KOPANONG LOCAL MUNICIPALITY

TENDER DOCUMENT

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

CLOSING DATE: 03 MAY 2024 TIME: 12H00

TECHNICAL ENQUIRIES	BIDDING ENQUIRIES
KOPANONG LOCAL MUNICIPALITY PRIVATE BAG X23 20 LOUW STREET TROMPSBURG 9913 TEL: 071 858 1807 EMAIL: tsepo.kopanongLM@gmail.com CONTACT PERSON: Mr T Selepe	KOPANONG LOCAL MUNICIPALITY PRIVATE BAG X23 20 LOUW STREET TROMPSBURG 9913 TEL : 078 940 7196 EMAIL: Fongo4673@gmail.com CONTACT PERSON: MR M Matee

NAME OF BIDDER (BIDDING ENTITY) : .....

CONTACT NUMBER : .....

CSD NUMBER : .....

CRS NUMBER : .....

THE OFFERED TOTAL OF THE PRICES INCLUDING ALL APPLICABLE TAXES LESS ALL UNCONDITIONAL DISCOUNTS:

R……..…….....……..…….. (In figures)

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LIST OF PROJECT DOCUMENTS

The following documents are relevant to this Bid and Bidders are advised to obtain their own copies thereof:

1) "General Conditions of Contract for Construction Works, Third Edition 2015 (GCC 2015) issued by the South African Institution of Civil Engineering. (Short title "General Conditions of Contract 2015").
2) "Standardized Specifications for Civil Engineering Construction" SANS 1200.
3) The Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the Construction Regulations 2003 (Government Gazette No 25207 of 18 July 2003, Notice No R1010).
4) In addition, Bidders are advised, in their own interest, to obtain their own copies of the following acts, regulations and standards referred to in this document as they are essential for the Bidder to get acquainted with the basics of construction management, the implementation of preferential construction procurement policies and participation of targeted enterprise and labour.
   a) The Construction Industry Development Board Act No 38 of 2000 and the Regulations in terms of the CIDB Act 38/2000, Government Gazette Notice No 33239 of 28 May 2010,
   b) SANS 1921:2004 Construction and Management
      Part 1 : General Engineering and Construction Works;
      Part 2 : Accommodation of Traffic on Public Roads occupied by the Contractor.
      Part 3 : Structural Steelwork.
      Part 5 : Earthworks Activities which are to be performed by hand.
   c) Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000) and its Regulations as published in the Government Gazette No. 34350 of 8 June 2011 and the preferential Procurement Regulation 2022

The Project Document, containing the Bid Notice, Conditions of Tender, Bid Data, Returnable Schedules, General and Particular Conditions of Contract, Project Specifications, Pricing Schedule, Form of Offer and Site Information, is issued by the Employer. The Employer's Form of Acceptance

and any correspondence from the selected Bidder, Performance Security and all Addenda issued during the period of bid will also form part of this document once a successful bidder has been appointed.

1) and 2) are available from the following organisations (as applicable) :

- **CESA, PO Box 68482, Bryanston, 2021. Tel : (011) 463 2022 Fax : (011) 463 7383, Email : general@cesa.co.za**
- **SAICE, Private Bag X200, Halfway House, 1685. Tel : 011 805 5947/8, Email : civilinfo@saice.org.za**
- **South African Bureau of Standards**

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CONTENTS

DESCRIPTION			COLOUR
C3.2	Engineering		Blue
C3.3	Procurement		Blue
C3.4	Construction		Blue
C3.5	Particular Variations and Specifications and Additions to Standard Specifications		Blue
C3.6	Health and Safety Specifications		Blue
Part C4: Site Information			Green
C4.1	Site Information		Green
Part C5: Tender Drawings			White
C5.1	Tender Drawings		White
Appendices			
Appendix A	Issued	- Network Refurbishment	White
Appendix B	Issued	- Building specification	White
Appendix C	Issued on Request	- Guidelines for the implementation of Labour Intensive Infrastructure Projects Under the Expanded Public Works Programme (EPWP)	White

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THE INFORMATION INCLUDED ON THIS SUMMARY PAGE IS FOR TENDER OPENING PURPOSES ONLY. IN RESPECT OF THE TENDER PRICE, THE FORM OF OFFER WILL GOVERN.

TENDER SUMMARY PAGE

NAME OF BIDDER ……

DETAILS OF CONTACT PERSON

NAME ……
TELEPHONE NUMBER ……
FAX NUMBER ……
E-MAIL ADDRESS ……
ADDRESS OF BIDDER ……
……
VAT REGISTRATION NO. ……
CSD NUMBER ……
CSR NUMBER ……

DESCRIPTION	FIGURES
TENDER AMOUNT (INCL. VAT)	R .....
CONSTRUCTION PERIODS OFFERED	..... (WEEKS)

PREFERENCE POINTS CLAIMED ..... **(Max. 20)**
DATE OF TENDERING ……
BIDDER'S SIGNATURE ……
(Person authorised to sign the Bid)

RETURNABLE DOCUMENT CHECKLIST

Bidder to complete this checklist to ensure that all information in the Tender Document is completed, included and read by the Bidder.

DESCRIPTION	OUTCOME IF NOT COMPLIED WITH	COMPLETED / INCLUDED / READ
All pages requiring signatures signed by the Bidder (Authorized Person)	Non-responsive, bid eliminated	☐
Correct Bid Offer Amount on BOQ's carried forward to Bid Summary (Pages iv), Form of Offer and Acceptance (Pages 80 - 83) and Contract Forms for Rendering of Services (Pages 84 - 86)	Non-responsive, bid eliminated	☐
RETURNABLE SCHEDULES (SECTION T2.2)		
Tender Briefing / Site Inspection Certificate Attendance Certificate – Part T2 **Schedule A**	No contract shall be awarded upon failure to provide the required information	☐
Compulsory Enterprise Questionnaire – Part T2 **Schedule B**	No contract shall be awarded upon failure to provide the required information	☐
Certificate of Authority for Signatory – Part T2 **Schedule C**	Non-responsive, bid eliminated	☐
Record of Addenda to Tender Document – Part T2 **Schedule H**	Non-responsive, bid eliminated	☐
Schedule of Amendments, Qualifications and Alterations – Part T2 **Schedule I**	Non-responsive, bid eliminated	☐
Preference Claim Form – Part T2 **Schedule M**	Bidder not bidding for PPPFA points	☐
Declaration of Interest – Part T2 **Schedule L**	No contract shall be awarded upon failure to provide the required information	☐
Declaration of Good Standing Regarding Tax – Part T2 **Schedule E**	No contract shall be awarded upon failure to provide the required information	☐
Registration Certificates / Agreements / Identity Documents – Part T2 **Schedule D**	No contract shall be awarded upon failure to provide the required information	☐
Letter of Good Standing for Compensation for Occupational Injuries and Deceases Act 130 of 1993 (Amended) As Issued by the Department of Labour – Part T2 **Schedule K**	Non-responsive, bid eliminated	☐
Property Rates Clearance – Part T2 **Schedule F**	No contract shall be awarded upon failure to provide the required information	☐
Compliance with OHSA (Act 85 of 1993) – Part T2 **Schedule J**	Regarded as a Bidder with limited ability and available resources to comply with the OHSA act	☐
Declaration of Bidder's Past Supply Chain Management Practices – Part T2 **Schedule N**	No contract shall be awarded upon failure to provide the required information	☐
Certificate of Independent Bid Determination – Part T2 **Schedule O**	No contract shall be awarded upon failure to provide the required information	☐
Agreement in Terms of Occupational Health & Safety Act - Part C1 Section C1.3 (Pages 88 - 90)	No contract shall be awarded upon failure to provide the required information	☐
Data provided by Contractor - Section C1.2 Part 2	Non-responsive, bid eliminated	☐
PRICING DATA (SECTONS C2.1 – C2.3)		
Schedule of Quantities (All items in black ink) - Section C2.2	Refer to pricing Instructions	☐

REASON FOR NON-COMPLIANCE

CONTACT DETAILS

Office Phone No. _____

Office Fax No. _____

Cell Phone No. _____

SIGNED ON BEHALF OF BIDDER	**DATE**

KOPANONG LOCAL MUNICIPALITY

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THE TENDER

DESCRIPTION		COLOUR
Part T1 – Bidding Procedures		**White**
Section T1.1	Tender Notice and Invitation to Tender	White
Section T1.2	Tender Data	Pink
Section T1.3	Standard Conditions of Tender	Pink
Part T2: Returnable Documents		**Yellow**
Section T2.1	List of returnable documents	Yellow
Section T2.2	Returnable schedules	Yellow

Address all correspondence to:
The Municipal Manager
Kopanong Local Municipality
Private Bag X23
TROMPSBURG
9913
E-Mail:klipjan69@gmail.com

Tel:

ADVERTISEMENT

An advertisement is hereby placed in terms of section 18 (b) of the Supply Chain Management Policy of Kopanong Local Municipality to invite (i) suitably qualified, professional and experienced supplier to submit a bid.

Bid Number	Description	Evaluation Criteria	CIDB Grading	Price	Compulsory Briefing	Contact Person	Closing date and Time
KLM/GAR/MWWTW/24/25	GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION	Stage1: Responsiveness Stage 2: Functionality Stage 3: Preference Points 80 – Price 20 – Specific goals Stage 4: Risk Analysis Functionality and specific goals details in the bid document	3ME/1GB Or Higher	R 750.00	Friday, 24 April 2024 @ 10h00 at the Municipal Town hall, Gariep Dam (Briefing certificates will be issued and must be attached with submission of bid document)	Technical Service Enquiry: Mr T Selepe 071 858 1807 tsepo.kopanongLM@gmail.com And Supply Chain Management Enquiries: Mr M Matee 078 940 7196 Fongo4673@gmail.com	Friday, 3rd May 2024 at 12H00 at 20 Louw Street Trompsburg, Municipal Offices

Bids documents are available for free download on e-tender portal www.etenders.gov.za. Alternative bids documents will be available from **26 April 2024** upon payment of a non-refundable document fee during office hours between 08:00 - 12:50 and 13:40 – 16:20 weekdays from the Kopanong Local Municipality procurement office at the head office in Trompsburg.

Payments can be made at the municipal pay point: Trompsburg Unit. Alternative direct or electronic deposits can be made to Kopanong Local Municipality bank account: **First National Bank; Account Number: 62021950276; Branch Code: 230932; Type of Account: Public Sector Cheque Account; Reference: Bid Number**

Minimum Requirements:

- Bidders must be registered on the government Central Supplier Database (CSD) – Submit CSD report

- Valid Tax Compliance Status PIN (TCS) must be submitted. In the case of a JV valid Tax Compliance Status PIN (TCS) of all parties must be attached
- Certified copy of company registration certificate reflecting name, identity numbers of active shareholding of all parties and ID Copies of parties must be attached
- In the case of a JV certified copies of Company Registration Certificates reflecting names, identity numbers of active shareholding of all parties, ID copies of all parties and JV Agreement must be attached
- Municipal Rates & Taxes account not older than 90 days and not in arears for more than 90 days MUST be attached or Lease agreement (must be accompanied by a statement/account from the lessor) for the company and all directors.
- In the case of a JV municipal rates and taxes certificates not older than 90 days and not in arears for more than 90 days or lease agreement showing who is liable for municipal rates between the lessor or lessee (if the lessee is municipal rates and taxes certificates not older than 90 days and not in arears for more than 90 days) of all parties/partners/companies and all directors must be attached.
- Valid relevant COIDA Certificate/ Workman compensation/letter of good standing must be attached, for all parties.
- Valid CIDB certificate of all parties must be attached
- No bids will be accepted from a person who is in the service of state
- The bid with the lowest price or higher points will not necessarily be accepted and the Municipality reserves the right to accept any tender wholly or partially.
- All supplementary/compulsory forms contained in the bid document must be completed and signed in full
- All submission will be subjected to verification
- Bids received after closing TIME and/or DATE will not be considered
- No e-mailed or faxed tenders will be accepted
- Other requirements are listed in the tender documents.
- Failure to comply with the above-mentioned conditions will invalidate your bid

Bids are to be completed in accordance with the conditions and rules contained in the bid document. Bidders' attention is specifically drawn to the provision of the bid rules and evaluation criteria (Including functionality) which are included in the bid document. Compulsory documents are stated in the document must be submitted together with the bid document.

