the steps that are necessary to render the circumstances safe for all persons involved;
- must ensure that every excavation, including all bracing and shoring, is inspected-
 - daily, prior to the commencement of each shift;
 - after every blasting operation;
 - after an unexpected fall of ground;
 - after damage to supports; and
 - after rain,by the competent person, in order to ensure the safety of the excavation and of persons, and those results must be recorded in a register kept on site and made available on request to an inspector, the Employer, the Employer's Safety Agent, any other contractor or any employee;
- must cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be –
 - adequately protected by a barrier or fence of at least one metre in height and as close to the excavation as is practicable; and
 - provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor, or have resort to any other suitable and sufficient precautionary measure where this is not practicable;
- must ensure that all precautionary measures stipulated for confined spaces as determined in the General Safety Regulations, 2003, are complied with by any person entering any excavation;
- must, where the excavation work involves the use of explosives, appoint a competent person in the use of explosives for excavation, and must ensure that a method statement is developed by that person in accordance with the applicable explosive's legislation; and
- must cause warning signs to be positioned next to an excavation within which or where persons are working or carrying out inspections or tests.

An excavation method statement will be requested prior to any excavation been done, the method statement must include references to the Geotech report and follow recommendations/instructions explicitly. The method statement must be specific to the area/task about to be performed. A risk assessment must also be developed as per the method statement. Fall prevention methods must also be included in the method statement (the deeper the excavation, the bigger the risk of injury if a person falls in)

2.35 Demolition Work

A contractor must appoint a competent person in writing to supervise and control all demolition work on site.

A contractor must ensure that before any demolition work is carried out, and in order to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a method statement on the procedure to be followed in demolishing the structure is developed by that person.

During a demolition, the competent person contemplated in above must check the structural integrity of the structure at intervals determined in the method statement contemplated in above, in order to avoid any premature collapses.

A contractor who performs demolition work must with regard to a structure being demolished, take steps to ensure that-

- no floor, roof or other part of the structure is overloaded with debris or material in a manner which would render it unsafe;
- all reasonably practicable precautions are taken to avoid the danger of the structure collapsing when any part of the framing of a framed or partly framed building is removed, or when reinforced concrete is cut; and
- precautions are taken in the form of adequate shoring or other means that may be necessary to prevent the accidental collapse of any part of the structure or adjoining structure;
- ensure that no person works under overhanging material or a structure which has not been adequately supported, shored, or braced;

- ensure that any support, shoring, or bracing contemplated above, is designed and constructed so that it is strong enough to support the overhanging material;
- where the stability of an adjoining building, structure or road is likely to be affected by demolition work on a structure, take steps to ensure the stability of such structure or road and the safety of persons;
- ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of demolition work that may affect any such service, take the steps that are necessary to render circumstances safe for all persons involved;
- cause every stairwell used and every floor where work is being performed in a building being demolished, to be adequately illuminated by either natural or artificial means;
- cause convenient and safe means of access to be provided to every part of the demolition site in which persons are required to work; and
- erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under or fence off the danger areas if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects.

A contractor must ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected.

No person may dispose of waste and debris from a high place by a chute unless the chute-

- is adequately constructed and rigidly fastened;
- if inclined at an angle of more than 45 degrees to the horizontal, is enclosed on its four sides;
- if of the open type, is inclined at an angle of less than 45 degrees to the horizontal;
- where necessary, is fitted with a gate at the bottom end to control the flow of material; and discharges into a container or an enclosed area surrounded by barriers.

A contractor must ensure that every chute used to dispose of rubble is designed in such a manner that rubble does not free-fall and that the chute is strong enough to withstand the force of the debris travelling along the chute.

A contractor must ensure that no equipment is used on floors or working surfaces unless such floors or surfaces are of sufficient strength to support the imposed loads.

Where a risk assessment indicates the presence of asbestos, a contractor must ensure that all asbestos related work is conducted in accordance with the Asbestos Regulations 2001.

Where a risk assessment indicates the presence of lead, a contractor must ensure that all lead related work is conducted in accordance with the Lead Regulations, 2001.

Where the demolition work involves the use of explosives, a method statement must be developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for demolition work and all persons involved in the demolition works must adhere to demolition procedures issued by the appointed person.

A contractor must ensure that all waste and debris are as soon as reasonably practicable removed and disposed of from the site in accordance with the applicable legislation.

2.36 Tunnelling

No person may enter a tunnel which has a height dimension of less than 800 mm.

2.37 Scaffolding

A contractor must appoint a competent person in writing who must ensure that all scaffolding work operations are carried out under his or her supervision and that all scaffold erectors, team leaders and inspectors are competent to carry out their work as per the SANS 10085 of 2004.

A contractor using access scaffolding must ensure that such scaffolding, when in use, complies with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act and SANS 10085. Scaffold must be;

- Level and balanced upon the correct footing such as base jacks, U-Jacks, and mobile wheels
- Have the correct Ledgers and bracing methods to secure the frames and Standards
- To be fully boarded with the correct edge protection on both the 0.500m and 1 metre height per working platforms.
- Working platforms to be in accordance with the Tables 4 and 5 of the SANS 10085 for weight restrictions
- Have the correct access that is fitted within the scaffold and grants access to the working platforms and must be fitted with a trap door system.
- Secured with fastening methods such Reveal and fixed ties according to table 7 of SANS 10085. Buttresses to be used when required.

- signage must be displayed to indicate if the scaffold is safe or unsafe to use.
- Trestles to be built in accordance to section 10.16.1 of the SANS 10085 and safety requirements to be met by the scaffolding inspector and scaffold supervisors on site.

2.38 Bulk mixing plant

A contractor must ensure that the operation of a bulk mixing plant is supervised by a competent person who has been appointed in writing and is –

- aware of all the dangers involved in the operation thereof; and
- conversant with the precautionary measures to be taken in the interest of health and safety.

No person supervising or operating a bulk mixing plant may authorize any other person to operate the plant unless that person is competent to operate a bulk mixing plant.

A contractor must ensure that the placement and erection of a bulk mixing plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.

A contractor must ensure that all devices to start and stop a bulk mixing plant are provided and that those devices are placed in an easily accessible position and constructed in a manner to prevent accidental starting.

A contractor must ensure that the machinery and plant selected is suitable for the mixing task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.

No person may remove or modify any guard or safety equipment relating to a bulk mixing plant, unless authorized to do so by the appointed person.

A contractor must ensure that all precautionary measures stipulated for confined spaces as determined in the General Safety Regulations, 2003, are complied with when entering any silo.

A contractor must ensure that a record is kept of all repairs or maintenance to a bulk mixing plant and that the record is available on site to an inspector, the Employer, the Employer's Safety Agent, or any employee.

2.39 Rope Access Work

A contractor must –

- appoint a competent person in writing as a rope access supervisor with the duty of supervising all rope access work on the site, including the duty of ensuring occupational health and safety compliance in relation to rope access work: Provided that the appointment of any such person does not relieve the construction manager of any personal accountability for failing in his management duties in terms of this regulation;
- ensure that all rope access work on the construction site is carried out under the supervision of a competent person; and
- ensure that all rope access operators are competent and licensed to carry out their work.

No contractor may use or allow the use of rope access work unless –

- the design, selection and use of the equipment and anchors comply with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act; and
- he or she is in possession of a site specific fall protection plan developed by a competent person applicable to the specific work and environment prior to the commencement of the work, including records of maintenance and inspections of all the equipment used for the work operations.

A contractor must ensure that adequate measures are in place to allow rescue procedures to commence immediately in the event of a fall incident taking place.

2.40 Hazardous Chemical Substances (HCS)

In addition to the requirements in the HCS Regulations, the principal contractor must provide proof in the Health and Safety Plan that:

- Material Safety Data Sheets (MSDS's) of the relevant materials / hazardous chemical substances are available prior to use by the contractor. All MSDS's shall be available for inspection by the agent at all times.
- Risk assessments are done at least once every 6 months.

- Exposure monitoring is done according to OESSM and by an Approved Inspection Authority (AIA) and that the medical surveillance programme is based on the outcomes of the exposure monitoring.
- How the relevant HCS's are being/going to be controlled by referring to:
 - Limiting the amount of HCS
 - Limiting the number of employees
 - Limiting the period of exposure
 - Substituting the HCS
 - Using engineering controls
 - Using appropriate written work procedures
- The correct PPE is being used.
- HCS are stored and transported according to SABS 072 and 0228.
- Training with regards to these regulations was given.

The Health and Safety plan should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

The First Aider must be made aware of the MSDS and trained in how to treat HCS incidents appropriately.

2.41 Noise Induced Hearing Loss

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:

- Proof of training with regards to these regulations.
- Risk assessment done within 1 month of commencement of work.
- That monitoring carried out by an AIA and done according to SABS 083.
- Medical surveillance programme established and maintained for the necessary employees.
- Control of noise by referring to:
 - Engineering methods considered
 - Admin control (number of employees exposed) considered
 - Personal protective equipment considered/decided on
- Describe how records are going to be kept for 40 years.

2.42 Explosives and Blasting

The Contractor shall ensure that the use of explosives and blasting (where required) be undertaken by a specialist contractor or a Contractor with proven track record in the type of work to be performed.

The Contractor may only use explosives for work purposes where the following conditions in place:

- Explosives Regulations to be complied with in all respects.
- Contractor must be in possession of a Blasting Licence
- Blasting permit to be obtained
- Permit to transport explosives to be obtained
- Method statement to be drawn up and approved by professional team
- Municipal authorities may require advance notice of planned use of explosives
- Contractor must notify Provincial Director of Department of Labour on Annexure 2 at least 7 days prior to blasting taking place
- Contractor must have Workman's Compensation and appropriate insurances in place

2.43 Personal Protective Equipment (PPE)

The Contractor shall carry out PPE or clothing needs analysis in accordance with his risk assessment, to determine the necessary PPE or clothing to be used during construction. The Contractor shall make provision to keep adequate quantities of appropriate, SABS approved PPE or clothing on site at all times.

The Contractor must ensure that personnel are trained in the correct use of PPE to be used.

The Contractor must ensure that lost, stolen, worn out or damaged PPE is replaced as required and receipt signed for by employees on site.

2.44 Asbestos

The Contractor shall ensure that all asbestos work is done only by registered "Asbestos Contractor" as prescribed by the Asbestos Regulations, February 2002. The Contractor shall submit an Asbestos Certificate from Department of Labour which refer to the prescribed requirements. The Contractor shall notify The Employer if there are any asbestos materials to be used on site.

Besides the requirements listed above, should asbestos be identified as a hazard at the workplace, the following must be included in the health and safety plan or as soon as its available:

- Notification to the Provincial Director in writing, prior to commencement of asbestos work.
- Proof of a structured medical surveillance programme, drawn up by an occupational medicine practitioner.
- Proof that an initial health evaluation was carried out by an occupational health practitioner within 14 days after commencement of work.
- Copies of the results of all assessments, exposure monitoring and the written inventory of the location of the asbestos at the workplace.
- Only proof that medical surveillance has been conducted and not the actual records itself since these areas of a confidential nature.
- How records are going to be kept safe for the stipulated period of 40 years.
- Proof that asbestos demolition (if applicable) is going to be done by a registered asbestos contractor and provide proof that a plan of work for such demolition is submitted to an Approved Asbestos Inspection Authority 30 days prior to commencement of the demolition.
- Provide proof that the plan of work was approved by the asbestos AIA and submitted to the provincial director 14 days prior to commencement of demolition work together with the approved standardized procedures for demolition work.

2.45 Pressure Vessels (Including Gas Bottles)

The Contractor shall comply with Pressure Vessel Regulations, including:

- Providing competency and awareness training to the operators;
- Providing PPE or clothing;
- Providing and maintain appropriate signage in areas where pressure vessels are used, as applicable;
- Inspect equipment regularly and keep records of inspections;
- Providing appropriate firefighting equipment (Fire Extinguishers).
- Under pressure vessels to have the following in place;
 - Service date
 - Seals on valves with no leaks and not broken
 - flash arrestors
 - Should be stored and chained together
 - Oxygen / Acetylene bottles to have clips
 - Signage to be visible
 - Gauges in working condition and be visible
 - Permits for use
 - Pressure equip Regs 6. (1) The user shall ensure that the pressure equipment is operated and maintained within its design and operating parameters.

2.46 Fire Extinguishers and Fire Fighting Equipment

The Contractor shall provide adequate, regularly serviced fire extinguishers located at strategic points on site. The Contractor shall keep spare serviced portable fire extinguishers. The Contractor shall have adequate persons trained or competent to use the Fire Fighting Equipment.

Safety signage shall be posted up in all areas where fire extinguishers are located.

2.47 Lifting Machinery and Tackle

The Contractor shall ensure that lifting machinery and tackle is inspected before use and on a monthly basis. The Contractor shall have lifting machinery and tackle inspector who will inspect the equipment at intervals required by the Driven Machinery Regulations, taking into account that:

- All lifting machinery and tackle have a safe working load clearly indicated
- Regular inspection and servicing is carried out
- Records are kept of inspections and of service certificates
- Thorough examinations are carried out by competent personnel at the frequencies required by legislation
- There is proper supervision in terms of guiding the loads which includes a trained banks man to direct and check lifting tackle if it is safe for use
- Forklift to be inspected every year and lift plan every 2 years

- Load test certificate to be no older than 6 months
- Sufficient props to be used and max weight to be displayed
- Slings to be checked with regard to integrity, chains, serial numbers, checked for tears, cuts links and all other materials
- Hooks to be oiled, not in a fixed position and closed to prevent materials from slipping/falling off
- Lifting equipment must be used for the scope of work carried out

2.48 Ladders and Ladder work

The Contractor shall ensure that all ladders are numbered and inspected regularly keeping record of inspections. It should be noted that Aluminium ladders are preferred to wooden ladders.

2.49 General Machinery

The Contractor shall comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those that use machinery and enforce compliance.

2.50 Portable Electrical Tools

The Contractor shall ensure that use and storage of all explosive actuating fastening devices and portable electrical tools are in compliance with relevant legislation.

The Contractor shall consider that:

- A competent person undertakes routine inspections;
- Only authorised persons use the tools;
- There are safe working procedures applied;
- Awareness training is carried out and compliance is enforced at all times; and
- PPE and clothing is provided and maintained.

2.51 High Voltage Electrical Equipment

The Contractor shall ensure that, where the work is under, on or near high-voltage electrical equipment the Electrical Installation Regulations, together with safety instructions (Regulations of the Owner of the Equipment) are complied with. Such equipment includes:

- Eskom and the Local Authority equipment
- The Contractor's own power supply; and
- Electrical equipment being installed but not yet taken over from a Contractor by The Employer.

2.52 Public Health and Safety

The Contractor shall ensure that each person working on or visiting a site, and the surrounding community, shall be made aware of the dangers likely to arise from onsite activities and the precautions to be observed to avoid or minimize those dangers. Appropriate health and safety signage shall be posted at all times.

2.53 Night Work

The Contractor shall not undertake any night work without prior arrangement and a written permit from the Employer. The Contractor shall ensure that adequate lighting is provided for all night work and failure to do so shall result in work being stopped.

2.54 Environmental Conditions and Flora and Fauna

The Contractor must be mindful of adverse weather conditions upon the health and safety of the workforce. This includes inclement weather, strong wind, heat stress, extreme cold, etc. The Contractor's risk assessment process must take into account the risks associated with such weather conditions. The same is true when working in an environment where there is a risk to employees' health and safety from presence of poisonous flora, or wildlife (including bees, snakes, etc). The Contractor's risk assessment process must take these risks into account.

2.55 Occupational Health

Exposure of workers to occupational health hazards and risks are quite common in any work environment, especially in construction. Occupational health hazards and risks exposure is a major problem and all Contractors are to ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards and risks.

The occupational hazards and risks may enter the body in three ways:

- Inhalation through breathing e.g. cement dust;
- Ingestion through swallowing maybe through food intake;
- Absorption through the skin (pores) e.g. painting or use of thinners.

The contractor is required to ensure that all his personnel are medically fit prior to being allowed onto the work site.

All Contractors should ensure that Occupational Hygiene surveys are conducted as per the Occupational Health and Safety Act to ensure employees are not exposed to hazards. Risk Assessments should identify areas where surveys are to be conducted.

2.56 *Suspended Platforms*

A contractor must appoint a competent person in writing who must ensure that all suspended platforms work operations are carried out under his or her supervision and that all suspended platform erectors, operators and inspectors are competent to carry out their work.

No contractor may use or permit the use of a suspended platform, unless-

- the design, stability and construction thereof comply with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act;
- he or she is in possession of a certificate of system design issued by a professional engineer, certificated engineer, or a professional technologist for the use of the suspended platform system; and
- he or she is, before the commencement of the work, in possession of an operational compliance plan developed by a competent person based on the certificate of system design contemplated above and applicable to the environment in which the system is being used, which operational compliance plan must include proof of the-
 - appointment of the competent person;
 - competency of erectors, operators, and inspectors;
 - operational design calculations, which must comply with the requirements of the system design certificate;
 - performance test results;
 - sketches indicating the completed system with the operational loading capacity of the platform;
 - procedures for and records of inspections having been carried out; and
 - procedures for and records of maintenance work having been carried out.

A contractor making use of a suspended platform system must submit a copy of the certificate of system design, including a copy of the operational design calculations, sketches and test results, to the provincial director before commencement of the use of the system and must further indicate the intended type of work that the system will be used for.

A contractor must submit a copy of the certificate of system design as per regulations for every new project.

A contractor must ensure that the outriggers of each suspended platform-

- are constructed of material of adequate strength and have a safety factor of at least four in relation to the load it is to carry; and
- have suspension points provided with stop devices or other effective devices at the outer ends to prevent the displacement of ropes.

A contractor must ensure that-

- the parts of the building or structure on which the outriggers of a suspended platform are supported, are checked by means of calculations to ensure that the required safety factor is adhered to without risk of damage to the building or structure;
- the suspension wire rope and the safety wire rope are separately connected to the outrigger;
- each person on a suspended platform is provided with and wears a body harness as a fall prevention device, which must at all times be attached to the suspended platform;
- the hand or power driven machinery to be used for the lifting or lowering of the working platform of a suspended platform is constructed and maintained in such a manner that an uncontrolled movement of the working platform cannot occur;
- the machinery referred to above is so situated that it is easily accessible for inspection;
- the rope connections to the outriggers are vertically above the connections to the working platform; and
- when the working platform is suspended by two ropes only, the connections of the ropes to the working platform are of a height above the level of the working platform to ensure the stability of the working platform.

A contractor must ensure that a suspended platform-

- is suspended as near as possible to the structure to which work is being done to prevent as far as is reasonably practicable horizontal movement away from the face of the structure;
- is fitted with anchorage points to which workers must attach the lanyard of the safety harness worn and used by the

- worker, and such anchorage connections must have sufficient strength to withstand any potential load applied to it; and
- is fitted with a conspicuous notice easily understandable by all workers working with the suspended platform, showing-
 - the maximum mass load;
 - the maximum number of persons; and
 - the maximum total mass load, including load and persons, which the suspended platform can carry.

A contractor must cause-

- the whole installation and all working parts of a suspended platform to be thoroughly examined by a competent person in accordance with manufacturer's specification;
- the whole installation to be subjected to a performance test as determined by the standard to which the suspended platform was manufactured;
- the performance test contemplated above to be done by a competent person appointed in writing, with the knowledge and experience of erection and maintenance of suspended platforms or similar machinery, and who must determine the serviceability of the structures, ropes, machinery and safety devices before they are used, every time suspended platforms are erected; and
- the performance test contemplated above of the whole installation of the suspended platform to be subjected to a load equal to that prescribed by the manufacturer or, in the absence of such load, to a load of 110% of the rated mass load, at intervals not exceeding 12 months and in such a manner that every part of the installation is stressed accordingly.

A contractor must cause every hoisting rope, hook or other load-attaching device which forms part of the suspended platform to be thoroughly examined in accordance with the manufacturer's specification by the competent person before they are used every time they are assembled, and, in cases of continuous use, at intervals not exceeding three months.

A contractor must ensure that the suspended platform supervisor or the suspended platform inspector carries out a daily inspection of all the equipment prior to use, including establishing whether –

- all connection bolts are secure;
- all safety devices are functioning;
- all safety devices are not tampered with or vandalized;
- the total maximum mass load of the platform is not exceeded;
- the occupants in the suspended platform are using body harnesses which have been properly attached;
- there are no visible signs of damage to the equipment; and
- all reported operating problems have been attended to.

A contractor must ensure that all inspection and performance test records are kept on the construction site at all times and made available to an inspector, the Employer, the Employer's Safety Agent, or any employee upon request.

A contractor must ensure that all employees required to work or to be supported on a suspended platform are –

- medically fit to work safely in a fall risk position or such similar environment by being in possession of a medical certificate of fitness;
- competent in conducting work related to suspended platforms safely;
- trained or received training, which includes at least-
 - how to access and egress the suspended platform safely;
 - how to correctly operate the controls and safety devices of the equipment;
 - information on the dangers related to the misuse of safety devices; and
 - information on the procedures to be followed in the case of-
 - an emergency;
 - the malfunctioning of equipment; and
 - the discovery of a suspected defect in the equipment; and
 - instructions on the proper use of body harnesses.

A contractor must ensure that where the outriggers of a suspended platform are to be moved, only persons trained and under the supervision of the competent person effect such move, within the limitation stipulated in the operational compliance plan, and that the supervisor must carry out an inspection and record the result thereof prior to re-use of the suspended platform.

A contractor must ensure that the suspended platform is properly isolated after use at the end of each working day in such a manner that no part of the suspended platform presents a danger to any person thereafter.

2.57 Material Hoists

A contractor must ensure that every material hoist and its tower have been constructed in accordance with the generally accepted technical standards and are strong enough and free from defects.

A contractor must ensure that the tower of every material hoist is -

- erected on firm foundations and secured to the structure or braced by steel wire guy ropes, and extends to a distance above the highest landing to allow a clear and unobstructed space of at least 900 mm for over travel;
- enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 mm from the ground or floor level; and
- provided with a door or gate at least 2100mm in height at each landing, and that door or gate must be kept closed except when the platform is at rest at such a landing.

A contractor must cause -

- the platform of every material hoist to be designed in a manner that it safely contains the loads being conveyed and that the combined mass of the platform and the load does not exceed the designed lifting capacity of the hoist;
- the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and
- every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when power is not being supplied to the hoisting machinery.

No contractor may require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person may so convey trucks, barrows or material unless those articles are secured or contained in a manner that displacement thereof cannot take place during movement.

A contractor must cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.

A contractor of a material hoist may not require or permit any person to operate a hoist, unless the person is competent in the operation of that hoist.

No contractor may require or permit any person to ride on a material hoist.

A contractor must ensure that every material hoist-

- is inspected on daily basis by a competent person appointed in writing by the contractor and such competent person must have the experience pertaining to the erection and maintenance of material hoists or similar machinery;
- inspection contemplated above, includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices;
- inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose;
- is properly maintained and the maintenance records in this regard are kept on site.

2.58 Explosive Actuated Fastening Device

No contractor may use or permit any person to use an explosive actuated fastening device, unless-

- the user is provided with and uses suitable protective equipment;
- the user is trained in the operation, maintenance and use of such a device
- the explosive actuated fastening device is provided with a protective guard around the muzzle end, which effectively confines any flying fragments or particles; and
- the firing mechanism is so designed that the explosive actuated fastening device, will not function unless-
 - it is held against the surface with a force of at least twice its weight; and
 - the angle of inclination of the barrel to the work surface is not more than 15 degrees from a right angle.

A contractor must ensure that-

- only cartridges suited for the relevant explosive actuated fastening device, and the work to be performed, are used;
- an explosive actuated fastening device is cleaned and examined daily before use and as often as may be necessary for its safe operation by a competent person who has been appointed for that purpose;
- the safety devices of an explosive actuated fastening device are in good working order prior to use;
- when not in use, an explosive actuated fastening device and its cartridges are locked up in a safe place, which is inaccessible to unauthorized persons;

- an explosive actuated fastening device is not stored in a loaded condition;
- a warning notice is displayed in a conspicuous manner in the immediate vicinity wherever an explosive actuated fastening device is used; and
- the issuing and collection of cartridges and nails or studs of an explosive actuated fastening device are-
 - controlled and done in writing by a person having been appointed in writing for that purpose; and
 - recorded in a register by a competent person and that the recipient has accordingly signed for the receipt thereof as well as the returning of any spent and unspent cartridges.

2.59 Confined Spaces

Confined space work must be closely monitored by a competent person appointed by the contractor, to include, but not restricted to, ensuring that the confined space is sufficiently ventilated prior to entry. Oxygen levels to be tested in confined space to ensure that it is safe for entry. Permit system to be in place to declare confined space safe for entry prior to entry. PPE must be worn (such as proper masks) if air supply is insufficient or not of sufficient quality.

Sufficient training must take place in use of all confined space monitoring and access equipment prior to any works commencing in such confined space. It is strongly recommended that a tripod and winch system be in place to afford easy access and egress and for emergency evacuation from the confined space (manholes and chambers). Please also refer to GSR5 on safety requirements for Work in Confined Spaces.

General safety Regulations 5.

(1) An employer or a user of machinery shall take steps to ensure that a confined space is entered by an employee or other person only after the air therein has been tested and evaluated by a person who is competent to pronounce on the safety thereof, and who has certified in writing that the confined space is safe and will remain safe while any person is in the confined space, taking into account the nature and duration of the work to be performed therein.

(2) Where the provisions of sub regulation (1) cannot be complied with the employer or user of machinery, as the case may be, shall take steps to ensure that any confined space in which there exists or is likely to exist a hazardous gas, vapour, dust or fumes, or which has or is likely to have, an oxygen content of less than 20 per cent by volume, is entered by an employee or other person only when-- (a) subject to the provisions of sub regulation (3), the confined space is purged and ventilated to provide a safe atmosphere therein and measures necessary to maintain a safe atmosphere therein have been taken; and (b) the confined space has been isolated from all pipes, ducts and other communicating openings by means of effective blanking other than the shutting or locking of a valve or a cock, or, if this is not practicable, only when all valves and cocks which are a potential source of danger have been locked and securely fastened by means of chains and padlocks.

(3) Where the provisions of sub regulation (2)(a) cannot be complied with, the employer or user of machinery shall take steps to ensure that the confined space in question is entered only when the employee or person entering is using breathing apparatus of a type approved by the chief inspector and, further, that—

(a) the provisions of sub regulation (2) (b) are complied with;

(b) any employee or person entering the confined space is using a safety harness or other similar equipment, to which a rope is securely attached which reaches beyond the access to the confined space, and the free end of which is attended to by a person referred to in paragraph (c);

(c) at least one other person trained in resuscitation is and remains in attendance immediately outside the entrance of the confined space in order to assist or remove any or persons from the confined space, if necessary; and

(d) effective apparatus for breathing and resuscitation of a type approved by the chief inspector is available immediately outside the confined space.