Municipal Supply Chain Management Policy and Preferential Procurement Framework Act no 5 of 2000 and Preferential Procurement Regulations of 2022 will be applied (A tenderer failing to submit proof of required evidence to claim preferences for specified goals, which is in line with section 2 (1) (d) (ii) of the Act. Will forfeit points). In the case where the bid valid period is not indicated in the bid document the bid validity period shall be 120 days form the closing date of the bid. The municipality will only communicate the outcome of the bid with the successful bidder.

Tender documents clearly marked **correct bid reference** must be deposited in the tender box at the Kopanong Local Municipality in Trompsburg and must be addressed to: The Municipal Manager, Kopanong Local Municipality, 20 Louw Street, Trompsburg, 9913.

_____
Mrs.M MADOLO
Municipal Manager (Acting)

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

INVITATION TO TENDER

Bids with a minimum **CIDB grading of 3ME/1GB or higher** and are in good standing with the South African Revenue Services, are hereby invited to tender for the GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION.

Tender documents will only be available from **26 April 2024** and may be obtained from Kopanong Local Municipality at the Supply Chain Management Offices Main, Trompsburg during working hours between 08:00 -12h50 and 13h40 to 16:20 (Monday to Friday), upon payment of a non-refundable fee of **R750.00 per document paid at** the TROMPSBURG MUNICIPAL UNIT**.** Alternative direct or electronic deposits can be made to Kopanong Local Municipality bank account: First National Bank: Account Number: 62021950276; Branch Code: 23092; Type of Account: Public Sector Cheque Account; Reference Bid Number (KLM/GAR/MWWTW/24/25***)***

A Compulsory tender briefing session will be held on the 24 April 2024 at Gariep Dam Municipal Town Hall, at 10h00. Only tenders from Bidders who attended the above compulsory tender briefing and have signed the attendance register will be considered.

All bids and supporting documents shall be sealed in an envelope or package clearly marked **"Contract number: "Tender *No:* KLM/GAR/MWWTW/24/25*: GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION"***

Duly completed bids shall be placed in the tender box situated at the main entrance of KOPANONG Local Municipality situated at 20 Louw Street, Trompsburg, **not later than 12H00 on the 03 May 2024**. No faxed or late bids will be accepted. The Municipality shall adjudicate and award bids in accordance with the **Preferential Procurement Policy Framework Act 5/2000 and Preferential Procurement Regulation of 2022** on 100 points functionality and on an 80/20 points system, where 80 points are for the price and 20 points for Specific goals according to the said legislation.
Bidders must have a staff member who has completed or is registered for training towards, the NQF level 5 unit standards "Develop and Promote Labour Intensive Construction Strategies".

All Technical enquiries are to be directed to Mr T Selepe on 071 858 1807 or tsepo.kopanongLM@gmail.com. And all SCM enquiries to Mr Godfrey Matee on 078 940 7196 or fongo4673@gmail.com

Mr M MADOLO
ACTING MUNICIPAL MANAGER

VERY IMPORTANT NOTICE ON DISQUALIFICATION

A Bid not complying with the peremptory requirements stated hereunder will be regarded as being a not **"Acceptable Bid"** and as such will be rejected.

"Acceptable Bid" means any bid which, in all respects, complies with the conditions of Bid and specifications as set out in the bid document, including conditions as specified in the Preferential Procurement Policy Framework Act, revised Preferential Procurement Regulations and related legislations:

1. Submit bid in the correct bid box
2. Submit bid before closing date and time
3. Fill in the required information in all Forms/Schedules.
4. Complete all Forms/Schedules in ink. Do not use pencils or correction fluid to make corrections.
5. Make corrections, if necessary, only by placing a line across the words/numbers to be corrected and initial next to the amended text. Do not scratch out, write over rates, paint over rates or use correction fluid.
6. Do not remove pages from the bid document. Do not take the document apart or remove any pages.
7. Ensure that witnesses sign where required
8. Price the Bill of Quantities in full as required and not only provide lump sums.
9. Attend the compulsory site/clarification meetings
10. Submit the applicable completed Authority for Signatory form and attach a certified copy of the members/directors resolution
11. Attach to the bid documents a copy of a signed Joint Venture agreement (if applicable)
12. Only the person authorised to do so may sign the bid offer
13. Submit written proof of registration with the CIDB, in an appropriate contractor grading designation of **3ME/1GB OR HIGHER** (category), as required in the bid documentation. In the case of a joint venture bidders must submit a consolidated CIDB grading.
14. Submit Company registration documents

15. If a valid and original tax clearance certificate and SARS verification pin on the SARS letterhead has not been submitted with the bid document on closing date of the bid (in the case of a joint venture, of all the partners in the joint venture must attach)
16. Form of offer must be completed and signed by the authorised signatory
17. Proof of registration with the **Central Data Base** (CSD) of the National Treasury must be attached.

Furthermore, the bid will be considered as not acceptable if:

18. The bidder attempts to influence or has in fact influenced the evaluation of the bid and/or the awarding of the contract.
19. The bidder during the last 5 years has failed to perform satisfactorily on a previous contract with the municipality, municipal entity or any other organ of state after written notice was given to that bidder that performance was unsatisfactory.
20. The bidder or any of his directors is listed on the Register of Bid 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.
21. The bidder has abused the KLM's Supply Chain Management System
22. The bidder or any of its directors is in arrears for more than 3 months for any municipal rates and taxes owed to the Kopanong Local Municipality or any other municipality.
23. Irrespective of the procurement process followed, no award may be given to a person-
    a) who is in the service of the state, or
    b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or
    c) who is an advisor or consultant contracted with the municipality in respect of contract that would cause a conflict of interest.
24. The bidder may only submit a bid on the documentation provided by the Kopanong Local Municipality.

Bids containing any one or more of the following errors or omissions ***will not be rejected***, provided that when the bid is awarded to such a bidder, the error or omission is corrected:

25. Failure to initial each page of the bid document

PLEASE NOTE WITH IMPORTANCE:

1. **Section 217 of the constitution of the Republic of South Africa requires an organ of state to contract for goods and services in accordance with a system which is fair, equitable, transparent, competitive and cost effective.**
2. **The lowest bid / proposal will not necessarily be accepted and the Municipality reserves the right to accept where applicable a part or portion of any bid or where possible accepts bids or proposals from multiple bidders.**
3. **Municipal Supply Chain Management policy and Preferential Procurement Policy Framework Act No 5 of 2000, Preferential Procurement Regulation of 2022 and its regulations will be applied.**
4. **In this document and other documents referred to but not attached, the following words are synonymous with each other:**
   a) **Client, Employer, Kopanong Local Municipality (KLM)**
   b) **Bidder, Contractor, Service Provider**
   c) **Bid And Tender and Variations Thereof**
   d) **Joint Venture / Consortium**

FOR COMPLAINTS, FRAUD, & TENDER ABUSE Call: 0800 712 723

APPROVED BY:

M MADOLO

ACTING MUNICIPAL MANAGER

MBD1

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE KOPANONG LOCAL MUNICIPALITY					
BID NUMBER:	**KLM/GAR/MWWTW/24/25**	CLOSING DATE:	**03 MAY 2024**	CLOSING TIME:	**12H00**
DESCRIPTION	**GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION**				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT

KOPANONG LOCAL MUNICIPALITY
20 LOUW STREET
TROMPSBURG
9913

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						
TAX COMPLIANCE STATUS	TCS PIN:		**OR**	CSD No:		
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES OFFERED?	☐Yes ☐No [IF YES, ANSWER PART B:3]		
TOTAL NUMBER OF ITEMS OFFERED			**TOTAL BID PRICE**	**R**		
SIGNATURE OF BIDDER	.....		**DATE**			
CAPACITY UNDER WHICH THIS BID IS SIGNED						

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		**TECHNICAL INFORMATION MAY BE DIRECTED TO:**	
DEPARTMENT	**FINANCIAL SERVICES**	DEPARTMENT	**TECHNICAL SERVICES**
CONTACT PERSON	**G Matee**	CONTACT PERSON	**T Selepe**
TELEPHONE NUMBER	**078 940 7196**	TELEPHONE NUMBER	**071 858 1807**
E-MAIL ADDRESS	**fongo4673@gmail.com**	E-MAIL ADDRESS	**tsepo.kopanong@gmail.com**

MBD1

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED) OR ONLINE**

1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.

2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART 3.

2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.

2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.

2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO

3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO

3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO

3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO

3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

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

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.
NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

SIGNATURE OF BIDDER: .....
CAPACITY UNDER WHICH THIS BID IS SIGNED: .....
DATE: .....

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

T1.2 TENDER DATA

The Conditions of Tender applicable to this contract are the Standard Conditions of Tender as contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement (28 May 2010) as published in Government Gazette No. 33239, Board Notice 86 of 2010. This Annexure is reproduced hereafter as an Appendix for the convenience of Bidder's.

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

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

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
1.1	Actions	The Employer **KOPANONG Local Municipality** Private Bax X23 **TROMPSBURG** 9913 Tel: The term "**bid**" in the context of this standard is synonymous with the term "**tender**".
1.2	Bid Document	The Tender Document issued by the Employer comprises of one (01) volume. The volume consist of the following: **PORTION 1: THE TENDER** **Part T1 Bidding procedures** Section T1.1 Tender notice and invitation to bid

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
		Section T1.2 Tender data **Part T2 Returnable documents** Section T2.1 List of returnable documents Section T2.2 Returnable Schedules **PORTION 2 THE CONTRACT** **Part C1 Agreements and contract data** Section C1.1 Forms of offer and acceptance Section C1.2 Contract Data Section C1.3 OHS **Part C2 Pricing Data** Section C2.1 Pricing Instructions Section C2.2 Bill of Quantities and Summary **Part C3 Scope of work** Section C3.1 Description of Works / Scope of Work Section C3.3 Labour Relations Section C3.4 Construction Section C3.5 Particular Variations, Specifications and Additions to Standard Specifications Section C3.7 Health and Safety: Specification AO **Part C4 Site Information** Section C4.1 Annexure: Site Information **APPENDICES** Appendix A Network Refurbishment Specifications Appendix B Building Specifications Appendix C Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP) ***(Issued on Request)*** The Bid Document and the drawings shall be obtained from the Employer or his authorised representative at the physical address stated in the Tender Notice, upon payment of the amount stated in the Tender Notice.
1.3.2	Interpretation	The Standard Conditions of Tender, the Tender Data, List of Returnable Documents and Returnable Schedules which are required for the tender evaluation purposes, shall also form part of the Contract arising from the invitation to tender.

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
Add the following new clause 1.3.3		The Tender Documents have been drafted in English. The Contract arising from the invitation of bid shall be interpreted and constructed in English.
1.4		Communication Kopanong Local Municipality Technical Services (PMU) 20 Louw street Trompsburg 9913 Tel No: 083 858 1760 / 071 858 1807 E-mail: jonasphakamile4@gmail.com, alternatively **tsepo.kopanongLM@gmail.com** Contact person: Mr. T Selepe, alternatively Mr. P.A Jonas
2.1	Eligibility	Only those Bidders who satisfy the following criteria are eligible to submit tenders: Only Bidders who employ staff which satisfy EPWP requirements are eligible to submit bids. The Bidder must have a staff member who has completed, or, is registered for training towards, the NQF level 5 unit standards "Develop and Promote Labour Intensive Construction Strategies" Only those Bidders who are registered with the CIDB, in a Contractor Grading equal to or higher than a Contractor Grading designation determined in accordance with the sum offered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a **3ME/1GB or HIGHER** Class of construction work, are eligible to submit Tenders. Joint Ventures are eligible to submit bids provided that: 1. Every member of a Joint Venture is registered with the CIDB within 10 days from the closing date of Bids; 2. The lead partner has a Contractor Grading Designation in the **3ME/1GB class** of construction work; and, 3. The combined minimum Contractor Grading Designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor designation determined in accordance with the sum offered for a **3ME/1GB or Higher** class of construction work, is eligible to submit Tenders.