(4) An employer or user of machinery shall take steps to ensure that all persons vacate a confined space on completion of any work therein.

(5) Where the hazardous gas, vapour, dust or fumes contemplated in sub regulation (2) are of an explosive or flammable nature, an employer or user of machinery shall further take steps to ensure that such a confined space is entered only if –

(a) the concentration of the gas, vapour, dust or fumes does not exceed 25 per cent of the lower explosive limit of the gas, vapour, dust or fumes concerned where the work to be performed is of such a nature that it does not create a source of ignition; or

(b) such concentration does not exceed 10 per cent of the lower explosive limit of the gas, vapour, dust or fumes where other work is performed.

2.60 Alcohol and drugs (GSR 2)

1. A contractor shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a site.

2. No employee shall be under the influence of or have in his or her possession or partake of or offer any other person intoxicating liquor or drugs.

3. An employer or a user, as the case may be, shall, in the case where a person is taking medicines, only allow such person to perform duties at the site if the side effects of such medicine do not constitute a threat to the health or safety of the person concerned or other persons at such site.

2.61 COVID-19 (PLEASE NOTE THAT THIS SECTION IS CONSTANTLY UNDER REVIEW)

This section is based on the requirements of Government Gazette No 43257 dated 29th April 2020, and the latest Disaster Management Act 2002.

The importance of the management and control of this virus by contractors on site is paramount.

For this reason no work is permitted on site until the contractor has submitted proposals in their safety plan to the safety agent and professional team on how the risk of COVID-19 transmission on site will be managed by the contractor (monitoring and implementation of control measures through administrative, physical and other control measure).

DEFINITIONS (Disaster management Act of 2002)

'adequate space' means not more than one person per one and a half metres of floor space;

'Alert Level' means the determination made under sub regulation 3(2);

'clinical case' means a patient that presents with clinical signs and symptoms of COVID-19;

'COVID -19' means the Novel Coronavirus (2019- nCov2) which is an infectious disease caused by a virus that has previously not been scientifically identified in humans, which emerged during 2019 and was declared a global pandemic by the WHO in 2020;

'Criminal Procedure Act' means the Criminal Procedure Act, 1977 (Act No 51 of 1977);

'enforcement officer' includes a member of the South African Police Service, the South African National Defence Force. metro police. traffic officers, immigration inspectors; and a peace officer as defined in section 1 of the Criminal Procedure Act;

'essential services' means the services listed in Annexure D;

'face mask' means a cloth face mask or homemade item that covers the nose and mouth, or another appropriate item to cover the nose and mouth;

'gathering' means any assembly, concourse or procession in or on -
(a) any public road, as defined in the National Road Traffic Act, 1996 (Act No. 93 of 1996); or
(b) any other building, place or premises. including wholly or partly in the open air, and including, but not limited to, any premises or place used for any sporting, entertainment, funeral, recreational, religious, or cultural purposes; but excludes a workplace and a place of residence for those persons ordinarily residing at the residence;

'health protocols' means the COVID-19 health protocols determined by the Director General of Health;

'head of an institution' means the accounting officer of a public institution and the chief executive officer or the equivalent of a chief executive officer of a private institution;

'institution' means any public or private institution, including a sole practitioner and any other business owned and operated by a single person, that is engaged in the supply or distribution of a good or service as set out in the Table 1, or which regulates such supply or distribution, including professional regulatory bodies designated in directions made in terms of regulation 4 of the Regulations;

'isolation' means separating a sick individual with a contagious disease from healthy individuals that are not infected with such disease in a manner that aims to prevent the spreading of infection or contamination;

'national state of disaster' means the national state of disaster declared by Government Notice No. R. 313 of 15 March 2020;

'quarantine' means the restriction of activities or separation of a person, who was or may potentially have been exposed, to COVID-19 and who could potentially spread the disease to other non -exposed persons, to prevent the possible spread of infection or contamination to

healthy individuals;

'the Act' means the Disaster Management Act, 2002 (Act No. 57 of 2002); and
'WHO' means the World Health Organisation.

Coronaviruses are a large family of viruses which may cause illness in animals or humans. In humans, several Coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered Coronavirus causes Coronavirus disease COVID-19.

COVID 19 is a viral pandemic that has and is causing a great deal of damage to human health, countries' economies and health systems and has led to lock downs, work stoppages and restriction of movement that threatens the existence of many jobs, as well as the way we conduct our normal working and social lives.

In response to the pandemic the government has passed legislation and guidance for employers and employees in the work environment.

People can catch COVID-19 from others who have the virus. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. These droplets land on objects and surfaces around the person. Other people then catch COVID-19 by touching these objects or surfaces, then touching their eyes, nose or mouth. People can also catch COVID-19 if they breathe in droplets from a person with COVID-19 who coughs out or exhales droplets. This is why it is important to stay more than one meter away from a person who is sick.

Please refer to Annexure A for details on the criteria that must be considered in the contractor's safety plan response.

2.62 General Practices when Working at Heights

- No Homemade structures or ladders will be permitted on the project.
- Trestle tables are not to be fully extended and must be fully boarded, no drums to be used.
- Surroundings to be clear of rubble.
- Fall protection, fall prevention, and fall rescue plans to be in place and communicated to site employees.
- Ladders to be structurally sound and not broken and in accordance to GSR 13A.
- Only competent persons may be allowed to work at heights
- Correct personal protective equipment to be used (safety harness and lanyard) and edge protection / life lines to be used.
- Anchor points to be in place and determined by an engineer. Anchor points must be pull tested prior to use.
- GSR (6) 6. No employer shall require or permit any person to work in an elevated position and no person shall work in an elevated position, unless such work is performed safely from a ladder or scaffolding, or from a position where such person has been made as safe as if they were working from scaffolding.
- Construction regulation 10 of 2014 to be implemented when working at heights and to prevent any person from falling from heights.
- Employees required to perform work at heights or from fall risk position must be medically fit to perform such work, such employee's medicals must specify "Fall Risk" or "Working at heights" in the exposure section of the annexure 3 template.

2.63 Traffic Accommodation

(the traffic management plan must be site specific and detailed for that specific area where works are been conducted, include street names etc.)

All traffic signs must be displayed as per the traffic management plan drawings.

Size of signs used must be as per the traffic management drawings and all signs to be visible and in good condition.

- Traffic management Plan issued per Road and Traffic act (chapter 13). Must be approved by the Traffic Chief and professional team.
- Plans for signage deployment must be in order and must be placed correctly.
- Traffic management plan must be submitted and must be suitable for the tasks being performed.
- Traffic plan must be implemented and controlled by the sites Traffic safety officer and flag persons.
- Jersey barriers, where used, to be linked.
- No signs to be obstructed.
- STOP/GO structures must be protected against being struck by vehicles (e.g. new jersey barriers)
- Road marking buggies/vehicles must be protected by escort vehicles front and rear.
- Displayed traffic signs must be maintained in a daily register to be checked morning and evenings after works have been finalised.

Night work:

- Signage, traffic accommodation and personnel must be visible (reflective / illuminated).
- Certified, competent traffic officer and flag persons to be used during night operations.

Traffic Safety Officer must check signage daily and Engineer must sign it off daily.

2.64 Ventilation and Lighting in the Work Place

Every employer shall cause every workplace in his undertaking to be lighted in accordance with the illuminance values specified in the Schedule to the General Safety Regulations:

Provided that where specialised lighting is necessary for the performance of any particular type of work, irrespective of whether that type of work is listed in the Schedule or not, the employer of those employees who perform such work shall ensure that such specialised lighting is available to and is used by such employees.

The Contractor must ensure that:

- the average illuminance at any floor level in a workplace within five meters of a task is not less than one fifth of the average illuminance on that task;
- glare in any workplace is reduced to a level that does not impair vision;
- lighting on rotating machinery in such that the hazard of stroboscopic effects is eliminated; and
- luminaires and lamps are kept clean and, when defective, are replaced or repaired forthwith.

With a view to the emergency evacuation of indoor workplaces without natural lighting or in which persons habitually work at night, every employer shall, in such workplaces, provide emergency sources of lighting which are such that, when activated, an illuminance of not less than 0.3 lux is obtained at floor level to enable employees to evacuate such workplaces: Provided that where it is necessary to stop machinery or shut down plant or processes before evacuating the workplace, or where dangerous materials are present or dangerous processes are carried out, the illuminance shall be not less than 20 lux.

The contractor must ensure that the emergency sources of lighting prescribed above:

- are capable of being activated within 15 seconds of the failure of the lighting prescribed by subregulation (1);
- will last long enough to ensure the safe evacuation of all indoor workplaces;
- are kept in good working order and tested for efficient operation at intervals of not more than three months; and
- where directional luminaires are installed, these are mounted at a height of not less than two meters above floor level and are not aimed between 10° above and 45° below the horizontal line on which they are installed.

The contractor must ensure that all rooms, stairways, passageways, gangways, basements, and other places where danger may exist through lack of natural light, to be lighted such that it will be safe.

The contractor must ensure that every workplace in his undertaking is ventilated either by natural or mechanical means in such a way that –

- the air breathed by employees does not endanger their safety;
- the time-weighted average concentration of carbon dioxide therein, taken over an eight-hour period, does not exceed one half per cent by volume of air;
- the carbon dioxide content thereof does not at any time exceed three per cent by volume of air;
- the prescribed exposure limits for airborne substances therein are not exceeded; and
- the concentration therein of any explosive or flammable gas, vapour or dust does not exceed the lower explosive limit of that gas, vapour, or dust.

2.65 Nuclear Density Gauge (Troxler)

The use of a Troxler on site must be in line with the SANS 3001 of March 2014. The SANS consists of 5 sections

The in-situ density of road construction materials is only determined in civil engineering using indirect methods such as the nuclear density gauge and sand replacement methods.

This method forms part of a set of methods used to operate nuclear gauges, and includes the following:

- a) administration, handling, and maintenance (see SANS 3001-NG1);
- b) validation of standard calibration blocks (see SANS 3001-NG2);
- c) calibration of a nuclear gauge (see SANS 3001-NG3);
- d) verification of a nuclear gauge (see SANS 3001-NG4);
- e) in situ density determination using a nuclear gauge (see SANS 3001-NG5)

When used Troxlers must be:

- Stored in a dedicated, lockable area and must have a warning signage displayed.
- Must only be transported in a dedicated vehicle with the required signage displayed and by an authorised employee that has been appointed in writing.
- Must have a Troxler Calibration Certificate in place.
- Must have a Troxler Technician Appointment on file and signed and proof of competency within the safety file.

2.66 Ergonomics Regulation of 2019

"competent person" in relation to ergonomics, means a person who– (a) has in respect of the work or task to be performed the required knowledge, training and experience in ergonomics and, where applicable, qualifications specific to ergonomics: provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualifications Framework Act, 2008 (Act No. 67 of 2008), those qualifications and that training must be regarded as the required qualifications and training; and (b) is familiar with the Act and the applicable regulations made under the Act;

"ergonomic risk" means a characteristic or action in the workplace, workplace conditions, or a combination thereof that may impair overall system performance and human well-being;

"ergonomic risk assessment" means a programme, process, or investigation to identify, analyse, value and prioritise any risk from exposure to ergonomic risks associated with the workplace;

"ergonomics" means the scientific discipline concerned with the fundamental understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimise human well-being and overall system performance;

The ergonomics regulations will apply to any employer or self-employed person who carries out work at the workplace who may expose any person to an ergonomic risk in the work place and any designer, manufacturer, importer or supplier of machinery, plant, or work systems for the work place.

An employer must, before the commencement of any work that may expose employees to ergonomic risks, have an ergonomic risk assessment performed by a competent person.

The ergonomic risk assessment must be done at intervals not exceeding two years and must include the following;

- a complete hazard identification and all persons who may be affected by the ergonomic risk.
- how employees may be affected by the ergonomic risks;
- the analysis and evaluation of the ergonomic risks;
- the prioritisation of ergonomic risks.

An employer must review the relevant ergonomic risk assessment if:

- such assessment is no longer valid;
- control measures are no longer effective;
- technological or scientific advances allow for more effective control methods;
- there has been a change in –
 - the work methods;
 - the type of work carried out; or
 - the type of equipment used to control the exposure; and
- an incident occurs or medical surveillance reveals an adverse health effect, where ergonomic risks are identified as a contributing factor.

An employer must ensure that an employee is placed under medical surveillance, which is overseen by an occupational medicine practitioner, if–

- the ergonomic risk assessment referred to in regulation 6 indicates the need for the employee to be placed under medical surveillance; or
- an occupational health practitioner recommends that relevant employees must be under Medical surveillance, in which case the employer may call upon an occupational medicine practitioner to ratify the appropriateness of such recommendation.

An employer must ensure that the medical surveillance consists of–

- in the case of a new employee, an initial health examination before the employee commences employment or within 30 days of commencement of such employment;
- a periodic health examination informed by the ergonomic risk assessment, at intervals specified by an occupational medicine practitioner, but not exceeding two years; and
- an exit health examination informed by the ergonomic risk assessment.

♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦

Both the Employer and the Contractor have a duty in terms of health and safety legislation to do all that is reasonably practicable to make members of the public and others being affected by the construction processes aware of possible risks and put preventative measures in place to mitigate the risks. The public and/or visitors shall go through a brief health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks.

OTHER HEALTH AND SAFETY SPECIFICATION REQUIREMENTS

The contractor must be aware of the following additional requirements:

What	When	Output
Awareness training (Toolbox Talks)	At least weekly and before hazardous work is carried out	Attendance Register
Health and Safety Committee Meetings	Monthly	Minutes signed by the employer (Contractor) covering: a) Health and Safety Representative Checklist b) Safety report from Safety Officer and Safety Agent
Health and Safety Reports	Monthly	Report covering: a) Incidents/Accidents and Investigations b) Non-conformance c) Health and Safety Training d) HIRA Updates e) Internal and External Audits
General Inspections	As per Health and Safety Specification and OHSA	Report on Health and Safety Specification and OHSA compliance: a) Scaffolding b) Lifting Machinery c) Excavation
General Inspections	Weekly/monthly	Covering: a) Firefighting Equipment b) Portable Electrical Equipment c) Ladders
Planned Task Observation	Weekly	Staff competency, task specific
DSTI's	Daily	Risk Assessments
Record keeping	Ongoing	Covering: a) General complaints b) Fines c) General incidents d) MSDS e) Surveillance Medicals f) Inspection Register g) Dept of Labour Notices
Permits	Before commencement with certain activities	As stipulated by the Health and Safety Specification and the OHSA / Construction Regulations

Key:

OHSA – Occupational Health and Safety Act, 1993

ANNEXURE A – REQUIREMENTS FOR THE SAFETY PLAN ASSESSMENT (INCLUDING COVID 19 REQUIREMENTS)

The Contractor must note that the information below is pertinent to the compilation of their safety plan response to this site-specific safety specification and it would be preferred if the Safety Plan is written in the order of the assessment documented below.

No	Item	Notes
1	Project Directory	Please state details of Project Employer, Project Manager/Principal Agent, Safety Agent, Consulting Engineer, etc. (Name, address, contact details).
2	Contractors Directory	Please indicate if you will be using Contractors on this project, if yes, include their details, trade, and FEM details.
3	Other Parties Directory	Please indicate contact details for any services applicable (electricity, water, etc.) as well as Department of Labour and Emergency Services.
4	Project Safety Statement	The Project Safety Statement must be included in the Safety Plan.
5	Health and Safety standards for the project (OHS Act, construction regulations, basic conditions of employment, etc.)	Health and Safety standards must be included in the Safety Plan.
6	Project Particulars	Scope of works must be included in the Safety Plan. This is critical.
7	Existing environment – Structures and Surroundings, Services (Electrical, Water, Sewerage, etc.), Traffic Arrangements, Parking, Access to Site, Storage of Plant and Materials	Please include these items in the plan. The items must be Site Specific, the location of services and services that will be affected must be mentioned.
8	Management Structure for safety on the Project	A structured organogram with names of the responsible people must be included.
9	Appointed Persons, Supervision	The required appointments must be identified. A list of the appointed persons must be included in the Safety Plan.
10	Security Procedures	Please indicate if a security company will be appointed and include the contact information in the Safety Plan.
11	Registers list and inspection frequency	A list of the Inspection Registers that will be on file must be included in the Safety Plan.
12	Design Co-ordination	Please indicate your procedure for implementation of design changes by designer on the project, and the procedures for liaison and implementation of temporary works design on the project.
13	Contractor Co-ordination	Mention must be made of how Contractors will be co-ordinated on site to ensure that they work together and not adversely affected health and safety.
14	Housekeeping, stacking and storage	Housekeeping policies and procedures must be included in the Safety Plan.
15	Waste Disposal Arrangements	Waste disposal arrangements procedures must be included in the Safety Plan.

No	Item	Notes
16	Noise and dust control	Please indicate if any noisy operations (more than 85 decibels) will be carried out and what measures will be used to reduce noise exposure to workforce.
17	Training Requirements	Training requirements must be identified and recorded.
18	Plant and Equipment	A list of plant and equipment to be used on site must be included in the Safety Plan.
19	Safety Monitoring Arrangements	The name, contact details and SACPCMP registration status of the Safety Officer must be included in the Safety Plan. State how often the Safety officer will be on site (note safety specification requirement in section 1.7).
20	Information for Contractors	State how information will be given to Contractors on site.
21	Consultation/communication arrangements with Employees	State how information will be given to employees e.g. notice board.
22	Selection of Contractors Procedures	Principal contractor must state what health and safety procedures they will use to assess the competence and resources of their contractors on site.
23	Activities with risk to Health and Safety (Risk Assessment)	A Baseline Risk Assessment must be included in the Safety Plan, it must address the Risks identified in the Safety Specification as well as the risk of any other hazards that the Principal Contractor is aware of that are relevant to the site.
24	Hazardous Substances	Must be listed in the Safety Plan and addressed in the Risk Assessment.
25	First Aid and Medical Procedures	Please indicate name of first aider, position of first aid box, location of nearest medical facility and emergency numbers.
26	Fire and Emergency Procedures	List of emergency telephone numbers must be drawn up and included in the Safety Plan. The position of Fire Extinguishers, Assembly Point location, fire drill frequencies, numbers of fire marshals, etc.
27	Accident and Incident Reporting and investigation	State the Accident and Incident Reporting and investigation procedures of your company.
28	Welfare and Site Facilities	Elaborate on toilets and eating areas, water provision, COVID-19 ablution provision, how will workers be protected during wet weather conditions etc.
29	Site Rules	The Site Rules must be included in the Safety Plan.
30	Personal Protective Equipment	The necessity must be identified by Risk Assessments, the required PPE for site risks and COVID-19 control measures.
31	Health & Safety File arrangements	Please indicate arrangements for the return of the Health and Safety File to the safety agent at the end of the project.

No	Item	Notes
32	Method Statements/Safe System of Works	A list of Method Statements/Safe System of Works must be included in Safety Plan for all High-risk activities. PLEASE NOTE THAT THIS IS PARTICULARLY RELEVANT FOR COVID-19. NO WORK MAY COMMENCE UNLESS COVID-19 RISKS AND CONTROL MEASURES HAVE BEEN APPROVED BY THE PROFESSIONAL TEAM. REFER TO SECTION 2.61 OF THIS SAFETY SPECIFICATION.

33	Permits and wayleaves	List of activities that Principal Contractor anticipates will require permits and wayleaves (including those stated in the safety specification) to be included.
34	Fall Prevention and Protection Plan and Fall Rescue Plan	A copy of the Fall Prevention and Protection Plan, fall rescue plan and fall risk assessment must be included in the Safety Plan.
35	Demolition method statement	A copy of the Demolition Method Statement must be included in the Safety Plan.
36	Confined spaces	The Principal Contractors' procedures for managing access, egress and work in confined spaces must be specified in the Safety Plan. Includes permit procedures, air monitoring, PPE, etc.
37	Safety Representatives and Safety Committees	When a project has more than 20 employees a designated employee must be chosen by the labourers to represent them. A safety committee must be established if 2 or more safety representatives are appointed. Please note Safety Specification requirements regarding this section (section 2.12).
38	Have the significant hazards from the safety specification been addressed?	See section 1.9 of the Specifications and ensure practical measures have been detailed in the safety plan.
39	Safety File - Safety Policies in File and Signed by 16(1) CEO.	Safety Policies must be signed and explained to employees.
40	Safety File - A copy of the valid Letter of Good standing from FEM / Workman's Compensation must be on file.	A copy of the valid Letter of Good standing from FEM / Workman's Compensation must be on file.
41	Safety File - Signed copy of the 37.2 Mandatory Agreement	A 37.2 Mandatory Agreement needs to be signed between the Employer and the Principal Contractor.
42	Safety File - Appointment letter from Employer (as well as 5.1.K)	The Employer must appoint the Principal Contractor in writing.
43	Safety File – Notification / Permit	A copy of the Annexure 2 Notification (and proof of submission) to Department of Labour must be available. This can be in the form of a Department stamp, email, or copy of Construction Work Permit.

CONTROL MEASURES THAT MUST BE INCLUDED FOR SAFETY PLAN SUBMISSION PURPOSES:

Issues that must be included by the contractor in their COVID-19 safety plan response should include arrangements for the following (please note that reference to contractors' employees / staff / workers / personnel on site must include control of their (sub)contractors, visitors and suppliers):

Workplace Plan - A plan must be developed by the contractor for the phased in return of employees to site. Please refer to the latest regulations and amendments, all persons who are able to work from home should do so.

Coordination on Site Relating to COVID-19 matters - The contractor must appoint a **manager** to address employees concerns and keep them informed re COVID-19.

Additionally, the contractor must **designate a COVID-19 compliance officer** (required of all industries, businesses, entities, both private and in the public sector). This compliance officer is responsible for overseeing the following:

- implementation of the workplace plan; and adherence to the standards of hygiene and health protocols relating to COVID-19 at the workplace;
- developing a plan for the phased in return of their employees to the workplace, prior to reopening the workplace for business, which plan must correspond with Annexure E of the Disaster Management Act 2002 (as amended April 2020) and be retained for inspection and contain the following information:

- which employees are permitted to work;
- what the plans for the phased-in return of their employees to the workplace are;
- what health protocols are in place to protect employees from COVID-19; and
- the details of the COVID-19 compliance officer;
- phase in the return of their employees to work to manage the return of employees from other provinces, metropolitan and district areas; and
- develop measures to ensure that the workplace meets the standards of health protocols, adequate space for employees and social distancing measures for the public and service providers, as required.

Transportation to Site - Procedures for Transportation of Workers to Site – employees should be advised that if using transport, passengers must wear a cloth mask to be allowed entry into the vehicle. Hand sanitisers must be made available, and all passengers must sanitise their hands before entering. Public transport vehicles must be sanitised on a daily basis. Please note that the government mandated limit on passengers per vehicle must be strictly adhered to.

Site access - Entry to site may only be through pre-arranged security controlled access points. Contractor must detail how will members of public be prevented from accessing site (risk of cross contamination between persons working on site and members of public).

Provision of Visitors Book for signing in and out of site. Records of all personnel entering site and their contact details must be kept.

Screening on Site - Contractor to advise how will personnel on site be screened on a daily basis for symptoms of COVID-19, including a symptom check as well as temperature assessment (digital thermometer). The contractor must describe their procedure for employees on site, suspected of having COVID-19 symptoms, refusing to undergo **medical** examination, prophylaxis, treatment, isolation, and quarantine. Sites with more than 500 employees must have testing facilities.

Risk assessment and safety procedure - Contractor must provide a written policy concerning the protection of it staff from COVID-19. Contractor must compile a COVID-19 risk assessment and safety procedures for the site. How will it be communicated to all on site and records kept thereof. The Risk Assessments must include the identification of exposure levels, identification of “high contact” activities, the identification of vulnerable workers and special measures for their protection, including protection against unfair discrimination or victimization.

Safety Signage and Hotline Number - Contractor to implement placement of COVID-19 safety signage and hotline number at site entrance and on site, warning of hazards and advising control measures (see samples in Annexure to this document). Please note that signage must representative of the local languages.

Communication Procedures - Contractor to describe comprehensive induction and toolbox talk procedures to include COVID-19. Toolbox talks should be conducted weekly on COVID-19 control measures and risks on site, include personal hygiene - manner of controlling coughing and sneezing on site - in elbow.

Emergency Procedure - Contractor must describe communication of COVID-19 symptoms and protocol that must be followed if person demonstrates symptoms, or is thought to have COVID-19 - symptoms of COVID-19 include cough, sore throat, shortness of breath or fever/chills (or $\geq 38^{\circ}\text{C}$ measured temperature), redness of eyes, also additional symptoms – body aches, loss of smell or loss of taste, nausea, vomiting, diarrhoea, fatigue, weakness or tiredness. Contractor must advise personnel on site of the symptom reporting procedure to site management of COVID-19 symptoms, and referral protocol for screening or testing if showing symptoms.

Emergency COVID-19 protocol that must be put in place by Principal Contractor must include:

- Sick workers may not enter workplace.
- If sick worker already on site then worker must be isolated in designated area for isolation on site, provided with FFP1 surgical mask and transported for self-isolation or for medical examination or testing at identified testing site.
- Worker placed on sick leave.
- On receiving their results, the employee and/or health professional supporting the employee should notify their workplace so that the employee is managed accordingly. The workplace should proactively take steps to obtain this information to avoid any delays in reporting.
- Assess the risk of transmission, disinfect area and workers workstation, refer exposed workers for screening, etc.
- Lodge claim with Workman's Compensation if infection occupationally acquired.
- Worker may only return to work after undergoing a medical evaluation confirming worker has tested negative for COVID-19.
- Worker must be closely monitored for symptoms on return to work.
- If worker has been diagnosed with COVID-19 the employer must notify Dept of Health and Dept of Employment and Labour

NOTE THAT: personnel on site, or presenting themselves to site who appear sick, or have symptoms associated with COVID-19 may not be allowed on site.

Welfare and Washing Facilities, Sanitising and Disinfection - Contractor must describe provision of soap and clean running water and sanitisers at site entrance and at other locations on site. Correct manner of washing / disinfecting hands, 20 second rule. Use of paper towels only. Disinfection of work surfaces and equipment control procedures required - carried out before work begins, regularly during day and after work ends. Toilets, common areas, door handles, shared electronic equipment and any other shared equipment must be regularly cleaned and disinfected, biometric systems disabled or made COVID-19 safe.

Hand sanitiser must contain 70% alcohol.

Employees working away from home should be provided with hand sanitiser by the employer.

COVID-19 PPE on Site - Contractor must describe controls for wearing of PPE on site, including wearing of cloth masks on site - people working and visiting site must be instructed on the correct way of wearing cloth masks, procedure for maintenance and replacement of cloth masks. Surgical masks and N95 masks should only be worn by frontline health workers, not site staff. Note that some surgical masks should be kept on site to give to persons exhibiting COVID-19 symptoms prior to being taken away for testing.

Employer is required to provide each employee with at least 2 cloth masks and must make appropriate arrangements for washing, drying and ironing of cloth masks.

Supervision and Monitoring on Site - Monitoring systems must be in place by Contractor to ensure compliance with safety protocols and identify infections among employees - supervision monitoring and enforcement - how will it be done by the contractor?

Ventilation on Site - How will ventilation and air quality be made safe on site.

Waste Management - Sufficient refuse bins must be on site for disposal of tissues, used PPE. Procedure for safe removal of contents of bins; used PPE, other detritus should be made in contractors safety plan.

Social Distancing Measures - Contractor must describe, so far as practicable how can numbers of workers be minimised on site at any one time (e.g.: through staff rotation, staggered working hours, shift systems, remote working arrangements or similar to achieve social distancing? (1.5m). Note that contractor must minimise contact between workers themselves and workers and public.

Depending on what is reasonably practicable, site must be arranged so that there is distance of at least 1.5m between workers and members of public or put physical barriers in place or provide workers with face shields or visors.

COVID-19 Investigation procedure - Contractor must describe how will they investigate the cause of COVID-19 infection (including control failure and risk assessment review, checking of PPE requirements, admin support to contact tracing implemented by Dept of Health).

Important notes:

If more than 500 employees in contractors employ the employer must submit this risk assessment and written policy re health and safety of employees from COVID-19 to Safety Committee and Department of Employment and Labour.

Monitoring by the Safety Agent will be strict - noncompliance with COVID-19 control measures will be reported immediately to the principal contractor for action purposes. If necessary, transgressors will be removed from site for re-induction, or a recommendation for permanent barring from site will be made.

As this is an ongoing medical crisis it is likely that control measures to prevent the spread of the virus will be updated by the government on a regular basis. Hence the measures in this section of the safety specification will be reviewed on an ongoing basis, as we receive updated information from the government.

ANNEXURE B – LEGAL APPOINTMENTS

The contractor shall make the following appointments, as required:

Chief Executive Officer (OSH Act 16(1))
Contract Director/Manager (OSH Act 16(2))
Construction Manager (CR 8(1))
Construction Supervisor (CR 8(7))
Assistant Construction Supervisor (CR 8(8))
Construction Safety Officer (CR 8(5))
Traffic Safety Officer
Safety Representative (where > 20 employees on site)
Temporary work Designer (CR 12(1))
Temporary work Supervisor (CR12(2))
Construction risk assessor (CR 9(1))
Excavation Supervisor (CR13(1)(a))
Demolition Supervisor (CR14(1))
Scaffold Supervisor (CR16(1))
Suspended Platform Supervisor (CR17(1))
Material Hoist Inspector (CR19(8)(a))
Material Hoist Operator (CR19(6))
Bulk Mixing Plant Supervisor (CR20(1))
Bulk Mixing Plant Operator (CR20(2))
Controller of Explosive Actuated Fastening Devices Nails, Cartridges or Studs Issue and Collection (CR21(2)(g)(1))
Construction Vehicle and Mobile Plant Operator (CR23(1)(d)(i))
Controller of Temporary Electrical Installations (CR24(c))
Stacking Supervisor (CR28(a))
Fire Extinguishing Equipment Inspector (CR29(h))
Fall Protection Plan Developer (CR 10(1)(a))
Incident Investigator (OSH Act 9(2))
Competent Person – Confined Spaces (GAR 5(1))
COVID 19 – Compliance Officer and COVID 19 – Manager (to address employees concerns and keep them informed re COVID-19)

ANNEXURE C - BASELINE RISK ASSESSMENT FOR PROJECT

IRRESPECTIVE OF THE RISK PRESENTED ON SITE, IT WILL BE ENSURED THAT SUFFICIENT SUPERVISION IS IN PLACE ON SITE, THAT PERSONNEL ARE TRAINED IN ACCORDANCE WITH LEGISLATION, INCLUDING THE REQUIREMENT FOR SITE SPECIFIC INDUCTIONS ON SITE TO INFORM PERSONNEL ON SITE OF THE RISKS AND HAZARDS APPLICABLE TO THE SITE. SITE SUPERVISION IS RESPONSIBLE FOR ENSURING THAT THE CONTROL MEASURES REQUIRED BELOW ARE IMPLEMENTED ON SITE.

	HAZARD	RISK	MINIMUM CONTROL MEASURES
1.	Asbestos Cement Pipes	Release of asbestos fibres	<ul style="list-style-type: none"> • Ensure safe access and egress is provided • Erect physical barriers to prevent entry by unauthorised persons, as applicable • damp down exposed area to contain fibre release • Personnel involved to wear asbestos respiratory protection • Exclusion zone may be required • Only Department of Labour registered asbestos contractors may work with asbestos, and strictly in accordance with the requirements of the Asbestos Regulations.
2.	Bricklaying	Caustic contamination with mortar Contact with sharp bladed tools	<ul style="list-style-type: none"> • Use only trained personnel • Safe means of access to be provided • Safe/Suitable working platform required where working at height • PPE for mortar to include gloves where practicable and goggles/ masks where there is a risk of contamination
3.	Brush cutting	Injury from contact with blade/nylon Fire (where petrol used) Electrocution (where electrical tool used)	<ul style="list-style-type: none"> • Person using brush cutter must be trained and competent • Use personal protective equipment (PPE) such as goggles, safety boots, ear protection, gloves, hard hat • Brush cutter must be in good condition and maintained • Adequate supervision on site at all times. • No smoking when refuelling, fire extinguisher to be on hand (where petrol used as fuel source)
4.	Chainsaw Use	Falling tree or branches causing injury to persons Incorrect use of chainsaw causing injury	<ul style="list-style-type: none"> • Person using chainsaw must be trained and competent • Use personal protective equipment (PPE) such as goggles, safety boots, ear protection, gloves, hard hat, chainsaw trousers and jacket • Chainsaw must be in good condition including guards. • Clear area below area of chainsaw use and where tree felling. • When using chainsaw at height practice safety procedures.

	HAZARD	RISK	MINIMUM CONTROL MEASURES
5.	Compacting and Filling	Contact with tipping materials Contact with moving plant Vehicles/personnel falling into excavations Contact with underground services	<ul style="list-style-type: none"> Trained banksman to control vehicles movement Only trained personnel use plant Personal Protective Equipment to be worn Personnel to stand clear as materials are being tipped Use stop blocks and signs to warn vehicles of excavations, where applicable Stand clear of plant whilst materials are being compacted Establish position of underground services and protect services from damage
6.	Compactor Operations	Crushing of feet	<ul style="list-style-type: none"> Only trained and competent personnel to use the machine Ensure operative wears steel toe cap shoes or boots at all times
7.	Concrete Pumping	Sprains and strains Hit by pump Concrete burns Collapse/bursting of structure	<ul style="list-style-type: none"> Personnel to be in clear vision of pump operator Trained pump operator Personnel working with the concrete to wear the appropriate personal protective equipment to protect against cement burns Design of structure being loaded to be approved by competent designer and inspected before, during and after loading Pump to be well maintained
8.	Confined Spaces	Suffocation Fumes	<ul style="list-style-type: none"> Ensure that confined space is sufficiently ventilated Wear personal protective equipment such as proper masks if air supply insufficient or not of sufficient quality Test oxygen levels in confined space to ensure that is safe for entry Ensure that emergency procedures in place
9.	Cutting Kerbs	Saw slipping, Blade disintegrating, Noise, and Dust	<ul style="list-style-type: none"> Only trained operators to use saw and change blades. Personal Protective Equipment must be worn. Gloves, goggles, dust mask and hearing protection. People to be kept away from the work area. Work to cease if people have to pass. Sparks, etc. to be directed away from people and any flammable material.
10.	Cutting Off Disc	Noise Cuts from machine Fire (particularly at refuelling) Flying debris Blade shattering Contamination by fume created or exhaust fume	<ul style="list-style-type: none"> Use competent personnel. Hot works control- fire extinguisher, fire watchman. (Permit may be required) PPE to include gloves, eye protection, hearing protection Solid working position. Clear working area Correct grade of blade must be used. Good ventilation to be provided (forced if necessary). Changing of wheels to be by competent persons only Cut off discs must not be used for grinding (grinding disc thicker) Bystanders to wear hearing protection, as applicable

	HAZARD	RISK	MINIMUM CONTROL MEASURES
11.	Demolition	Falling materials Premature collapse of structure	<ul style="list-style-type: none"> Ensure there is a current method statement in place Ensure all emergency procedures are in place and all details are displayed Ensure that structural demolition has been approved by the designer and site management Personnel must be competent Ensure at all times there is a safe means of access and egress All personnel must wear suitable and sufficient Personal Protective Equipment, including head, eye and skin protection
12.	Electrical Commissioning	Electric shock	<ul style="list-style-type: none"> Personnel to comply with permits to work issued by Employer Personal protective equipment to be worn by employees to prevent electric shock First aid treatment to be readily available Only competent and trained persons may decommission or commission electrical equipment
13.	Electric Tools and Electrical Installations	Electric shock Fire	<ul style="list-style-type: none"> Electric tools and installations to be in good condition Inspect electric tools before use Do not use electric tools in wet/damp conditions Use personal protective equipment such as insulated gloves Electrical installations register to be maintained, inspected by competent person
14.	Excavations (Working in and around)	Toxic fumes Collapse of trench walls/trapping Falling into excavation Collapse of adjacent structures	<ul style="list-style-type: none"> Deep excavations / monitor air for toxic fumes Prevent collapse by battering back sides to a safe angle or install temporary support Protect vehicles from falling into excavations – provide barriers, signage, etc. as necessary Beware of undermining of other structures (e.g. buildings, scaffolds) Record excavation inspections by competent person on daily basis Provide suitable means of access/egress in case of emergency. Excavations formed by explosives must be accompanied by method statement approved by Employer
15.	Explosive Actuated Fastening Devices	Noise Being struck by cartridge or fixing	<ul style="list-style-type: none"> Operators to be trained, competent and wear appropriate protective equipment, e.g. goggles, gloves, ear defenders, head protection. Cartridge gun to be in good condition, inspected for damage and faults regularly and results entered into register Used and unused cartridges and cartridge gun should be kept in secure place when not in use, maintain register for return and issue.
16.	Explosive use – Can only be identified during construction	Injuries to personnel, passers-by by blast Property damage	<ul style="list-style-type: none"> Blaster must have all relevant permits, permissions, and licences in place before blasting. Method statement must be approved. Maintain exclusion zone around perimeter of blasting, warn persons away, erect warning signage and barriers. Obtain permission from local authority and police. Blaster must be competent in blasting

	HAZARD	RISK	MINIMUM CONTROL MEASURES
			<ul style="list-style-type: none"> Ensure that blasting does not affect stability of adjacent structures/buildings
17.	Fire	Injuries to workers, pedestrians, residents, road users, damage to property through fire	<ul style="list-style-type: none"> No littering on site which could become fire hazard, maintain site in clean condition. No fires to be lit on site. Have a working fire extinguisher at hand at all times. No smoking or naked flame near flammable substances or in unauthorised areas Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices
18.	Flammable Liquids and Gases (Use of)	Fire Explosion	<ul style="list-style-type: none"> No littering on site which could become fire hazard, maintain site in clean condition. Have a working fire extinguisher at hand at all times. No smoking or naked flame near flammable substances or in unauthorised areas Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices Equipment must be in good condition, maintained Personnel using substances must be trained in safe use and risks
19.	Fragile Materials	Persons or items falling through fragile materials	<ul style="list-style-type: none"> All fragile materials to be identified and protected prior to work commencing. Protection to include either covering the fragile materials or excluding activity. Any coverings to be secured in place The location of the fragile materials to be indicated by signage
20.	Hand tools	Injuries caused by use of hand tool Impact with the tool Falls due to access problems Contamination with substance being worked	<ul style="list-style-type: none"> Ensure: <ul style="list-style-type: none"> Tool is correct for job Tool is in good order and suitably sharp Personnel must be competent/instructed in tool usage and tool safely Lighting is sufficient Access is safe, working platform is secure, leading edge is guarded Operative is wearing all necessary PPE
21.	Hazardous Substances	Injuries to workers through use of hazardous substances, e.g. injuries to eyes, skin, etc.	<ul style="list-style-type: none"> Use substances in accordance with data sheet, particularly reference protective clothing required (example: gloves, goggles, etc.) Know what First Aid measures are Have welfare facilities available for washing of hands, etc.
22.	Hot Works	Burns to eyes or other parts of the body	<ul style="list-style-type: none"> Personal Protective Equipment to include eye, skin, and hearing protection Respirator maybe be required where cutting galvanized steel or anywhere else toxic fumes and gases arise. Dust can also be a problem and forced ventilation may be required.
23.	Kerb Laying	Nips at joints Crushing by kerbs Caustic burns	<ul style="list-style-type: none"> Impervious gloves and barrier cream to be used to protect hands. Personnel should be aware of safe manual handling techniques when handling kerbs.