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
2.2	Cost of Bidding	Add the following to the clause: A non-refundable Bid deposit of **R 750.00** payable in cash or by bank guaranteed cheque made out in favour of the Kopanong Local Municipality, is required on collection of the Tender documents. A Bidder accepts that the Employer will not compensate the Bidder for any costs incurred in attending interviews in the office of the employer or the Employer's agent (if required).
2.5	Reference Documents	The document "General Conditions of Contract for Construction Works, Third Edition 2015 (GCC 2015)" of the South African Institution of Civil Engineers. Bidder's, Contractors and Subcontractors shall obtain their own copies of this document for Bidding purposes and for use for the duration of the Contract from the Secretary of the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685 or SAICE House, Block 19 Thornhill Office Park, Becker Street, Midrand, Tel. 011 805 5947 and shall bear all expenses in this regard.
2.7	Site Visit and Clarification Meeting	A compulsory site visit and clarification meeting will be held as follows: Refer to tender notice and invitation to tender in Part T1.1 Bidders must sign the attendance list in the name of the Bidding entity. Addenda will be issued to and Bids will be received only from those Bidding entities appearing on the attendance list. Detail relating to the collection of Bid Documents is indicated in the Bid Notice and Invitation to Bid (Section T1.1 of the document)
2.8	Seek Clarification	Replace the contents of the clause with the following: Request clarification of the Bid Documents, if necessary, by notifying the Employer's Official or the Employer's Agent indicated in the Bid Notice and Invitation to Bid (Section T1.1) in writing at least ten (10) working days before the closing time stated in clause 2.15.
2.11	Alterations to Document	Add the following to the clause: To correct errors made, draw a line through the incorrect entry and write the correct entry above in black ink and place the full signatures of the authorised signatories next to the correct entry.
2.12.1	Alternative Bid Offers	Add the following to the clause: All alternative Bid Offers shall be attached separately to this bid document as an Annexure.

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
2.12.2		Should the Bidder wish to offer alternative designs and / or construction materials, he shall include with this Bid full details thereof, including a complete bill of quantities, formal design calculations, and full details of all alternative components proposed to be included in the Works. This should be submitted to the Employer. Acceptance of an alternative Bid Offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the Bidder, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements. The modified Pricing Data must include an amount equal to 5% of the amount Offered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed. No fixed price Bids will be accepted.
2.13	Submitting of Bid Offer	Add the following to the clause : No claim will be entertained for faults in the Offer Price resulting from any discrepancies, omissions or indistinct figures.
2.13.12		Each Bidder is required to return the complete set of documents as listed in the Bid Data with all the required information supplied and completed in all respects.
2.13.3		Parts of each Bid Offer communicated on paper shall be submitted as an original plus zero copies.
2.13.4		Add the following to the clause: “Only authorised signatories may sign the original and all copies of the Bid Offer where required in terms of 2.13.3. In the case of a ONE-PERSON CONCERN submitting a Bid, this shall be clearly stated. In case of a COMPANY submitting a Bid, include a copy of a resolution by its board of directors authorising a director or other official of the company to sign the documents on behalf of the company. In the case of a CLOSED CORPORATION submitting a Bid, include a copy of a resolution by its members authorising a member or other official of the corporation to sign the documents on each member’s behalf. In the case of a PARTNERSHIP submitting a Bid, all the partners shall sign the documents, unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case proof of such authorisation shall be included in the Bid.

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
		In the case of a JOINT VENTURE submitting a Bid, include a resolution of each company of the Joint Venture together with a resolution by its members authorising a member of the Joint Venture to sign the documents on behalf of the Joint Venture." **Accept that failure to submit proof of authorisation to sign the Bid shall result in a Bid Offer being regarded as non-responsive.**
2.13.5	Delivery of Bid	The Employer's address for delivery of Bid Offers and identification details to be shown on each Bid Offer package are: Tender box location : The entrance of the Kopanong Local Municipality offices Physical address : **KOPANONG LOCAL MUNICIPALITY** **20 LOUW STREET** **TROMPSBURG** **9913** Identification details : CONTRACT No. KLM/GAR/MWWTW/24/25 GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION
2.13.6		A two-envelope procedure will not be followed.
2.13.9		Telephonic, telegraphic, telex, facsimile, electronic or e-mailed Bids will not be accepted.
2.14	Information and Data to be completed in all respects	Add the following to the clause: "Accept that the Employer shall in the evaluation of Bid Offers take due account of the Bidder's past performance in the execution of similar engineering works of comparable magnitude, and the degree to which he possesses the necessary technical, financial and other resources to enable him to complete the Works successfully within the contract period. Satisfy the Employer and the Engineer as to his ability to perform and complete the Works timeously, safely and with satisfactory quality, and furnish details in section T2.2 of contracts of a similar nature and magnitude which they have successfully executed in the past."
		Accept that the Employer is restricted in accordance with clause 4(4) of the Construction Regulations 2003, to only appoint a Contractor whom he is satisfied has the necessary competencies and resources to carry out the work safely. Accept that submitting inferior and inadequate information relating to Health & Safety (as required in clause 2.23) shall be regarded as justifiable and compelling reasons not to award a Contract to a Bidder."

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
2.15.1	Closing Time	Closing time and location for the submission of Bid Offers are: Time : 12H00 Location : 20 Louw Street Trompsburg, Municipal Offices
2.16.1	Bid Offer validity	The bid offer validity period is 120 days. Add the following to the clause: If the Bid validity expires on a Saturday, Sunday or public holiday, the Bid shall remain valid and open for acceptance until the closure of business on the following working day.
2.17	Clarification of Bid Offer after Submission	Replace the contents of the clause with the following clause: "Provide clarification of a Bid Offer in response to a request to do so from the Employer during the evaluation of Bid Offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors resulting from the product of the unit rate and the quantity by the adjustment of certain line item totals. No change in the unit rate or prices or substance of the Bid Offer is sought, offered, or permitted. The total of the prices shall be adjusted to reflect the arithmetically correct summation of corrected line item totals and shall be binding upon the Bidder."
2.18		The Bidder shall, when requested by the Employer to do so, submit the names of all Management and Supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.
2.19	Inspections, tests and analysis	The Bidder must provide access during working hours to his premises for inspections on request.
2.22	Return of Bid Documents	Where a Bidder who received a Bid Document does not submit a Bid, the Bid Documents issued to him must be returned to the Employer within **14 days after the closing date** for submission of Bids.

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
2.23	Certificates	The following certified certificates / information must be provided with the Bid Offer (**any Bid not complying with the below stipulations, listed a. to h. will be regarded as non-responsive and will therefore not be considered for further evaluation**): a. Bidders must submit a tax compliance verification pin on a SARS letterhead; and b. Certificate of Contractor Registration of CIDB Grading of 3ME1GB Higher (and / or higher grading) issued by the Construction Industry Development Board. Certificates of Registration in respect of each partner, where a bidder satisfied the CIDB contractor grading designation requirements through the formation of a joint venture; c. Evidence of registration and proof of good standing by the Department of Labour in terms of section 80 of the compensation for injury and Disease Act (COIDA) (Act No 130 of 1993); d. Authority for signature on an original company letterhead as requested by T2.2. – Schedule C. e. Copy of Identity Document (if member is a one-man concern) f. Copy of Deed of Trust (if a trust is involved) g. Copy of the curriculum vitae of the person who prepares the Contractor's Health and Safety Plan, and h. Copy of curriculum vitae of the Health and Safety officer the successful bid intends appointing in accidence with the Occupational and Safety Act. Note: Any Bidder not complying with above stipulations, listed will be regarded as non-responsive and will therefore not be considered for further evaluation.
2.24 (**Add the following new Clause**)	Canvassing and obtaining of additional information by Bidder's	Accept that no Bidder shall make any attempt either directly or indirectly to canvass any of the Employers officials or the Employer's agent in respect of his Bid, after the opening of the Bids but prior to the Employer arriving at a decision thereon. No Bidder shall make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of Bids."
2.26 (**Add the following new Clause**)	Awards to close family members of persons in the service of the state	Accept that the notes to the Employer's annual financial statements must disclose particulars of any award of more than R 2 000.00 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause 2.25), or has been in the service of the state in the previous twelve months, including – a) the name of that person; b) the capacity in which that person is in the service of the state; and c) the amount of the award.

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
		In order to give effect to the above, the questionnaire for the declaration of interests in the bid of persons in service of state in Section T2.2. Schedule N must be completed."
2.26 (**Add the following new Clause**)	Tax compliance pin	Submission of a Tax Compliance Verification Pin on a SARS letterhead is compulsory." "Bidders should note, that in accordance with legislation, no contract may be awarded to a / any person / entity who has failed to submit a Tax Compliance Verification Pin on a SARS letterhead from the South African revenue Service (SARS)
3.1	Respond to clarification	Replace the contents of the clause with the following: Respond to a request for clarification received up to ten (10) working days before the Bid Closing time stated in the Bid Data and notify all Bidders who drew procurement documents within seven (7) working days of the same date.
3.4	Opening of Bid submissions	Bids will be opened immediately after the closing time for Bids.
3.9	Arithmetical Errors	Replace the contents of the clause with the following: Check responsive Bid Offers for arithmetical errors, correcting them in the following manner: 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) Where there is a discrepancy between the amount indicated in the Bidder's bid offer and the corrected amount obtained after completing the above steps, the Bidder's original offer shall govern and the unit rates and line total amounts in the bill of quantities corrected.
3.11	Evaluation of Bids	The procedure for the evaluation of responsive Bids is Method 2-4 (Functionality, Preference Points and Risk Analysis).
3.11.1	General	**Evaluation of Bid Offers**

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
		The bids will be evaluated in Four (04) stages, namely: 1) Stage 1: Responsiveness 2) Stage 2: Functionality 3) Stage 3: Preference point 80 – Price and 20 Specific goals 4) Stage 4: Risk Analysis **Stage 1(a): Responsiveness** Over and above the test for responsiveness as described under 3.8 of the Standard Conditions of Tender, failure of the Bidder to submit the following will result in immediate disqualification: (i) Proof of attendance of Compulsory Briefing Session (Schedule A). (ii) Compulsory Enterprise Questionnaire (Schedule B) (iii) Certificate of authority for signatory (Schedule C). (iv) Registration Certificates/Agreements/Identity Documents (Schedule D). (v) Original and Valid Tax Clearance Certificate with Tax Compliance Status (SARS Pin) or Declaration by the South African Revenue Services that tax matters of the Tendering company / association or Joint Venture parties are in order (Schedule E). (vi) Copy of valid Workmen's Compensation Certificate issued by Department of Labour. This must be submitted for all members / partners in case of Joint Venture / Partnership (Schedule K). (vii) Proof of Central Supplier Database registration. This must be submitted for all members / partners in case of Joint Venture / Partnership. (viii) Proof of payment of Municipal Services, which is not more than three (03) months in arrears. If Municipal Services are paid by the Lessor, in the case where the bid is leasing the premises occupied, a copy of valid Lease Agreement and proof of payment of Municipal Services, which is not more than three (03) months in arrears, must be submitted (Schedule F). (ix) Proof of Registration with CIDB – Grade 3ME/1GB or Higher. (x) Original bank rating certificate **Stage 2: Functionality** Tenderers are to submit information in respect of the following criteria upon which they will be scored for Quality. Failure to submit the relevant information will result in zero scores. Evaluation under this section will be in accordance with Paragraph T1.2.1 below **"Quality Evaluation Criteria"**. **Stage 3: Preference points (80- Price /20 Specific goals)**

CLAUSE		ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER
		All responsive bids that qualify by meeting the minimum thresholds for functionality will then be evaluated on the basis of price and preference in accordance with the Preferential Procurement Framework Act no 5 of 2000 and Preferential Procurement Regulations of 2022. The points scored for functionality are not carried over or considered in the calculation of the Financial and Preference evaluation. **For bids with a Rand Value above R 2 000.00 and up to a Rand value of R 50 million (80 / 20)** (1) The following formula will be used to calculate the points out of 80 for price in respect of a tender with a Rand value above R2 000.00 and up to a Rand value of R50 million, inclusive of all applicable taxes less all unconditional discounts. $Ps = 80\left(1 - \frac{Pt - Pmin}{Pmin}\right)$ Where Ps = Points scored for comparative price of bid or offer under consideration; Pt = Comparative price of bid or offer under consideration, and; Pmin = Comparative price of lowest acceptable bid or offer. (2) A maximum of 20 points may be awarded to a tenderer for the specified goals for the tender: (3) The points scored for the specific goal must be added to the points scored for the price and the total must be rounded off to the nearest two decimal places. (4) Subject to section 2(1)(f) of the Act, the contract must be awarded to the tendering scoring the highest points (5) (a) If the price offered by a Bidder scoring the highest points is not market-related, the organ of state may not award the contract to that Bidder. (b) The organs of state may: (i) negotiate a market-related price with the tenderer scoring the highest points or cancel the Bid; (ii) if the Bidder does not agree to a market-related price, negotiate a market-related price with the Bidder scoring the second highest points or cancel the Bid; (iii) if the Bidder scoring the second highest points does not agree to a market-related price, negotiate a market-related price with the Bidder scoring the third highest points or cancel the Bid. (c) If a market-related price is not agreed as envisaged in paragraph

<table>
<tr><th>CLAUSE</th><th></th><th>ADDITION OR VARIATION TO STANDARD CONDITIONS OF TENDER</th></tr>
<tr><td></td><td></td><td>(b)(iii), the organ of state must cancel the Bid.