	HAZARD	RISK	MINIMUM CONTROL MEASURES
24.	Lifting Operations	Falling material Crushing by materials Hand injuries to the slinger Toppling crane	<ul style="list-style-type: none"> • Check test certificate • Check examination certificate • Check inspection have been carried out • Check certificates for lifting equipment (chains, slings, shackles, etc.) • Ensure lifting gear is rated to carry load (SWL) • Ensure materials being lifted are properly packaged and slung. • Be aware that there should be a minimum clearance of 600mm between any slewing parts of a crane and any fixed installation to prevent being trapped. • Access to the work area during lifting operations is to be restricted to those involved with and trained in the work in hand. Do not allow members of the public to gain access to the area. • Only trained banksmen to be used. • The crane driver and the banksman are to ensure that the signals given are clearly understood.
25.	Manhole Rings and Pipes Storage	Rolling of rings Collapse of pipes Crushing of persons Stock pile collapse	<ul style="list-style-type: none"> • Manhole rings must be stored flat to prevent them being rolled. • Banks of pipe stock piles are not to be broken until they are ready for use. • Personnel must stand to the side when breaking bands so as not to be hit by falling pipes. • Pipes must be wedged to prevent rolling
26.	Manual Handling of General Items	Muscular skeletal injuries if the load is too heavy or awkward Operative falling/ tripping Contamination from the substance being carried Fall of material being carried	<ul style="list-style-type: none"> • Personnel should be aware of safe manual handling techniques • Personnel to wear Personal Protective Equipment when carrying items, e.g. safety footwear and gloves. • Ensure good housekeeping against tripping/fall hazards. • Operative to get assistance if load too heavy- team lift if necessary. • Utilise mechanical lifting and carrying aids where possible. • Personnel to ensure access equipment, ladders will take weight of operative and load being carried. • Personnel to ensure item being carried is properly bonded or is not be liable to break apart whilst being manually handled.
27.	Material Hoist	Mechanical failure Overloading Hoist gateway being left open at landings	<ul style="list-style-type: none"> • Safe working limit to be indicated on hoist. • Hoist operator to be trained/ competent. • Regular maintenance and inspection of hoist by competent person • Records of maintenance and inspection to be maintained. • Hoist gate should be fitted with mechanical and electrical interlocking devices.
28.	Members of Public – Protection of	Injury to member of public and road users from site works	<ul style="list-style-type: none"> • Barriers and signage to be in place • Workers must warn away any members of public from the works • Footpaths and bridges which are open to public must be closed off if in area of works or otherwise made safe so that no injury occurs to members of public • Traffic turning into site – traffic management and signage as required.

	HAZARD	RISK	MINIMUM CONTROL MEASURES
			<ul style="list-style-type: none"> Signage to be on road at site entrance warning motorists that construction traffic turning into/out of site access. Keep roads free of mud where possible Refer to plant risk assessment for details on plant safety precautions NOTE: SIGNAGE TO BE POSTED ON SITE TO WARN OF CONSTRUCTION TRAFFIC MOVEMENTS. SAFE MEANS OF ACCESS FOR BOTH CONSTRUCTION TRAFFIC TO SITE AND PRIVATE HOMEOWNERS MUST BE AGREED.
29.	Night Work	Security Lighting	<ul style="list-style-type: none"> The Contractor shall not undertake any night work without prior arrangement and a written permit from the Employer. The Contractor shall ensure that adequate lighting is provided for all night work and failure to do so shall result in work being stopped.
30.	Noise and Dust	Breathing in dust can cause long term health problems, noise can damage hearing	<ul style="list-style-type: none"> Wear respiratory and hearing protection Dampen down and minimise dust where possible.
31.	Overhead Services (Working near)	Contact with live services causing injury to personnel Damage caused to services	<ul style="list-style-type: none"> Maintain safe clearance levels Establish presence of any services via proper walk through survey of site and/or means of service drawings Wear personal protective clothing Ensure height of plant/vehicles does not compromise or exceed clearance levels for overhead services Obtain information on clearance levels from service provider
32.	Painting	Contact with paint	<ul style="list-style-type: none"> Refer to safety data sheet for usage instructions, hazards and precautions required. When working at height, refer to risk assessment addressing this hazard below.
33.	Paving (Laying)	Impact injuries from tile / mallet Caustic burns Sore knees Cuts from cutter	<ul style="list-style-type: none"> Impervious gloves to be worn/ barrier cream to be used Kneelers or similar to be available Personal protective equipment to be worn – for example if saw used to cut pavers
34.	Plant or Vehicles and Equipment Operation	Workers injured by passing traffic Road users and pedestrians at risk from plant operation Noise	<ul style="list-style-type: none"> Implement traffic protection measures Trained and competent operators must be used Check plant and vehicles on daily basis before use and record inspections. Maintain vehicles in safe condition. Medical certificates of fitness required for construction plant. Crossing of road by construction vehicles or machines must be limited to the practical minimum Plant and vehicles must be fitted with amber rotating beacons and reverse alarms. Wear appropriate protective clothing/equipment, e.g. goggles, gloves, ear defenders, etc. as appropriate.
35.	Plastering	Falling materials Fall from height Contact with materials	<ul style="list-style-type: none"> Ensure standard safety procedures are followed Ensure there is a safe working area Ensure safe access and egress

	HAZARD	RISK	MINIMUM CONTROL MEASURES
			<ul style="list-style-type: none"> Ensure competent personnel are used
36.	Plumbing	Falling material Falling from height Fire Burns Exposure to lead fumes	<ul style="list-style-type: none"> Ensure standard safety procedures are followed at all times Only used trained and competent personnel Ensure there is a safe working area at all times Ensure materials are stored neatly Ensure there is safe access and egress at all times Ensure all personnel wear suitable and sufficient personal protective equipment Consider a hot works permit system prior to commencing any hot works Make sure emergency procedures are in place and ensure all personnel are aware of where to go in case of a fire
37.	Precast Slab / Unit Laying and Fixing	Falls Falling materials Manual Handling	<ul style="list-style-type: none"> Emergency procedures in place and personnel explained details Use competent personnel Ensure suitable and sufficient access and egress is provided Safe place of work must be provided Ensure all personnel wear correct personal protective equipment Exclusion zone may be required for protection against risk of falling objects
38.	Road Construction	Risk of being struck by vehicles	<ul style="list-style-type: none"> Ensure traffic management measures in place No construction activities to commence until adequate provision made to accommodate traffic in accordance with the South African Traffic Signs Manual. Wear reflective waistcoats when working on or near the road or road shoulder as well as any other required personal protective clothing. Crossing of road by personnel must be limited to the practical minimum Use of fencing or other barriers as appropriate
39.	Road Marking	Contact with moving vehicles Fire	<ul style="list-style-type: none"> Ensure suitable and sufficient road signs are erected, as applicable Possible road or lane closure may be required – traffic management may be required Fire Extinguisher to be situated in a suitable area, use dry powder or foam
40.	Road Working – working in or next to road	Injury to workers caused by passing traffic Injury to road users and pedestrians by works	<ul style="list-style-type: none"> Flagmen to be used where interface with construction plant with passers-by or where hazard posed by delivery vehicles turning into/out of site. Traffic management plan to be approved by Municipality and, if necessary, traffic department No construction activities to commence until adequate provision made to accommodate traffic in accordance with the South African Traffic Signs Manual. Use safety signage to warn traffic and pedestrians of construction works Where existing walk ways/pavements affected by works, must direct pedestrian traffic away to safe walking area. Wear reflective waistcoats when working on or near the road or road shoulder as well as any other required personal protective clothing.

	HAZARD	RISK	MINIMUM CONTROL MEASURES
			<ul style="list-style-type: none"> Crossing of road by personnel must be limited to the practical minimum Use of fencing or other barriers as appropriate
41.	Scaffold Erection/ Dismantling	Personnel falling from a height Items of scaffold falling onto personnel Scaffold collapsing onto those below	<ul style="list-style-type: none"> Ensure scaffold is designed to take the imposed loads scaffolding is constructed properly scaffold is not overloaded scaffolders are fully trained scaffolding is regularly checked by competent person and record of inspection retained. Written inspections to be recorded on weekly basis scaffolders must adhere to the safe systems of work. all fall arrest equipment to be checked and certified in good working order that ALL understand the safe system of work
42.	Shuttering Walls, Beams, Columns	Falling from height Falling materials from height Cuts and abrasions from splinters and nails	<ul style="list-style-type: none"> Ensure all personnel wear the appropriate Personal Protective Equipment Ensure at all times there is a safe working platform Use only trained and competent personnel If electrical tools are being used ensure they have been tested and safe to use Ensure timber is de-nailed after use Ensure safety standards are followed at all times Ensure there is a safe means of access and egress at all times
43.	Site Strip	Overturning Vehicles	<ul style="list-style-type: none"> Follow standard safety procedures Only use trained and competent personnel Ensure there is a suitable and safe means of access and egress Ensure banksman used when required Ensure all personnel wear suitable reflector vests as required
44.	Snakes	Snake bite	<ul style="list-style-type: none"> Qualified first aider required for site who can treat snakebite Snake bite kit to be on hand Check area before working Find out nearest hospital and get emergency telephone numbers.
45.	Steel Erection	Falls from height Falling components Contact injuries from falling lifting equipment	<ul style="list-style-type: none"> Adhere to all general precautions for working at height (See risk assessment below) Barrier off / exclude area below work All lifting appliances to be examined and inspected Inspection register in place and up to date All personnel to be trained and competent and wear clipped on safety harnessed when working at height Ensure that lifting equipment (slings, chains, shackles) test certificates are current and on site. Competent persons only to connect loads and direct plant
46.	Steel Fixing	Back injuries caused by manual handling Eye injuries from tie wire Trips / falls Falling form height	<ul style="list-style-type: none"> PPE must include safety boots and goggles Manual handling training may be required Care to be taken when working near overhead lines Use only trained personnel

	HAZARD	RISK	MINIMUM CONTROL MEASURES
			<ul style="list-style-type: none"> • Provide safe means of access • Maintain and regularly inspect all lifting appliances and equipment • Cap starter bars to prevent injuries where feasible • Construct scaffold walk ways to cross reinforcing mesh, as required
47.	Street Lighting	Contact with vehicles Electrical Shock Collapse of columns	<ul style="list-style-type: none"> • Ensure competent personnel are used • Area to be kept clear – keep unauthorised persons away • Plant and lifting equipment to be maintained as per risk assessments above • Electrical connections to be done by qualified personnel only
48.	Temporary Works – shoring, scaffold, falsework, formwork	Collapse of form work	<ul style="list-style-type: none"> • Wear personal protective equipment such as gloves and goggles • Formwork must be built by trained person and also be inspected by competent person and results entered into register on site
49.	Troxler – use of	Radiation exposure Transportation and storage of nuclear equipment Working in road	<p>Ensure</p> <ul style="list-style-type: none"> • Training of Troxler gauge operators in basic radiation safety and correct operating procedure to satisfactory level of competence • An enclosed vehicle must be used for transport of the gauge • After use and before storing the gauge, a visual check to be carried out to confirm shutter is properly closed • Warning signage to be displayed at entrance to store indicating presence of radioactive material • Wear reflective vests when working in or near the road or road shoulder as well as any other required personal protective clothing.
50.	Underground Services	Striking of buried services	<ul style="list-style-type: none"> • Make all necessary enquiries to establish what services are in the area. Consult drawings and advice from service provider (e.g. Municipality or ESKOM) when planning work. • Assume all service to be live (Unless confirmation is received to confirm that services are isolated or otherwise made safe). Do not work near live services without authorisation from site management. • Comply with the requirements of the safe system of work for underground services. • Where available, locate services with a locator • Hand dig around services
51.	Working at Height	Personnel falling from height Falling debris Those beneath being injured	<ul style="list-style-type: none"> • All access equipment is properly constructed (inspections record must be maintained) • Only trained personnel construct, dismantle or control the access equipment • All access equipment must have full toe boards and guardrails - comply with SANS 10085 on erection, use and dismantling of scaffolding • No access equipment may be loaded above the level of the guardrail • No access equipment to be loaded above its safe working load • Where work involves leaning out on an open leading edge, then all personnel are to be fitted

	HAZARD	RISK	MINIMUM CONTROL MEASURES
			<p>with full body harness. The harness must be connected at all times</p> <ul style="list-style-type: none"> • All fall arrest equipment to be correctly maintained • Ensure if ladders are being used for access, they are either footed or tied. Also, the ladder must be set at the correct level of 1 in 4 or approximately 75°
52.	Work over or next to Water	Drowning	<ul style="list-style-type: none"> • Evaluate depth of water, height above water that work takes place, whether workers can swim or not and then determine safety precautions required: these may include such measures such as barriers, signage, life belts, safety harnesses, etc. • When working on river/harbour/dam edge - erect life saving devices and barriers to protect workers and vehicles (stop blocks may also be required). Only trained and competent persons to be used.
53.	Working with Effluent	Contact with effluent causing sickness or disease	<ul style="list-style-type: none"> • ensure good hygiene facilities • personnel to be competent in work activity • personnel to wear appropriate personal protective equipment such as goggles, overall, gloves and goggles

ANNEXURE D - BASELINE RISK ASSESSMENT FOR PROJECT – COVID-19

IT MUST BE ENSURED THAT SUFFICIENT SUPERVISION IS IN PLACE ON SITE, THAT PERSONNEL ARE TRAINED IN ACCORDANCE WITH LEGISLATION, INCLUDING THE REQUIREMENT FOR SITE SPECIFIC INDUCTIONS ON SITE TO INFORM PERSONNEL ON SITE OF THE COVID 19 RISKS AND HAZARDS APPLICABLE TO THE SITE. SITE SUPERVISION IS RESPONSIBLE FOR ENSURING THAT THE CONTROL MEASURES REQUIRED BELOW ARE IMPLEMENTED ON SITE.

No.	HAZARD	MINIMUM CONTROL MEASURES
1.	COVID-19 - Contracting COVID-19, person to person transmission	<ul style="list-style-type: none"> Do not share tools / equipment, crockery/cutlery/towels/bedding or anything that can facilitate the spread of the virus. Masks have not been proven to definitively protect against every contagion. However, masks prevent a person from unconsciously touching their eyes, nose and mouth, so they may offer a measure of protection. Masks are for single use only, not to be worn two days in a row. Avoid touching your eyes, nose, and mouth and shaking hands with others. Cough or sneeze into a tissue and dispose thereof safely into a bin provided. Wash your hands frequently with soap and running water for no less than 20 seconds. If you have none available use a hand sanitizer with at least 70% alcohol. Apply social distancing principles, stay at least 1.5m away from people/employees were possible. Avoid crowds and gatherings. Clean frequently touched objects/surfaces. The following cleaning products can be used: <p>Hypochlorite (e.g. Household Bleach) Alcohol (70%) Hydrogen Peroxide Phenolic Compounds Quaternary Ammonium Compounds</p>

No.	ACTIVITY	HAZARD	MINIMUM CONTROL MEASURE
2.	Site Preparation	Site might be infected with COVID-19 contagion during lock down	<ul style="list-style-type: none"> Inspect the site to assess conditions. Revise any policies, method statements for risks and hazards identified for review. Decontaminate the site, in affected areas, ensure the availability of hand washing facilities and sanitizers, throughout the site, and at entrances. Ensure sanitising and hand washing facilities are available at ablution areas, common eating areas, offices, canteens, security
3.	Occupational Health	Older workers of 60+, workers with underlying auto-immune or chronic diseases are at increased risk of infection (note that workers may be symptom free but infected with COVID-19)	<ul style="list-style-type: none"> All workers are to be screened and have a valid certificate of fitness on return to work. A full questionnaire to be completed daily before entry on site, and those identified as high risk, or exhibiting flu like symptoms, must be separated and refused entry to site until declared symptom free by a medical practitioner.

No.	ACTIVITY	HAZARD	MINIMUM CONTROL MEASURE
4.	Labour	Underlying auto-immune or chronic diseases, socio-economic status, having to use public transport to get to work	<ul style="list-style-type: none">• A full questionnaire to be completed daily before entry on site, and those identified as high risk, or exhibiting flu like symptoms, must be separated and refused entry to site until declared symptom free by a medical practitioner.• Daily temperature readings to be taken on entry to site; Induction, toolbox talks to be done daily on topics relating to COVID-19, personal hygiene and PPE. Strict enforcement on use of PPE• Public traffic must comply with government guidelines ref wearing of masks and sanitising requirements.

No.	ACTIVITY	HAZARD	MINIMUM CONTROL MEASURE
5.	Transportation (Public and on Site)	Maximum allowed capacity exceeded; No facilities for sanitising vehicles and passengers; No additional protective measures available, e.g. face masks; Unlicensed drivers and operators	<ul style="list-style-type: none"> Selection and provision of transport services compliant with gazetted requirements; Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arrange selective methods of transport, ongoing toolbox talks and supply of cloth masks to be worn when travelling or moving on and off site. Vehicle occupancy maintained at 70% capacity or less; Vehicles sanitised between trips; hand sanitiser provided for passengers.
6.	Social Distancing	Many construction tasks require more than 1 worker that will be required to work within the limit of 1,5m Access/Egress to and off site; Welfare facilities, Meeting areas	<ul style="list-style-type: none"> Demarcation and spacing of queueing areas; segregation of queueing areas and public outside site perimeters; Meeting/eating areas large enough to maintain 1.5m distance at maximum occupancy. Only essential workers to spend time on site, Staggered meeting/eating times, use of Zoom, Skype, Microsoft Teams for meetings where necessary. Individual, segregated facilities for safe keeping.
7.	Waste Management	Spreading of virus and contact with virus causing infection from handwashing, drying hands, cleaning equipment, disposal of contaminated waste and other related aspects	<ul style="list-style-type: none"> Establish and follow protocols for disposal of potentially infected waste (receptacles). Awareness through notices (posters) regarding correct procedures of waste disposal. Competent supervision and adequate awareness training required. Provide adequate supplies of material and consumables, provision of sealable disposal containers/bags through appropriate waste removal company. Provide adequate supply of paper towels. If contractors used ensure appropriate management.
8.	Signage	Unauthorised entry to site and work areas compromising workers health (contamination). Acts and behaviour that compromises worker	<ul style="list-style-type: none"> Installation of posters and signage with the site rules and protocols that need to be maintained at strategic points. Competent supervision and adequate awareness training required. Disciplinary steps to be taken against transgressors.
9.	Welfare Facilities	Spreading of virus and contact with virus causing infection	<ul style="list-style-type: none"> Limiting of personnel on site to minimum number required to maintain control and management. Implement and maintain cleaning and disinfecting programme. Site rules for social distancing to 1.5m. Use technology to avoid proximity between individuals where possible
10.	Use of Personal Protective Equipment	Risk of spread of droplet infection through coughing, sneezing when in close contact	<ul style="list-style-type: none"> No employee/ visitor will be allowed on site without a cloth mask. Adequate training must be provided in the correct use and disposal of these masks. Cloth masks must be washed and ironed. Where possible face shields should be used to protect mouth, nose and eyes. Regular cleaning of face shields required. No sharing of PPE will be permitted. Adequate supervision required. COVID PPE does not replace conventional PPE.

No.	ACTIVITY	HAZARD	MINIMUM CONTROL MEASURE
		with other people	

ANNEXURE E - COVID-19 SITE SAFETY SIGNAGE



ANNEXURE F – GUIDELINES TO HEALTH AND SAFETY BILL OF QUANTITIES

DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
				R	C
Preparation of principal contractor's site specific health and safety plan, safety file, risk assessments, fall prevention/protection plan, Annexure 2 notification to Dept of Labour, demolition method statement, other method statements requested to be prepared for safety reasons, permits, amendments to safety plan during course of project, traffic management / accommodation plans, and any other legally required health and safety documentation	Lump sum	Lump sum			
Provision of safety documentation required of the principal contractor for Construction Work Permit application by the safety agent of Dept of Labour, if applicable (note section 2.4 of this safety specification document)	Lump sum	Lump sum			
Provision of current workman's compensation cover for employees for the project, and ensuring that contractors appointed have such cover too	Lump sum	Lump sum			
Health and safety management of principal contractor's employees, visitors and contractors' employees on site.	Lump sum	Lump sum			
Provision of full time Construction Manager for site, provision of Alternate Construction Manager in absence of Construction Manager and provision of sufficient safety supervision on site	Lump sum	Lump sum			
Provision of full time SACPCMP registered Construction Health & Safety Officer for site (refer to safety specification for full time / part time requirement) and preparation of safety reports after each safety inspection	Lump sum	Lump sum			
Competence assessment, appointment and required competence and safety training of all principal contractor's legally required appointments for site	Lump sum	Lump sum			
Maintenance of principal contractor's plant and equipment on site so as to be in safe condition, including inspection registers, inspections by competent persons, thorough examination certificates, hand over certificates and related documentation	Lump sum	monthly			
Provision of general safety signage (e.g. first aid, firefighting, traffic safety, excavations, PPE, Assembly Point, noise zones, etc.)	Lump sum	monthly			

DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
				R	C
Provision of medical certificates of fitness for employees on site (Annexure 3)	Lump sum	Lump sum			
Provision of personal protective equipment (PPE) by principal contractor to employees and, as applicable, visitors to site, incl. <ul style="list-style-type: none"> • reflective vests • hard hats • protective foot wear • hearing protection • respiratory protection • safety eyewear • gloves • overalls • Safety harnesses and lanyards • Sunblock • UV Protective clothing / hats / eye wear • Protective thermal wear (heat / wind / cold / rain) • Protective firefighting clothing • Arc flash and electrical protective clothing 	Lump sum	Lump sum			
Provision of Fall Prevention and Protection Equipment including. <ul style="list-style-type: none"> • Rope • Lifelines & Self-Retracting Lifelines (SRL) • Anchor Points • Warning Lines & Area demarcation • Fall Arrest Accessories • Fall Rescue Equipment • Passive Fall Protection Equipment • Confined Space Rescue and Retrieval (In elevated work situations) • Etc. 	Lump sum	Lump sum			
Provision of Confined Space work equipment & Training <ul style="list-style-type: none"> • Training • Air Monitoring Equipment • Ventilation Equipment • Entry Equipment • Personal Protective Equipment • Confined Space Rescue and Retrieval Equipment • Communication Equipment • Etc. 	Lump sum	Lump sum			
Holding of safety meetings with safety representatives and safety officers on site on at least monthly basis	Lump sum	monthly			

DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
				R	C
Principal contractor construction safety management attendance at health and safety meetings called by Employer, professional team or safety agent	Lump sum	monthly			
Provision of site specific health and safety induction training for all on site	Lump sum	Lump sum			
Conducting of toolbox talks to employees on health and safety issues on a weekly basis	Lump sum	Lump sum			
Provision of sufficient First Aiders for site as per legal requirements	Lump sum	Lump sum			
Provision of First Aid Boxes for site as per legal requirements	Lump sum	Lump sum			
Provision of sufficient fire extinguishing equipment for site	Lump sum	Lump sum			
Fire drills on site at least 6 monthly basis for duration of project	Lump sum	Lump sum			
Provision of welfare facilities for site (drinking water, toilets, soap, means of drying hands, toilets paper, sheltered eating areas, etc.)	Lump sum	Lump sum			
Provision for safe disposal of waste, spill kits, safe housekeeping and storage practices	Lump sum	Lump sum			
Provision of leading edge protection, covers to prevent falls	Lump sum	Lump sum			
Provision of fencing at site camp and to protect excavations	Lump sum	Lump sum			
COVID 19 measures – provision of hand sanitiser, respiratory protection (as required), safety signage, formal and informal communication to all on site and any other measures necessary to contain and detect COVID 19 on site (refer to safety specification)	Lump sum	Lump sum			
Compilation of consolidated Safety File at Close Out stage and handover of file to safety agent in hard copy or digital format	Lump sum	Lump sum			
Supply of safety caps on all exposed re-bar	Lump sum	Lump sum			
Any other compliance item in site specific safety specification issued by project Employer/ safety agent with potential cost implication	Lump sum	Lump sum			
• Item 1					
• Item 2					
• Item 3					
• Item 4					
• Item 5					
Principal contractor's general compliance with respect to the Occupational Health and Safety Act, Construction and other health and safety Regulations apart from other provisions in this bill.	Lump sum	Lump sum			
SUMMARY TOTAL OHS COST PROVISION					

**ANNEXURE G – SAFETY SPECIFICATION AND BASELINE RISK ASSESSMENT
ISSUE REGISTER**

Date of Original Safety Specification Compilation	Compiled By	Issue Date
23 June 2021	Safe Working Practice	24 June 2021

Revision Summary	Revised By	Revision Date

Acknowledgement:

I, _____ representing
_____(Contractor), have satisfied myself with the
content of this Health and Safety Specification and shall ensure that our employees and contractors on site comply with
the requirements of this document, our safety documentation and health and safety legislation.

Signature of Contractor Date

Comments:

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Annex C3.6.6 Construction Environmental Management Plan

The aim of this section is to outline Employer's requirements with regards to management of the environment in and around the construction site.

i. General Requirements

The minimum environmental requirements required environmental compliance on any construction site include:

- a) Spillage clean up kits
- b) Driptrays for vehicles
- c) Waste disposal at a registered waste site
- d) Separation of waste
- e) Signage for no go areas
- f) Silt fencing
- g) Silt sock fitted to trench pump
- h) Dust suppression on dust road (twice daily)

ii. Environment File (EA Projects):

A separate Environment file will be required for evaluation of compliance to the conditions of any environmental authorisations. The file must be referenced as per the conditions of the authorisation or EMP / EMPr.

The appointed ECO will review the environmental file simultaneously while the safety file is being evaluated.

This file will be reviewed and approved by the ECO before work commences on site.

Refer to Project Environmental Management Plan (EMP) /and Generic EMP, Environment Authorisations where applicable.

The following is list of documentation that may be held on site and must be made available to the ECO and/or Approving Authority on request:

- Site daily diary /instruction book/ Incident reports;
- Daily toolbox talks;
- Copies of ECO reports (management and monitoring);
- Environmental Management Plan (EMP);
- All environmental authorisations and licences;
- Environmental appointments of Person(s);
- Complaints register;
- Method statements; and
- Rehabilitation Plan

Note : A separate Environment File will be required for the evaluation of compliance as per the conditons of the environment authorisations. This file will be reviewed and approved by the ECO.

The following criteria needs to be complied by any Contractor before performing work:

iii. Spillage of Hazardous Chemical Substances

A register of Hazardous Chemical Substances and Material Safety Data Sheets should be kept on site.