Stage 4: Risk Analysis

In Table below, the percentage deviation of the tendered amount is indicated. The risk to the Municipality increases where rates of tenderer’s deviate by more than 20% and less than 15% below average.

Too low rates result in cash flow problems to the contractor, slower progress of the works, increased safety risks and reduction in quality of work; but alternatively, where rates are more than 15% higher than the average tendered rates, the risk to the Municipality increases with regard to a possible increase in project costs when the quantities increase substantially.
<table>
<tr><th colspan="2">Critical Section</th></tr>
<tr><td>High Risk, Low rate</td><td>Deviation < -15%</td></tr>
<tr><td>Low Risk, High Rate</td><td>Deviation > +20%</td></tr>
</table></td></tr>
<tr><td>3.13.1</td><td>Acceptance of Bid Offer</td><td>A Bid Offer will only be accepted on condition that such acceptance is not prohibited in terms of clause 44 of the Municipal Supply Chain Management Regulations published in terms of the Municipal Finance Management Act, 2003.</td></tr>
<tr><td>3.17</td><td>Copies of Contract</td><td>The successful Bidder shall receive ONE (01) copy of the signed Contract.</td></tr>
<tr><td></td><td></td><td>The additional Conditions of Bid are:

1 Kopanong Local Municipality may also request that the Bidder provide written evidence that his financial, labour and resources are adequate for carrying out project.
2 Kopanong Local Municipality reserves the right to appoint a firm of chartered accountants and auditors and / or execute any other financial investigations on the financial resources of any Bidder. The Bidder shall provide all reasonable assistance in such investigations.
3 Kopanong Local Municipality reserves the right to appoint a different Service Provider for each project. The Bidder shall be required to complete the Form of Offer (C1.1) and the Bill of Quantities (C2.2) for each project.
4 The bid document shall be submitted as a whole and shall not be taken apart.
5 List of Returnable Documents (PART T2) must be completed in full. (A bidder’s company profile will not be used by the Kopanong Local Municipality to complete PART T2 on behalf of the Bidder)

NB: If PART T2 is not completed in full by the Bidder, this offer will be rejected</td></tr>
</table>

T1.2.1 Quality Evaluation Criteria

Tenderers will have to achieve a minimum score of **75 points out of 100** for their technical proposals before their financial proposals and Specific Goal Targets are evaluated. This is required so that there is a level of comfort that the tenderer can deliver the project with the required professionalism and quality.

1.1.1 Scoring Process

The Technical/Functionality Evaluation Task Team will be established to determine the following:

- Whether or not the Bidder understood the brief in terms of project specifications and has the necessary resources to complete the project.
- The Contractor's relevant experience for the project.
- The quality of the methodology proposed, including risk identification, mitigation and management.
- Availability of suitable plant to complete the project.
- The Contractor's financial ability to complete the project.

No alteration of technical/functionality proposals will be permitted after the deadline for receipt of bids. Questions may be asked to tenderers for clarification needed to evaluate their proposals, but tenderers will not be permitted to change the substance or price of their bids after tender opening. Requests for clarification and the tenderer's responses will be made in writing. No interviews will be conducted in this regard.

1.1.2 The score for the Technical / Functionality Evaluation will be calculated in accordance with the table below:

TECHNICAL / FUNCTIONALITY POINTS (100)		
Company Experience.	**40**	Provide information about your company's experience in the areas for which you are submitting a tender in Returnable Schedules:
Plant & Equipment.	**15**	Provide information that you have or can readily access suitable plant and equipment to complete the project in Returnable Schedule
Methodology	**5**	Provide a preliminary implementation programme and method statement as to how your company will complete the works.
Bank Rating	**10**	Provide a current bank rating certified from your banking institution in the Returnable Schedule
Project Team – Key Personnel	**30**	Provide information that you have suitably qualified employees who are in the employ of your company. Provide copies of their CV's and their availability in Returnable Schedule.
Total Score (Max)	**100**	
N.B.: Kindly attach the required supporting documents as requested in the table above and criteria below to this bidding document as an annexure to Returnable Schedules. Failure to submit such information will render your bid invalid. If it is found during evaluation that any of the information		

provided is untrue the tender will be disqualified, further if after award that any of the information provided is untrue the Contract will be terminated. If a successful tenderer does not comply with their proposal in terms of Enterprise Development Kopanong Local Municipality reserves the right appoint a third party to do the work at the Tenderer's expense

Tenderers who score less than **75 Technical / Functionality** points 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.

Where the entity tendering is a joint venture, the tender must be accompanied by a statement describing exactly what aspects of work will be undertaken by each party of the joint venture.

Tenderers shall ensure that all relevant information has been submitted with the tender offer in the prescribed format to ensure optimal scoring of functionality points for each Evaluation Criteria. Failure to provide all information IN THIS TENDER SUBMISSION could result in the tenderer not being able to achieve the specified minimum scoring

1.1.3 Scoring Criteria

The following scoring criteria will be applied in the evaluation of technical proposals for each category stated above.

1.1.3.1 Company Experience

The experience of the tenderer in similar projects or similar areas and conditions in relation to the required service as described in the scope of work will be evaluated. (Tenderer has relevant experience in the construction or upgrading of pipeline and pump station, sewer reticulation infrastructure completed)

Note: bidders are required to submit the appointment letter with completion certificates for each project as proof. In the event of works completed under sub-contracting, the appointment letter of the main contractor and completion certificate thereof must also be attached. And clearly indicate the scope of subcontracting

The scoring of the tenderer's experience will be as follows on similar sewer projects completed:

Number of Civil Engineering Projects related to sewer reticulation Infrastructure Completed (as indicated on the note above).

5 or more Projects	30 points
3-4 projects	20 points
1-2 projects	10 points
0 projects	0 points

- Bidder's Experience on Minimum **One (1)** Project to the Value of (as indicated on the note above).

Above R2 500 000	10 points
R1 000 001 – R2 500 000	7 points
R200 000 – R1 000 000	5 points
Below R200 000	3 points

1.1.3.2 Plant and equipment

Tenderers will be required to provide details of the relevant plant they own or intend on procuring for this project in returnable schedule.

The bidders are obligated to submit Natis to confirm ownership/ a **Signed** Rental Agreement to score full point. Failure to provide necessary documentation (letter of undertaking/ registration documents / Natis), the bidders will score 0 points.

The scoring of the availability of Plants will be as follows:

2 x TLB	3 Points
2 x Excavator	3 Points
2 x Tipper truck	3 Points
2 x Light delivery vehicle	3 Points
2 x Trench Compactor	3 Points

1.1.3.3 Methodology

A methodology for the project must be attached to returnable schedules. The Methodology must touch on 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. Risk identification and how these risks will be mitigated or managed.

Scoring	Points	Technical Approach and Methodology
Very Poor	**0**	Methodology is poor / unlikely to satisfy project objectives. Bidder may have misunderstood certain aspects of the scope of works. Bidder does not deal with the critical aspects.
Poor	**1**	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.
Good	**3,5**	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.
Very Good	**5**	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.

1.1.3.4 Project Team Compilation

The following members of the Project team are required to submit their CV's in the tender document in returnable schedule.

- Contracts / Project Manager
- Site Agent
- Health and safety officer

A shortened CV with qualifications for each key personnel member must be submitted. Note: If the tenderer fails to complete "supervisory and safety personnel" table under returnable schedules will be score 0.

QUALITY CRITERIA: APPLICABLE EXPERIENCE OF KEY PERSONNEL		
PROJECT MANAGER *(specify in CV)*		
Qualification	**Past Experience (relevant similar to the project)**	
B.Tech/ BSc (Civil Engineering)	**Years**	**Points**
	3-5	3
	6-8	7
	More than 8	10

SITE AGENT *(specify in CV)*		
Qualification	**Past Experience (relevant and similar to the project)**	
N.Dip (Civil Engineering)	**Years**	**Points**
	3-5	3
	6-8	7
	More than 8	10

HEALTH AND SAFETY OFFICER *(specify in CV)*		
Qualification	**Past Experience (relevant and similar to the project)**	
NQF LEVEL 3 (OHS)	**Years**	**Points**
	3-5	3
	6-8	7
	More than 8	10
	MAXIMUM POINTS	**30**

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

1.1.3.5 Tenderer's Financial Standing

Tenderers must provide a current bank rating certificate from their banking institution and attach it to the returnable schedule. For the Tenderers financial standing a minimum number of **10 points** is required for the bid to be considered further.

Scoring	Points	Tenderer's Financial Standing
Unacceptable	**0**	E Bank Rating
Poor	**2.5**	D Bank Rating
Satisfactory	**5**	C Bank Rating
Good	**7.5**	B Bank Rating
Very Good	**10**	A Bank Rating

Tenderers who score less than **75 Technical/Functionality** points will be disqualified for further evaluation.

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

T1.3: STANDARD CONDITIONS OF TENDER

STANDARD CONDITIONS OF TENDER

GENERAL

1.1 Actions

The employer and each tenderer submitting a tender offer shall comply with the conditions of tender. In their dealings with each other, they shall discharge their duties and obligations, as set out in sections 2 and 3, timeously and with integrity, and behave equitably, honestly and transparently.

1.2 Tender documents

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

1.3 Interpretation

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 the conditions of tender.

1.3.2 The 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.

1.3.3 For the purposes of these conditions for the calling for expressions of interest, the following definitions apply:

a) comparative offer means the tenderer's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration.
b) 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; and
c) 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.

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 read, copies and recorded. Writing 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.

1.5 The Employer's right to accept or reject any tender offer

1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection, but shall give reasons for such action.

1.5.2 After the cancellation of a tender process or the rejection of all tender offers the employer may abandon the proposed procurement and re-issue a similar tender notice and invitation to tender not less than six months after the closing date for tender offers or have it performed in another manner at any time.

TENDERER'S OBLIGATIONS

2.1 Eligibility

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

2.2 Cost of tendering

Accept that 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 comply with requirements.

2.3 Check documents

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

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.

2.5 Reference documents

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

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.

2.7 Site visit and clarification meeting

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

2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least ten working days before the closing time stated in the tender data.

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.

2.10 Pricing the tender offer

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 14 days before the closing time stated in the tender data.

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

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.

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.

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 alterations or additions necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

2.12 Alternative tender offers

2.12.1 Submit alternative tender offers only if main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

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.

2.13 Submitting a tender offer

2.13.1 Submit a tender offer to provide the whole of the works, services or supply identified in the contract data, unless stated otherwise in the tender data.

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 in **BLACK INK.**

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.

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 for the employer shall hold liable for the purpose of the tender offer.

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.

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.

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.

2.13.8 Accept that the employer will 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.

2.14 Information and data to be completed in all respects

Accept that the 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 being non-responsive.

2.15 Closing time

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. Proof of posting shall not be accepted as proof of delivery. The employer shall not accept tender offers submitted by telegraph, telex, facsimile or e-mail, unless stated otherwise in the tender data.

2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of the conditions of tender apply equally to the extended data.

2.16 Tender offer validity

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.

2.16.2 If requested by the employer, consider extending the validity period stated in the tender date for an agreed additional period.

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 total of the prices or substance of the tender offer should be sought, offered, or permitted. The total of the prices stated by the tenderer shall be binding upon the tenderer.

2.18 Provide other material

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 notarized joint venture agreements), referencing arrangements, or samples of materials, considered necessary by the employer for the purpose of 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 being non-responsive.

2.18.2 Dispose of samples of materials, where required.

2.19 Inspections, test and analysis

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

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.

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.

2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

2.23 Certificates

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

EMPLOYER'S UNDERTAKINGS

3.1 Respond to clarification

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

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 of the tender notice until 7 days before the tender closing time stated in the tender data. If, as a result of the issuing of addenda, 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 drew documents.

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.

3.4 Opening of tender submissions

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.

3.4.2 Announce at the public 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 the total of his prices, preferences claimed and time for completion, if any, for the main tender offer only.

3.4.3 Make available the name of each tenderer whose tender offer is opened, the total of his prices, if applicable, preferences claimed and time for completion (if any) for the main tender offer only.

3.5 Two envelope system

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.

3.5.2 Evaluate the quality of the technical proposals offered by tenderers, then advice 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 quality evaluation more than the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

3.6 Non-disclosure

Do 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 event of a contract, until after the award of the contract to the successful tenderer.

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.

3.8 Test for responsiveness

3.8.1 Determine, on opening and before detailed evaluation, whether each tender offer properly received:

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

3.8.2 A responsive tender is one that conforms to all the items, 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) 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.

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

3.9 Arithmetical errors

3.9.1 Check responsive tender offers for arithmetical errors, correcting them in the following manner:

a) Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.
b) If a bill of quantities (or schedule of quantities or schedule of rates) applies 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 obvious 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.

c) 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 items prices (and their rates if a bill of quantities applies) to achieve the tendered total of the prices.

3.9.2 Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of his arithmetical errors in the manner described in F.3.9.1.

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.

3.11 Evaluation of tender offers

3.11.1 Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate it using the tender evaluation methods that are indicated in the tender data and described as methods 1, 2, 3 and 4.

3.11.2 Method 1: In the case of a financial offer:

a) Rank tender offers from the most favourable to the least favourable comparative offer.
b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.

3.11.3 Method 2: In the case of a financial offer and preferences:

a) Score tender evaluation points for each financial offer.
b) Confirm that tenderers are eligible for the preferences claimed and, if so, score tender evaluation points for preferencing.
c) Calculate total tender evaluation points.
d) Rank tender offers from the highest number of tender evaluation points to the lowest.
e) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

3.11.4 Method 3: In case of a financial offer and quality:

a) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
b) Score tender evaluation points for each financial offer.
c) Calculate the total tender evaluation points.
d) Rank tender offers from the highest number of tender evaluation points to the lowest.
e) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

3.11.5 Method 4: In the case of a financial offer, quality and preferences:

a) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
b) Score tender evaluation points for each financial offer.
c) Confirm that tenderers are eligible for the preferences claimed and, if so, score tender evaluation points for preferencing.
d) Calculate total tender evaluation points.
e) Rank tender offers from the highest number of tender evaluation points to the lowest.
f) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

3.11.6 Score financial offers, preferences and quality, as relevant, to two decimal places.

3.11.6.1 Scoring financial offers

Score the financial offers of the remaining responsive tender offers using the following formula:

$N_{FO} = W_1 \times A$

Where

N_{FO} is the number of tender evaluation points awarded for the financial offer;

W_1 is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the tender data;

A is the number calculated using the formula and option described in table F.1 as stated in the tender data.

Table F.1 – Formula for calculating the value of *A*[a]

1	2	3	4
Formula	**Basis for comparison**	**Option 1**	**Option 2**
1	Highest price or discount	$\left(1 + \frac{(P - P_m)}{P_m}\right)$	P/P_m
2	Lowest price or percentage commission/fee	$\left(1 - \frac{(P - P_m)}{P_m}\right)$	P_m/P

[a] P_m is the comparative offer of the most favourable comparative offer.
P is the comparative offer of the tender offer under consideration.

3.11.6.2 Scoring quality

Score quality in each of the categories in accordance with the tender data and calculate the total score for quality.

3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies or certificates of insurance (or both) which the conditions of contract identified in the contract data require the employer to provide.

3.13 Acceptance of tender offer

3.13.1 Accept the tender offer only if the tenderer complies with the legal requirements, if any, stated in the tender data.

3.13.2 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period. Provided that the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful tenderer as described in the form of offer and acceptance.

3.14 Notice to unsuccessful tenderers

After the successful tenderer has acknowledged the employer's notice of acceptance, notify other tenderers that their offers have not been accepted.

3.15 Prepare contract documents

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,
c) other revisions agreed between the employer and the successful tenderer, and
d) the schedule of deviations attached to the form of offer and acceptance, if any.

3.16 Issue final contract

Prepare and issue the final draft of the contract documents to the successful tenderer for acceptance as soon as possible after the date of the employer's signing of the form of offer and acceptance (including the schedule of deviations, if any). Only those documents that the conditions of tender require the tenderer to submit, after acceptance by the employer, shall be included.

3.17 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.

3.18 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.

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GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

T2 RETURNABLE DOCUMENTS

RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

The Bidder must submit the following documents with this Tender. If these documents are not included in the tender document, the Municipality will not consider this Tender.

CLAUSE REFERRED TO IN STANDARD CONDITIONS OF TENDER	DOCUMENT
2.1	Copy of Certificate of Contractor Registration or proof of registration with the CIDB as a Category **3ME/1GB or higher Contractor**.
2.13.4	Letter of authorization to sign the Form of Offer and where required in Bid Document.
2.23	Tax Compliance Verification pin on SARS letterhead.

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GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

T2.1 List of Returnable Schedules

The bidder must complete the following returnable schedules:

1. **Returnable Schedules required only for bid evaluation purposes**

- Schedule A: Certificate of Bidder's attendance at Compulsory Clarification Meeting
- Schedule B: Compulsory Enterprise Questionnaire
- Schedule C: Authority of Signatory
- Schedule D: Registration Certificates/Agreements/Identity Documents
- Schedule E: Tax Clearance Requirements (MDB2)
- Schedule F: Municipal Services, Rates and Taxes Clearance Certificate for Supply Chain Management Purposes
- Schedule G: Certificate of Registration with CIDB
- Schedule H: Record of Addenda to Bid Documents
- Schedule I: Proposed Amendments and Qualifications
- Schedule J: Compliance with OHSA (Act 85 of 1993)
- Schedule K: Letter of Good Standing for Compensation for Occupational Injuries and Deceases Act 130 of 1993 (Amended) as issued by the Department of Labour.
- Schedule L: Declaration of Interest (MBD 4)
- Schedule M: Preference Points Claim form in terms of the Preferential Procurement Regulations, 2022 (MBD 6.1)
- Schedule N: Declaration of Bidder's past Supply Chain Management Practices (MBD 8)
- Schedule O: Certificate of Independent Bid Determination (MBD 9)
- Schedule P: Tenderer's Bank Rating
- Schedule Q: List of Plant & Equipment
- Schedule R: List of Key Personnel with CV's and Qualifications
- Schedule S: Company Experience (Work previously done with Reference Letters / Appointment Letters

2. **Other documents required only for bid evaluation purposes**

- Certificate of Contractor Registration issued by the Construction Industry Development Board (CIDB).
- An original valid Tax Clearance Certificate issued by the South African Revenue Services (the standard tax clearance certificate requirements and application form are available from the consultants).
- Certified copy of Company Registration Certificate.
- Proof of registration on the Central Supplier Database (CSD).
- BBBEE Certificate.
- Copy of company profile.
- Original bank rating certificate
- Methodology

3. Returnable Schedules that will be incorporated into the contract

The offer portion of the:

- C1.1 Offer and Acceptance
- C1.2 Data provided by the Contractor
- C2.2 Bill of Quantities and Summary
- Part C3: Scope of Works

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T2.2 Returnable Schedules

SCHEDULE A: CERTIFICATE OF BIDDER'S ATTENDANCE AT THE COMPULSORY CLARIFICATION MEETING

This is to certify that I, (*Name in print)* _____

Representative of (Bidder) _____

of (Address) _____

Telephone number _____

Fax number _____

Attended the Clarification Meeting on (date) _____

SIGNATURE OF BIDDER'S REPRESENTATIVE _____

SIGNATURE OF CLIENT'S REPRESENTATIVE _____

SCHEDULE B: COMPULSORY ENTERPRISE QUESTIONAIRE

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

Section 1: Name of enterprise: . . . . . .

Section 2: VAT registration number, if any: . . . . . .

Section 3: cidb registration number, if any: . . . . . .

Section 4: 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: The attached MBD 4 must be completed for each tender and be attached as a tender requirement.

Section 8: The attached MBD 6.1 must be completed for each tender and be attached as a requirement.

Section 9: The attached MBD 8 must be completed for each tender and be attached as a requirement.

Section 10: The attached MBD 9 must be completed for each tender and be attached as a requirement.

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

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004; iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and

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

Signed ..... Date .....

Name ..... Position .....

SCHEDULE C: CERTIFICATE OF AUTHORITY FOR SIGNATORY

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

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

Signatories for Companies, Close Corporations, Partnerships, Joint Ventures or Sole Proprietors must establish their authority thereto by attaching a copy of the relevant resolution of their Board of Directors, Members or Partners duly signed and dated.

(I) CERTIFICATE FOR COMPANY

I, _____ chairperson of the Board of Directors

of _____, hereby confirm that by resolution of

the Board (copy attached) taken on _____ 20___, Mr/Ms _____

acting in the capacity as _____, was authorized to sign all documents in

connection with the Bid for **Bid No. _____** and any contract resulting from it, on behalf of

the company. _____

Chairman : _____

Witness (1) : _____ Witness (2) : _____

(II) CERTIFICATE FOR CLOSE CORPORATION

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

_____, hereby authorise Mr/Ms _____,

acting in the capacity of _____ to sign all

documents in connection with the Bid for **Bid No. _____** and any contract resulting from it, on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

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

(III) CERTIFICATE JOINT VENTURE

We, the undersigned, are submitting this Bid offer in Joint Venture and hereby authorize Mr/Ms _____

_____, authorized signatory of the company _____

_____, acting in the capacity of lead partner, to sign all documents in

connection with the Bid offer for **Bid No. _____** and any contract resulting from it, on our behalf. This authorization is evidenced by the attached power of attorney signed by legally authorized signatories of all the

partners to the Joint Venture.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
		Signature
		Name
CIDB Registration No.		Designation
		Signature
		Name
CIDB Registration No.		Designation
		Signature
		Name
CIDB Registration No.		Designation

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

(IV) CERTIFICATE FOR PARTNERSHIP

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

_____, hereby authorise Mr/Ms
_____,

acting in the capacity of _____ to sign all documents in

connection with the Bid for **Bid No. _____** and any contract resulting from it, on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

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

(V) CERTIFICATE FOR SOLE PROPRIETOR

I, _____, hereby confirm that I am the sole owner

of the business trading as _____

Signature of Sole Owner : _____

Date : _____

Witness (1) : _____

Witness (2) : _____

SCHEDULE D: REGISTRATION CERTIFICATES/AGREEMENTS/IDENTITY DOCUMENTS

The Bidder must provide information relating to Company details on the space provided below.

NAME OF COMPANY : _____

COMPANY REGISTRATION NUMBER : _____

NUMBER OF DIRECTORS/SHAREHOLDERS : _____

The space below must be used in the case of Joint Venture or partnership.