Herbicide usage

Herbicide register for usage to be compiled and maintained, and a copy handed to the Project Manager / environmental advisor on completion of the project / contract. The application of herbicides to be in accordance with the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947. Only approved and tested herbicides with a low environmental risk shall be used.

Only registered pest control operators may apply herbicides on a commercial basis. All staff applying herbicides must be trained in the application of herbicides.

Fire hazard

The Contractor shall ensure that staff are educated in fire prevention and will be held responsible to avoid the risk of fire. No area is to be denuded of vegetation to create firebreaks, to prevent or make fires. No open fires are allowed on site. The contractor must ensure that operations are in compliance with statutory requirements at all times.

iv. Waste

- A wasteplan is to be compiled before commencing of work.
- A register of hazardous and non-hazardous waste to be kept on-site.
- All waste to be disposed of at a registered waste site and records kept. The contractor should identify this site prior to commencement for all waste streams.
- No waste, whether it be biodegradable or not, is to be left on site once work has ended.
- Domestic and hazardous waste generated will not be burned, buried, or disposed of on Employer or other Landowners' property but will be controlled and removed to a registered waste site on a regular basis (Daily/Weekly/Monthly).
- The contractor and sub-contractor working on site must ensure that oil, fuel, and chemicals are confined to specific and secure areas throughout the construction period.
- These materials must be stored in a bunded area with adequate containment for potential spills and leaks.
- Contractors must ensure that sufficient waste bins / containers are made available for waste control.

v. Material requirement

The use of any material or property belonging to a specific Landowner will not be undertaken prior to arrangements with the applicable Landowner. Written proof of such agreement to be handed to Project Manager for record keeping

vi. Dust and Noise

The Contractor shall monitor dust and noise caused by mobile equipment, generators and other equipment during construction. Factors such as wind can often affect the intensity to which these impacts are experienced.

To ensure that noise does not constitute a disturbance during construction activities, all construction works shall occur between specific working hours. This must be stipulated in the contract.

Mitigation measures to be implemented as required / agreed upon with the Project Manager/ Project Environmental Control Officer/Advisor.

Dust suppression measures must be in place to reduce the dust caused by the movement of heavy vehicles. All dust road in use should be watered a minimum of twice a day.

vii. Environmental Incidents

All environmental incidents such as pollution (air, water, land, noise, etc.), bird kills, animals killed, plants destroyed, public complaints etc. must be reported to Employer's Project Manager and SAM SHEQ Officer. Where applicable, RW Project Manager or SAM SHEQ Officer will inform the Environmental Control Officer/Advisor within 24 hours of its occurrence for further further assistance on the investigation and reporting to Government Authorities.

All environmental incidents occurring on site must be recorded, detailing how each incident was dealt with. Proof thereof must be kept in an incident register.

The Contractor will be held liable for any infringement of statutory requirements of the National Environmental Management Act of 1998 or any other relevant legislation.

viii. Water

No construction is allowed in regulated areas without authorisation. These are the areas within the 1:100 year floodlines. 500m from a wetland, or in any situation where shallow water tables exist. In the event that it become evident that any of these conditions exist appropriate advice must be obtained on the matter.

Should any pollution of the watercourse occur, the Department of Water Affairs (DWA) must be notified immediately via the ECO/Corporate Environmental Advisor.

Water usage on site to be verified with the Employers's Representative to ensure compliance with legislation. Bore hole water must be verified for human consumption fitness. All incidents related to water contamination to be reported within 24 hours.

Chemical toilets :

- May not be within close proximity of the drainage lines / ways,

- To be closed systems and not soak away french drains types.
- Adequate cleaning services must be provided for maintaining the toilets.
- All spillages from toilets to be cleaned up immediately.

ix. Handling of Stockpiles and Cultural and Heritage Resource Artefacts

Mitigation Measure	Management Objectives	Measurable Targets
Stockpiles		
<ul style="list-style-type: none"> • All stockpiled material must be easily accessible without any environmental damage. • All temporarily stockpiled material must be stockpiled in such a way that the spread of materials are minimised. • No stockpiles should be placed within the 1:100 flood lines. • The contractor must avoid vegetated areas that will not be cleared. • Storm water runoff from the stockpile sites and other related areas must be directed into the storm water system with the necessary pollution prevention measures such as silt traps and may not run freely into the immediate and surrounding environments. • Stockpiles are to be stabilized if signs of erosion are visible. • Soils from different horizons must be stock piled such that topsoil stockpiles do not get contaminated by sub-soil material. • Topsoil stockpiles must be monitored for invasive exotic vegetation growth. Contractors must remediate as and when required in consultation with the ER and ECO. • No plant, workforce or any construction related activities may be allowed onto the topsoil stockpiles. • Topsoil stockpiles must be clearly demarcated as no-go areas. • Top soil piles must not be higher than 1.5m to avoid compaction thereby maintaining the soil integrity and chemical composition. 	<ul style="list-style-type: none"> • Minimise scaring of the soil surface and land features • Minimise disturbance and loss of soil • Minimise construction footprint • Minimise sedimentation of nearby drainage lines • Maintain the integrity of topsoil's for landscaping and rehabilitation • Containment of invasive plant growth • Minimise contamination of storm water run-off 	<ul style="list-style-type: none"> • No visible erosion scars once construction is completed • The footprint has not exceeded the agreed site. • Minimal invasive weed growth • No signs of sedimentation and erosion
Cultural and Heritage Resources Artefacts		
<ul style="list-style-type: none"> • Local museums and the South African Heritage Resources Agency (SAHRA) should be informed if any artefacts are discovered in an affected area. • Employees should be aware of procedures to follow in such circumstances. • Any discovered artefacts should not be removed and the ECO should be informed so that necessary action can be taken. 	<ul style="list-style-type: none"> • Proper training to employees on how to deal with artefacts discoveries 	<ul style="list-style-type: none"> • Monthly

x. Signing-off of the contract

No project should be signed off before Site Risk Control/SAMSHEQ/ECO has given assurance that no environmental liabilities exist. The Responsible Person, Project Manager, SAM/Site Risk or Environmental Advisor shall carry out a physical inspection before acceptance of work done.

No invoice to be processed before work is accepted.

The Contractor shall be conversant and in the course of carrying out the Works the Contractor shall comply with the provisions of all Acts, regulations, ordinances, by-laws, Standards, Codes, Rules and requirements of public, municipal and other authorities.

The Project Team may at any time without notice to the Contractor examine and investigate the Contractors' compliance with all Applicable Legislation and the environmental management conditions.

At all times during the execution of the Works, the Contractor shall preserve and protect the natural environment in the general area of the site and the external areas that may be affected by his operations.

Environmental protection shall include, but not be limited to, the following issues: Noise pollution, gaseous emissions, noxious and/or offensive odours, liquid waste collection and solid waste separation and collection.

In the event of any perceived conflict between the "environmental laws" and the Contract documents, the Contractor shall, prior to commencing the Work, refer such conflict to the Project Management Team for clarification.

Without limiting the Contractors' responsibilities under the Applicable Legislation, the Work shall be conducted in such a manner as to ensure that:

- No substance, which can harm or is likely to harm the environment, is to be allowed to leak, spill or escape from any container or storage area.
- No oil or other effluent is permitted to escape into the drainage system and/or local storm water system.
- No oil or other effluent is permitted to escape into the ground and cause soil contamination.
- All powdered pollutants generated during execution of the Work are contained to prevent air pollution.
- No sediment generated is permitted to escape into the drainage system and/or local storm water system.
- No harmful solids or liquids are permitted to spill from containers whilst in transit on the premises.
- All oil-based waste material shall be kept segregated and placed in sealed 200 litre drums. This material shall be disposed of through a recognised oil recycling company.
- All water-based waste material shall be kept apart. Small amounts shall be collected and stored in 200 litre containers. Large amounts shall be pumped into a bulk tanker for disposal. Prior to disposal, all water-based material shall be sampled to allow analyses to be carried out.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

Annex C3.6.7 Drawings and Photographs

1. Reduced Drawings Bound into this Document

<u>Drawing Number</u>	<u>Description</u>
J40073-2210/00-01-01/D1	General Structural Notes
J40073-2210/00-01-02/D1	General Structural Notes
J40073-3010/01-00-01/D1	Sewer Gravity Pipeline Key Plan
J40073-3010/01-01-01/D1	Sewer Gravity Pipeline Layout & Longitudinal Section (CH00–CH609.541)
J40073-3010/01-01-02/D1	Sewer Gravity Pipeline Layout & Longitudinal Section (CH609.541–CH1205.337)
J40073-3010/01-01-03/D1	Sewer Gravity Pipeline Layout & Longitudinal Section (CH1205.337–CH1327.892)
J40073-3010/01-02-01/D1	Sewer Gravity Pipeline Manhole Details – Sheet 1
J40073-3010/01-02-02/D1	Sewer Gravity Pipeline Manhole Details – Sheet 2
J40073-3010/01-02-03/D1	Sewer Gravity Pipeline Manhole Details – Sheet 3
J40073-3010/01-03-01/D1	Stilling Box Chamber

NOTE:

Originals of reduced drawings are available for inspection at the offices of the Employer's Agent, or copies may be purchased by arrangement with the Employer's Agent. No claims for misunderstanding reduced drawings will be considered.

Part C4: Site Information

	<u>Page</u>
C4.1 Geotechnical Investigation	334
C4.2 Other Reports	335

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

C4.1. Geotechnical Investigation

Please refer to documents named:

- *Sedibeng Regional Sanitation Scheme, Stage 2 – Leeuwkuil WwTW Geotechnical Investigation Report* dated September 2018, Version 1, Reference J35047-G12-S2-01
- *Sedibeng Regional Sanitation Scheme, The Proposed Leeuwkuil Gravity Main – Reconnaissance Dolomite Stability Investigation Report* dated September 2018, Version 0, Reference J35047-G12-S2-02

These documents are available on request.

DEPARTMENT OF WATER AND SANITATION

CONTRACT NO: DWS18-1120 WTE (WQ-1266GP)

SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY
MAIN TO PUMP STATION 2

C4.2. Other Reports

Not Applicable.

DOCUMENT CONTROL SHEET

(FORM IP180/B)

EMPLOYER : DEPARTMENT OF WATER AND SANITATION

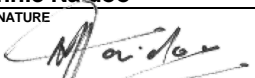
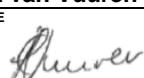

PROJECT NAME : SEDIBENG REGIONAL SANITATION SCHEME PROJECT No.: J40073

TITLE OF DOCUMENT : SEDIBENG REGIONAL SANITATION SCHEME: CONSTRUCTION OF A 1,3 KM LONG 710MM DIAMETER GRAVITY MAIN TO PUMP STATION 2

ELECTRONIC LOCATION : <https://gibbcoza.sharepoint.com/sites/SRSS2020-2021/Shared Documents/General/Project Management Tasks/GM to PS2 tender/20220520 Tender Docs Rev2.docx>

Approved By		Reviewed By		Prepared By	
ORIGINAL	NAME Vinnie Naidoo	NAME Dave Clark	NAME Lize Smit		
DATE 11 June 2021	SIGNATURE	SIGNATURE	SIGNATURE		

Approved By		Reviewed By		Prepared By	
REVISION 1	NAME Vinnie Naidoo	NAME Dave Clark	NAME Hendrick Smit		
DATE 08 September 2021	SIGNATURE	SIGNATURE	SIGNATURE		

Approved By		Reviewed By		Prepared By	
REVISION 2	NAME Vinnie Naidoo	NAME Louiza van Vuuren	NAME Hendrick Smit		
DATE 20 May 2022	SIGNATURE 	SIGNATURE 	SIGNATURE 		

This report, and information or advice, which it contains, is provided by GIBB (or any of its related entities) solely for internal use and reliance by its Employer in performance of GIBB duties and liabilities under its contract with the Employer. Any advice, opinions, or recommendations within this report should be read and relied upon only in the context of the report as a whole. The advice and opinions in this report are based upon the information made available to GIBB at the date of this report and on current SA standards, codes, technology and construction practices as at the date of this report. Following final delivery of this report to the Employer, GIBB will have no further obligations or duty to advise the Employer on any matters, including development affecting the information or advice provided in this report. This report has been prepared by GIBB in their professional capacity as Consulting Engineers. The contents of the report do not, in any way, purport to include any manner of legal advice or opinion. This report is prepared in accordance with the terms and conditions of the GIBB contract with the Employer. Regard should be had to those terms and conditions when considering and/or placing any reliance on this report. Should the Employer wish to release this report to a Third Party for that party's reliance, GIBB may, at its discretion, agree to such release provided that:

- GIBB written agreement is obtained prior to such release, and
- By release of the report to the Third Party, that Third Party does not acquire any rights, contractual or otherwise, whatsoever against GIBB and GIBB, accordingly, assume no duties, liabilities or obligations to that Third Party, and
- GIBB accepts no responsibility for any loss or damage incurred by the Employer or for any conflict of GIBB interests arising out of the Employer's release of this report to the Third Party.

GIBB (Pty) Ltd

Website : www.gibb.co.za

Postal Address : P. O. Box 2700, Rivonia, 2128

Physical Address : Johannesburg,
3rd Floor, Building 4,
19 Ninth Street, Houghton Estate,
Rosebank, 2196

Contact Person : Mr V Naidoo

Email Address : vnaidoo@gibb.co.za

Telephone No. : 011 519 4746

Fax No. : N/A