1. NAME OF COMPANY : _____

   COMPANY REGISTRATION NUMBER : _____

   NO. OF DIRECTORS/SHAREHOLDERS : _____

2. NAME OF COMPANY : _____

   COMPANY REGISTRATION NUMBER : _____

   NO. OF DIRECTORS/SHAREHOLDERS : _____

3. NAME OF COMPANY : _____

   COMPANY REGISTRATION NUMBER : _____

   NO. OF DIRECTORS/SHAREHOLDERS : _____

Please note: *Copies of Registration Certificates for Companies and/or Closed Corporations and Copies of Identity Documents for Partnerships and Sole proprietors, as well as signed Agreements and Powers of Attorney for Joint Venture / Consortium if applicable, must be submitted with the Bid Document.*

MBD 2

SCHEDULE E: TAX CLEARANCE CERTIFICATE REQUIREMENTS

It is a condition of bid that the taxes of the successful bidder **must** be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.

1 In order to meet this requirement bidders are required to complete in full form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.

2 SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.

3 The original Tax Clearance Certificate with Tax Compliance Status (SARS Pin) must be submitted together with the bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.

4 In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate.

5 Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.

6 Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

Signature of Bidder: _____ Date: _____

SCHEDULE F: PROOF OF PAYMENT OF MUNICIPAL SERVICES

KOPANONG LOCAL MUNICIPALITY

20 Louw Street
Trompsburg
9913
Tel:

Private Bag X23
Trompsburg
9913
Fax:

Enquiries: Supply Chain Management Unit

MUNICIPAL SERVICES, RATES AND TAXES CLEARANCE CERTIFICATE FOR SUPPLY CHAIN MANAGEMENT PURPOSE

The purpose of this form is to obtain proof that municipal services, rates and taxes of the service provider are not more than three months in arrears with the relevant municipality / landlord in the municipal area where the service provider conducts his / her business. **This form is to be completed only if the service provider's rates and taxes are not in arrears for more than three months.**

PART A – to be completed by the relevant municipality in the case where the service provider is the registered owner of the site / owner pays for municipal services / tenant pays for municipal services

OR

PART B – to be completed by the landlord in the case where the service provider is renting the premises / rental paid by tenant include municipal services.

PART A (TO BE COMPLETED BY THE RELEVANT MUNICIPALITY)
Name of the Municipality:
Property Physical Address:
Registered Name:
Official's Name: _____ Municipality Stamp Here Signature: _____ Date: _____ **Please tick whether in arrears or up-to-date**

Rates and taxes: Up-to-date / in arrears for more than 3 months Water: Up-to-date / in arrears for more than 3 months Electricity: Up-to-date / in arrears for more than 3 months Refuse: Up-to-date / in arrears for more than 3 months Other services: Up-to-date / in arrears for more than 3 months
PART B (TO BE COMPLETED BY THE LANDLORD)
Name of the Landlord:
Property Physical Address:
Landlord Signature:
Date: _____ **Landlord's business stamp here** Or an Affidavit from SAPS (in the event the landlord does not have a business stamp) **Please tick whether up-to-date or in arrears** Rental: Up-to-date / in arrears for more than 3 months Municipal services: Up-to-date / in arrears for more than 3 months

NB: Please attach:

1. Copy of latest Municipal Services Account for Section A, and;
2. Copies of latest Municipal Services Account and/or valid Lease Agreement for Section B.

Please note that the above is applicable to all the members/partners in case of Joint Venture/Partnerships

SCHEDULE G: CERTIFICATE OF REGISTRATION WITH CIDB

The Bidder shall attach to this page a printed copy of the Active Contractor's listing off the CIDB website. (www.cidb.org.za)

FOR SOLE CONTRACTOR BID:

Name of Contractor : _____

Contractor Grading Designation : _____

CIDB Contractor Registration Number : _____

FOR JOINT VENTURE BID:

Name of Contractor (1) : _____

Contractor Grading Designation : _____

CIDB Contractor Registration Number : _____

Name of Contractor (2) : _____

Contractor Grading Designation : _____

CIDB Contractor Registration Number : _____

Name of Contractor (3) : _____

Contractor Grading Designation : _____

CIDB Contractor Registration Number : _____

Name of Contractor (4) : _____

Contractor Grading Designation : _____

CIDB Contractor Registration Number : _____

Name of Contractor (5) : _____

Contractor Grading Designation : _____

CIDB Contractor Registration Number : _____

Joint CIDB Grading : _____

SCHEDULE H: RECORD OF ADDENDA TO BID DOCUMENTS

We confirm that the following communications received from the Employer before the submission of this Bid Offer, amending the Bid Documents, have been taken into account in this Bid Offer:

	Date	***Title or Details***
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Attach additional pages if more space is required.

Signature of Bidder: _____ Date: _____

SCHEDULE I: PROPOSED AMENDMENTS AND QUALIFICATIONS

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

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

Page	Clause or item	Proposal

Signature of Bidder: _____ Date: _____

SCHEDULE J: COMPLIANCE WITH OHSA (ACT 85 OF 1993)

Bidders are required to satisfy the Employer and the Engineer as to their ability and available resources to comply with the above by answering the following questions and providing the relevant information required below:

1. Is the Bidder familiar with the OHSA (Act 85 of 1993) and its regulations? **YES / NO**
2. Who will prepare the Bidder's Health and Safety Plan (Provide a copy of the persons/s curriculum vitae/s or company profile).

   _____

3. Does the Bidder have a health and safety policy? (If yes, provide a copy). **YES / NO**
   How is this policy communicated to all employees?

   _____

4. Does the Bidder keep records of safety aspects of each construction site? **YES / NO**
   If yes, what records are kept?

   _____

5. Does the Bidder conduct monthly safety meetings? **YES / NO**
   If yes, who is the chairperson of the meeting and who attend these meetings?

   _____

6. Does the Bidder have a safety officer in his employment, responsible for the overall safety of his company? **YES / NO**

   If yes, please explain his duties and provide a copy of his CV.

   _____

   _____

7. Does the Bidder have trained first aid employees? If yes, indicate who. **YES / NO**

   _____

8. Does the Bidder have a safety induction training programme in place? **YES / NO**

   If yes, provide a copy.

Signature of Bidder: _____ Date: _____

SCHEDULE K: LETTER OF GOOD STANDING FOR COMPENSATION FOR OCCUPATIONAL INJURIES AND DECEASES ACT 130 OF 1993 (AMENDED) AS ISSUED BY THE DEPARTMENT OF LABOUR

The Bidder is to attach to this page a valid Certificate of good standing with the Compensation Commissioner or with the Federated Employers' Mutual Assurance (FEM). Failure to attach this certificate will render the Bid non-responsive.

SIGNED ON BEHALF OF BIDDER	**DATE :**

POSITION	**NAME OF BIDDER**

MBD 4

SCHEDULE L: DECLARATION OF INTEREST

2. No bid will be accepted from persons in the service of the state*.

3. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.

4. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

4.1 Full Name of bidder or his or her representative: _____

4.2 Identity Number: _____

4.3 Position occupied in the Company (director, trustee, shareholder[2]): _____

4.4 Company Registration Number: _____

4.5 Tax Reference Number: _____

4.6 VAT Registration Number: _____

4.7 The names of all directors / trustees / shareholders / members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.

4.8 Are you presently in the service of the state? **YES / NO**

4.8.1 If yes, furnish particulars: _____

_____

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

4.9.1 If yes, furnish particulars: _____

_____

4.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

---

[1]MSCM Regulations: "in the service of the state" means to be –

(a) a member of –
  (i) any municipal council;
  (ii) any provincial legislature; or
  (iii) the national Assembly or the national Council of provinces;

(b) a member of the board of directors of any municipal entity;
(c) an official of any municipality or municipal entity;
(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
(e) a member of the accounting authority of any national or provincial public entity; or
(f) an employee of Parliament or a provincial legislature.

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

4.10.1 If yes, furnish particulars: _____

_____

4.11 Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

4.11.1 If yes, furnish particulars _____

_____

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

4.12.1 If yes, furnish particulars _____

_____

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

4.13.1 If yes, furnish particulars _____

_____

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

4.14.1 If yes, furnish particulars _____

_____

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

Full Name	Identity Number	State Employee Number

_____ _____

Signature **Date**

_____ _____

Capacity **Name of Bidder**

MBD 6.1

SCHEDULE M: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

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

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

---

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 To be completed by the organ of state

(*delete whichever is not applicable for this tender*).

a) The applicable preference point system for this tender is the 70/30 preference point system.

b) The applicable preference point system for this tender is the 80/20 preference point system.

c) Either the 70/30 or 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

(a) Price; and

(b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

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

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that

preference points for specific goals are not claimed.

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

2. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 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**

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right) \text{ or } \quad Ps = 90\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

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

3.2.1. POINTS AWARDED FOR PRICE

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

80/20 **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \quad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

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

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

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)	Supporting Documents to claim points
Youth Ownership	-	4	-		Certified copy of an ID and CSD report
Women Ownership 50 >		5	-		Certified copy of an ID and CSD report
People with Disability	-	2	-		A professional Doctor certificate
Enterprise within Kopanong Local Municipality Jurisdiction	-	5	-		Proof of Residence/Municipal Account
Black ownership	-	4	-		Company Registration CK1, Certificate of shareholders

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm…….

4.4. Company registration number: ……...

4.5. TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as

indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: .....
DATE: .....

ADDRESS: .....
.....
.....
.....

MBD 8

SCHEDULE N: DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1 This Municipal Bidding Document must form part of all bids invited.

2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

3 The bid of any bidder may be rejected if that bidder, or any of its directors have:

a. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
b. been convicted for fraud or corruption during the past five years;
c. wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).

4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's database as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied). **The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? **The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐

4.3.1	If so, furnish particulars:		
Item	**Question**	**Yes**	**No**
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.7.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) ……..……..……

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM TRUE AND

CORRECT.

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

Signature of Bidder: _____ Date: _____

MBD 9

SCHEDULE O: CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids [1] invited.

2. Section 4 (1)(b)(iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging)[2]. Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3. Municipal Supply Regulation 38(1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:

   a. take all reasonable steps to prevent such abuse;

   b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and

   c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD9) must be completed and submitted with the Bid:

[1] Includes price quotations, advertised competitive bids and proposals.

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

MBD 9

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

in response to the invitation for the bid made by:

_____

(Name of Municipality / Municipal Entity)

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

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

1. I have read and I understand the contents of this certificate;

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

3. I am authorised by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;

4. Each person whose signature appears on the accompanying bid has been authorised by the Bidder to determine the terms of, and to sign, the bid on behalf of the Bidder;

5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organisation, other than the Bidder, whether or not affiliated with the Bidder, who:

   (a) has been requested to submit a bid in response to this bid invitation;
   (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
   (c) provides the same goods and services as the Bidder and/or is in the same line of business as the Bidder.

6. The Bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.

7. In particular, without limiting the generality of paragraph 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

   (a) prices;
   (b) geographical area where product or service will be rendered (market allocation);
   (c) methods, factors or formulas used to calculate prices;
   (d) the intention or decision to submit or not to submit, a bid;
   (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
   (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

[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

9. In 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 the awarding of the contract.

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

....
Signature Date

SCHEDULE P: TENDERER'S BANK RATING

In terms of Clause 2.14 of the Additions to the Conditions of Tender, 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/Her own banker to the effect that he will be able to successfully compete the contract at the tendered amount within the specified time for completion.

However should the Tenderer be unable to provide a bank rating with his/ her tender he/she shall state the reasons as to why he/she is unable to do so, and in addition provide the following of details of his/her banker and bank account that he intends to use for the project.

I / We furnish the following information and hereby authorise the Employer to approach the Bank for a reference.

Name of Account Holder: .....

Name of Bank: ..... **Branch:** .....

Account Number: ..... **Type of Account:** .....

Telephone Number: ..... **Facsmile Number:** .....

Name of Contact Person at the Bank: .....

Failure to provide either the required bank details or a certified bank rating with his/her tender, will lead to the conclusion that the Tenderer does not have the necessary financial resources at his/her disposal to complete the contract successfully within the specified time for completion.

I/We agree, if required, to furnish a copy of the latest audited set of financial statements together with my/our Director's & Auditor's report for consideration by the Employer.

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

Signature (authorised person)…….Date…….

SCHEDULE Q: LIST OF PLANT & EQUIPMENT

Description and indicate if Owned or Rented	Size	Capacity	Number	Availability (%)

Note: The Bidder shall attach to this page the certified copy of Natis / signed letter of undertaking.

SCHEDULE R: LIST OF KEY PERSONNEL WITH CV's AND QUALIFICATIONS

Contracts Manager				
Names:		**NQF Level:** **Qualification:**		
Contract & Employer	**Nature of Work**	**Position Held**	**Value of Work**	**Year Completed**

Site Agent				
Names:		**NQF Level:** **Qualification:**		
Contract & Employer	**Nature of Work**	**Position Held**	**Value of Work**	**Year Completed**

Health and Safety Officer				
Names:		**NQF Level:** **Qualification:**		
Contract & Employer	**Nature of Work**	**Position Held**	**Value of Work**	**Year Completed**

Should you require more space, please add additional pages to this Section and attach to this Annexure.

Note: The Bidder shall attach a shortened CV with relevant qualifications.

SCHEDULE S: COMPANY EXPERIENCE

WORK PROVIOUSLY COMPLETED				
Employer's Details	**Consulting Engineer's Contacts**	**Nature of Work**	**Value of Work (Rands excl. Vat)**	**Date Completed**
Name:				
Tel:				
Fax:				
Email:				
Name:				
Tel:				
Fax:				
Email:				
Name:				
Tel:				
Fax:				
Email:				
Name:				
Tel:				
Fax:				
Email:				
Name:				
Tel:				
Fax:				
Email:				

Please add more pages should you require more space.

Note: The Bidder shall attach the appointment letters and final completion certificates.

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

PORTION 2: THE CONTRACT

DESCRIPTION	COLOUR
THE CONTRACT	
Part C1: Agreements and Contract Data	White
Section C1.1 Form of Offer and Acceptance	White
Section C1.2 Contract Data	Yellow
Section C1.3 Agreement in Terms of Occupational Health and Safety Act, 1993 (ActNo.85 of 1993)	White
Part C2: Pricing Data	
C2.1 Pricing Instructions	White
C2.2 Bills of quantities and Summary	Yellow
Part C3: Scope of Work	**Blue**
C3.1 Description of Works	Blue
C3.2 Engineering	Blue
C3.3 Procurement	Blue
C3.4 Construction	Blue
C3.5 Particular Variations and Specifications and Additions to Standard Specifications	Blue
C3.6 Health and Safety Specifications	Blue
Part C4: Site Information	Green
C4.1 Site Information	Green
	White

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C1 AGREEMENTS AND CONTRACT DATA

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 OHS Agreement

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

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

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

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

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

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

……..……

……..…… Rands (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.

Signature(s) _____ _____

Name(s) _____ _____

Capacity _____ _____

For the tenderer _____

(Name and address of organisation)

Name & Signature of Witness

_____ _____

Name 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 1 Agreements and Contract Data (which includes this Agreement)
Part 2 Pricing Data
Part 3 Scope of Work
Part 4 Site information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.
Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

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

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

Signature(s) _____ _____

Name(s) _____ _____

Capacity _____ _____

For the tenderer _____

(Name and address of organisation)

Name & Signature of Witness

_____ _____

Name 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 _____

5 Subject _____

Details _____

6 Subject _____

Details _____

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and

amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change 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.

Signature(s) _____ _____

Name(s) _____ _____

Capacity _____ _____

For the tenderer _____
(Name and address of organisation)

Name & Signature of Witness

_____ _____
Name Date

FOR THE EMPLOYER

Signature(s) _____
_____

Name(s) _____ _____

Capacity _____ _____

For the tenderer _____
(Name and address of organisation)

Name & Signature of Witness

_____ _____
Name Date

C1.2 CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

Contract Specific Data

The Conditions of Contract are the *General Conditions of Contract for Construction Works (2015) 3RD Edition,* published by the South African Institution of Civil Engineering. Private Bag x200, Halfway House, 1685. Is applicable to this contract and is obtainable from www.saice.org.za.

The following contract specific data, referring to the General Condition of Contract for Construction Works, Third Edition, 2015, are applicable to this contract:

Part 1: Data provided by the Employer

Clause	Description
1.1.1.5	Clause 1.1.1.5 of the GCC is replaced by the following: The "Commencement date" shall be the date the site is handed over to the Contractor.
1.1.1.13	The Defects Liability Period is TWELVE (12) months from the date of issuing a completion certificate
1.1.1.15	The employer is **KOPANONG LOCAL MUNICIPALITY**.
1.1.1.1.26	Pricing Strategy is **fixed Contract.**
1.2	The **Employer's** address for receipt of communication is: Telephone: 078- 940 7196 e-mail: fongo473@gmail.com Address: Private BO X23, Trompsburg, 9913 Contact Person: Mr G Matee
5.3.1	The documentation required before commencement of work is: Acceptance of offer of appointment letter Health and safety plan. Programme of Works. Security (Surety/ performance Guarantee). Insurance of works, cash flow projections.
5.3.2	The time to submit documentation required before the commencement of works is 14 days after receipt of the letter of appointment
5.8.1	The special non-working days are public holidays, Saturdays and Sundays.
5.8.1	The year-end break commences on 15 December 2024 and ends on 04 January 2025.
5.13.1	The penalty for delay to achieve completion by the due completion date is 0,05% of the contract price per day.

Clause	Description
	Add the following clauses:
5.12.2	**Extension of time due to Abnormal Rainfall** Extension of time for completion of the Contract shall be allowed in the event of abnormal rainfall in accordance with the following formula: V = $(N_w-N_n) + (R_w-R_n)/20$ *Where:* V = Extension of time in calendar days for the calendar month under consideration Nw = Actual number of days during the calendar month under consideration on which a rainfall of 10mm and more is recorded Rw = Actual total rainfall in mm recorded during the calendar month under consideration Nn = Average number of days, derived from rainfall records, on which a rainfall of 10mm and more was recorded during the relevant calendar month as per the tabulated data retrieved from the nearest weather station Rn = Average total rainfall in mm for the relevant calendar month, derived from rainfall records, as per the tabulated data retrieved from the nearest weather station Where the extension of time due to abnormal rainfall has to be calculated for portion of a calendar month, pro rata values shall be used. Should V be negative for any particular month, and should its absolute value exceed the corresponding value of N_n, then V shall be taken as being equal to minus N_n. The total extension of time to be granted shall be the algebraic sum of all the monthly extensions, provided that if this total is negative then the time for completion shall not be reduced due to subnormal rainfall. Rainfall records for the period of construction shall be taken on Site. The Contractor shall provide and install all the necessary equipment for accurately measuring the rainfall. The Contractor shall also provide, erect and maintain a security fence plus gate, padlock and keys at each measuring station, all at his own cost. The Engineer or his Representative shall take and record the daily rainfall readings. The Contractor shall be permitted to attend these readings, in the company of the Engineer's Representative. Access to the measuring gauge(s) shall at all times be under the Engineer's control. The rainfall records applicable to this Contract are those recorded and updated at Weather Bureau in Polokwane. Unless otherwise provided in the Site Information, the value of "n" shall be taken as equal to the tendered time for completion of the Works in months, rounded off to an integer.

Clause	Description
	Extension of time during normal working days will be granted to the degree to which actual delays as determined, exceed the number of “n” normal working days. The value of “n” does not take into account further or concurrent delays which are caused by other abnormal climatic conditions such as floods, which have to be determined separately.
6.3	All variations shall be in writing, confirmed by the Contractor and finally approved by the Employer. The Contractor shall not perform any variation work until written approval is issued from the Employer.
6.8.2	The value of the contract is fixed and therefore no payment certificates shall be subjected to Contract Price Adjustment
6.10.3	The percentage retention is 10% of the contract price (including VAT).
10.5.1	Disputes are to be referred to adjudication.
10.7.1	Disputes are to be referred for final settlement to arbitration.

Part 2: Data provided by the Contractor

<table>
<tr><td>Clause</td><td></td></tr>
<tr><td>1.1.1.9</td><td>The name of the Contractor is .....</td></tr>
<tr><td>1.2</td><td>The Contractor's address for receipt of communication is:
Telephone: ..... Facsimile: .....

e-mail:……

Address:…….

Contact Person:</td></tr>
<tr><td>6.2.1</td><td>The Security to be provided by the Contractor is one of the following:

<table>
<tr><th>TYPE OF SECURITY
(INCLUDING VAT AND CPA)</th><th>CONTRACTOR'S CHOICE
(YES/ NO)</th></tr>
<tr><td>Cash Deposit of 10% of the contract price into Municipal Account</td><td></td></tr>
<tr><td>Deduction of 5% of the contract price from the Contractor's first payment certificate with a balance of the 5% deducted from the Contractor's second payment certificate</td><td></td></tr>
<tr><td>Performance Guarantee of 10% of the contract price</td><td></td></tr>
</table>
</td></tr>
<tr><td>6.5.1.2.3</td><td>The percentage allowances to cover all overhead charges is ……..%.</td></tr>
</table>

C1.3 AGREEMENT IN TERMS OF THE OCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

C1.3 AGREEMENT IN TERMS OF THE OCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT made at _____

on this the _____ day of _____ in the year _____ ***between*** *THE KOPANONG LOCAL MUNICIPALITY* ***(hereinafter called "the*** *Employer****") of the one part, herein represented by***

in his capacity as _____

and

_____

(hereinafter called "the Mandatory") of the other part, herein represented by

_____

in his capacity as _____

WHEREAS the Employer is desirous that certain works be constructed, viz,

CONTRACT NO. KLM/GAR/MWWTW/24/25 – GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

and has accepted a Bid by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1 The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.

2 This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or Engineer requiring him to commence the execution of the Works, to either

(a) the date of the Final Approval Certificate issued in terms of Clause 5.16.1 of the General Conditions of Contract (hereinafter referred to as "the GCC"),

(b) the date of termination of the Contract in terms of Clauses 9.1of the GCC.

3 The Mandatory declares himself to be conversant with the following:

(a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act:

(i) Section 8 : General duties of employers to their employees;

(ii) Section 9 : General duties of employers and self-employed persons to persons other than employees;

(iii) Section 37 : Acts or omissions by employees or mandataries, and

(iv) Subsection 37(2) relating to the purpose and meaning of this Agreement.

(b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

4 In addition to the requirements of Clause 8 of the GCC and all relevant requirements of the above-mentioned Volume 3, the Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilise all machinery, plant and equipment in accordance with the Act.

5 The Mandatory is responsible for the compliance with the Act by all his subcontractors, whether or not selected and/or approved by the Employer.

6 The Mandatory warrants that all his and his subcontract' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993 which cover shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.

7 The Mandatory undertakes to ensure that he and/or subcontractors and/or their respective employers will at all times comply with the following conditions:

(a) The Mandatory shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Mandatory shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.

(b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Mandatory to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.

(c) 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 into any incident involving the Mandatory and/or his employees and/or his subcontractors.

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

SIGNED FOR AND ON BEHALF OF THE EMPLOYER:

WITNESS 1 .....……

NAME 1 .....……
(IN CAPITALS)

SIGNED FOR AND ON BEHALF OF THE MANDATORY:

WITNESS 1 .....…….
.

NAME 1 .....……
(IN CAPITALS)

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C2.1 PRICING INSTRUCTIONS

1. GENERAL

These pricing instructions provide the Tenderer with guidelines and requirements with regard to the completion of the Bill of Quantities. These pricing instructions also describe the criteria and assumptions which will be assumed in the Contract to have been taken into account by the Tenderer when developing his prices.

The Bill of Quantities shall be read with all the documents which form part of this Contract.

The following words have the meaning hereby assigned to them:

Unit	:	The Unit of measurement for each item of work in terms of the Scope of Work.
Quantity	:	The number of units for each item.
Rate	:	The payment per unit of work at which the tenderer tenders to do the work.
Amount	:	The product of the quantity and the rate tendered for an item.
Lump sum (L.Sum)	:	An amount tendered for an item, the extend of which is described in the Pricing Instructions, Bill of Quantities or the Scope of Work but the quantity of work of which is not measured in any units.

2. PAY ITEMS

The method of measurement published by the COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998 edition), subject to the variations and amendments contained in section C3.5.2 shall be applicable to this contract.
Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standard Specifications. The measurement and payment clause of each Standard Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standard Specification, or the Scope of Work, conflict with the terms of the Bill of Quantities, the requirements of the Standard Specification or Scope of Work, as applicable, shall prevail.

The item numbers appearing in the Bill of Quantities refer to the corresponding item number in the standard specifications or as amended in the Scope of Work. In the letter case, the item number is prefixed with the letter "B". The same applies to new clauses added to the standard specification.

Payment for items which are designated to be constructed labour-intensively (LI items) either in this schedule or in the Scope of Works, will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

In the event that the LI items are not adding to the targeted Contractors Participation Goal (CPG) the onus is with the Contractor construct other activities labour intensively to reach the targeted CPG goal.

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

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1 000 kg)
m²	=	square metre	No.	=	number
m².pass	=	square metre pass	sum	=	lump sum
ha	=	hectare	MN	=	meganewton
m³	=	cubic metre	MN.m	=	meganewton-metre
m³-km	=	cubic metre-kilometre	PC sum	=	Prime Cost Sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	per cent
MPa	=	megapascal	kW	=	kilowatt

3. QUANTITIES

3.1 Unless otherwise stated, items are measured net, and no allowance is made for waste.

3.2 The quantities set out in the Bill of Quantities are the estimated quantities of the Works, and do not necessarily represent the actual amount of work to be done. The quantities shown in the bills of quantities are for all the total estimated work per part of work during the current financial year only. It is anticipated that the budget amount for the next financial year will be similar.

3.3 All the work of a specific part may be allocated to one contractor by the municipality or it may be shared between all the appointed contractors for that specific part of the work.

3.4 The quantities certified for payment, and not the quantities given in the Bill of Quantities, shall be used for determining payments to the Contractor. The Contract Price for the completed contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.

4. RATES

4.1 The prices and rates to be inserted in the Bill of Quantities are to be full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

4.2 A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered or where a word or phrase such as “included” or “provided elsewhere” will be accepted as a rate of nil (R0,00) having been entered against such items and covered by the other prices or rates in the schedule.

Any work executed to which such a pay item applies, shall be measured under the appropriate items in the Bill of Quantities and valued at a rate of nil (R0,00). The rate of nil shall be valid irrespective of any change in the quantities during the execution of the Contract.

4.3 The Tenderer shall fill in a rate against all items where the words “rate only” appears in the amount column. The intention is that, although no work is foreseen under such item and no quantities are consequently given in the quantity column, the tendered rate shall apply should work under this item be actually required.

4.4 Except where rates only are required, the Tenderer shall insert all amounts to be included in his total tendered price in the “Amount” column and show the corresponding total tendered price.

4.5 The Tenderer shall not group together a number of items and tender one rate for such group of items.

4.6 All rates and sums of money quoted in the Bill of Quantities shall be in rands and whole cents. Fractions of a cent shall be discarded.

4.7 All prices and rates entered in the Bill of Quantities must be **excluding Value Added Tax (VAT)**. VAT will be added last on the summary page of the Bill of Quantities.

4.8 Should excessively high unit prices be tendered, such prices may be of sufficient importance to warrant rejection of a tender by the Employer.

4.9 Where the Contractor is required to furnish detailed drawings and designs or other information in terms of the Contract Documents, all costs thereof shall be deemed to have been provided for and included in the unit rates and sum amounts tendered for the items scheduled in the Bill of Quantities, and separate additional payments will not be made.

4.10 If 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 unit rate shall be corrected. Where there is an obvious gross misplacement of the decimal point in the unit rate, the unit rate as quoted shall govern, and the line item total shall be corrected.

END OF SECTION

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C2.2 BILL OF QUANTITIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
	SANS 1200A	**SECTION A: GENERAL**				
A.1	8.3	Scheduled fixed-charge and value-related items				
A.1.1	PSA 8.3.1	Fixed preliminary and general charges	Sum	1		
A.1.2	PSA 8.3.2	Value related preliminary and general charges	Sum	1		
A.1.3		Penalty for falling behind on the approved Programme with reference to the critical path:				
A.1.3.1		a) Time related penalty	Day	-2 000.00		Rate Only
A.1.4	8.3.4	Removal of site establishment	Sum	1		
A.2		Name boards				
A.2.1	PSAB 1	Name boards (Drawing no. 172-101)	No.	1		
A.3		Scheduled time-related items:				
A.3.1	PSA 8.4.1	Time-related preliminary and general charges	Sum	1		
A.3.2		Operate and maintain Engineer's office building	Sum	1		
A.4	8.6	Prime Cost Items				
A.4.1		Additional tests required by the Engineer	PC Sum	1	30 000.00	30 000.00
A.4.2		Charge required by Contractor on sub-item A4.1 above	%		30 000.00	
A.4.3		Costs encountered by the Engineer (site supervision)	PC Sum	1	50 000.00	50 000.00
A.4.4		Charge required by Contractor on sub-item A4.3 above	%		50 000.00	
A.4.5		Transportation of the Engineer's Representative	Prov Sum	1	20 000.00	20 000.00
A.4.6		Overheads, charge required by Contractor on sub-item A4.5 above	%		20 000.00	
A.4.7		Telephone and communication facilities for the Engineer's Representative	Prov Sum	1	10 000.00	10 000.00
A.4.8		Overheads, charge required by Contractor on sub-item A4.7 above	%		10 000.00	
A.4.9		Photocopying machines and personal computer for the Engineer's Office	Prov Sum	1	10 000.00	10 000.00
A.4.10		Overheads, charge required by Contractor on sub-item A4.9 above	%		10 000.00	
A.5		Community Liaison Officer				
A.5.1	PSA 8.3.2	Establish facilities on site for the Community Liaison Officer	Sum	1		
A.5.2	8.3.4	Removal of Community Liaison Officer's site establishment and reinstate site upon completion	Sum	1		
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
A.5.3	PSA 8.4.1	Operate and maintain Community Liaison Officer's site office	Sum	1		
A.5.4	PSA 8.5	Allow for remuneration for Community Liaison Officer	Prov Sum	1	11 000.00	11 000.00
A.5.5		Overheads, charges and profit on sub-item A5.4 above	%			
A.6	8.8.5	Cost of Survey				
A.6.1		Surveyor for detailed survey and setting out of works by a registered land surveyor	Prov Sum	1	25 000.00	25 000.00
A6.2		Overheads, charge required by Contractor on sub-item A.6.1above	%		25 000.00	
A.7	SPEC OHS	Health and safety :				
A.7.1	PSA 8.9	Compliance with OHS Act and Regulations	Sum	1		
A.7.2	PSA 8.5	Health and safety specialist (Engineer)	Prov Sum	1	30 000.00	30 000.00
A.7.3		Overheads, charges and profit on sub-item A7.2 above	%		30 000.00	
A.8	OHS 5.2	Penalty for non-compliance with the Occupational Health and Safety Specification:				
A.8.1		a) Fixed penalty per occurrence	No	-10 000.00		Rate Only
A.8.2		b) Time related penalty	Hour	-2 500.00		Rate Only
A.9	SPEC EM	Environmental management :				
A.9.1		Compliance with Environmental Management Specification	Sum	1		
A.9.2	PSA 8.5	Environmental specialist (Engineer)	Prov Sum	1	40 000.00	40 000.00
A.9.3		Overheads, charges and profit on sub-item A9.2 above	%		40 000.00	
A.10	EM 6.2.3	Penalty for non-compliance with the Environmental Management Specification:				
A.10.1		a) Fixed penalty per occurrence	No	-10 000.00		Rate Only
A.10.2		b) Time related penalty	Hour	-2 500.00		Rate Only
A.11		Temporary works				
		Existing services:				
A.11.1	8.8.4	Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer	m³	80		
Total Carried Forward To Summary						

#SPILL!	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
		SECTION B: DAYWORKS				
B1	PSA 8.7	Daywork				
B1.1		Labour				
B1.1.1		Artisan	day	10		
B1.1.2		Skilled labour	day	10		
B1.1.3		Semi-skilled labour	day	10		
B1.1.4		Unskilled labour	day	10		
B1.2		Materials				
B1.2.1		Allow for all-inclusive materials actually used	PC Sum	1	15 000.00	15 000.00
B1.2.2		Charge required by Contractor on sub-item B1.2.2 above	%		15 000.00	
B1.3	PSA 8.7	Equipment				
B1.3.1		Case 580F or similar	day	5		
B1.3.2		Hitachi Ex 200 or similar	day	5		
B1.3.3		Honey Sucker	day	5		
B1.3.4		6m³ tipper	day	5		
B1.3.5		1 ton light delivery vehicle	km	500		
B1.3.6		Bomag BW 76S or similar	day	3		
B1.3.7		20m³/h water pump	day	3		
B1.3.8		250 A DC welder	day	3		
B1.3.9		Compressor (breakers and piping included)	day	5		
B1.3.10		Any other equipment (specify)				
		1).....	day	5		
		2).....	day	5		
		3).....	day	5		
Total Carried Forward To Summary						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
		SECTION C: REFURBISHMENT OF INLET WORKS				
C1		**CIVIL WORKS**				
C1.1	SANS 1200C	SITE CLEARANCE				
C1.1.1	8.3.1	Site Clearance				
C1.1.1.1		Clear vegetation and trees of girth up to 1m	m²	500		
C1.1.1.2		Remove topsoil to nominal depth of 150mm and stockpile	m²	50		
C1.1.2		Clear trees and designated obstacles of girth over 1,0m				
C1.1.2.1		Over 1,0m and up to and including 2,0m	No	1		
C1.1.2.2		Over 2,0m and up to and including 3,0m	No	1		
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
C3	**1200D**	**Refurbishment of existing infrastructure:**				
C3.1		Removal of all sludge, fluids and solids from the inlet works and pump station sump and dispose of at the Bethulie Waste Water Treatment works.	m³	60		
C3.2		Cleaning interior of the sewer pump station sump, storage tank and inlet works by means of high pressure jet washing equipment to ensure no debris, moss, algae or other foreign materials are present.	m²	70		
C3.3	PSC 3.5.2.2	Apply PENETRON MORTAR to areas identified by the Employers Agent or their Representative in the inlet works and sump according to suppliers specifications	m²	3		
C3.4	PSC 3.5.2.1	Apply PENETRON slurry to the interior of the inlet works and sump according to suppliers specifications.	m²	60		
C4	**Building Spec**	**Refurbishment of existing roofs**				
C4.1		Remove, stockpile and dispose of damaged corrugated roof sheets and lip channels were instructed by the Employers Agent or their representative.	m²	40		
C4.2		Supply, deliver, store and install to new steel roof 3m x 0.7m x 0.47mm corrugated roof sheets.	m²	40		
C4.3		Supply, deliver and install new 100 x 50 x 20 x 2mm lip channel for roof support structure with and including two coats of corrosion protection paint.	m	15		
C4.4		Supply, deliver and install new 100 x 100 x 3mm square tubing for roof support structure with and including two coats of corrosion protection paint.	m	10		
C4.5		Supply, deliver and install 150mm precast hollow core concrete roof slabs and secure to existing walls according to supplier specifications.	m²	R/O		Rate Only
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
C15		**MECHANICAL WORKS**				
C15.1		**Inlet Works - Hand Screen**				
C15.1.1		Deinstall, remove and store a Municipal storage facilities	Sum	1		
C15.1.2		Prepare/submit G.A Drawings for coarse hand screen	No	1		
C15.1.3		Manufacture, delivery and store hot dip galvanized coarse	No	1		
C15.1.4		Install and Commission coarse hand screen	No	1		
C16		**Inlet works - Hand Stops (Grit Channels)**				
C16.1		Prepare/submit G.A Drawings for PVC hand stops	Sum	1		
C16.2		Manufacture, deliver and store 450mm x 450mm PVC hand stops (Including guide rails, seal rubbers and fastners)	No	4		
C16.3		Install and commission hand stops	Sum	1		
C18		**MANUFACTURE, SUPPLY AND STORE**				
		Pipework				
		Discharge pipework				
C18.1		150mm HDG steel pipes	m	5		
C18.2		150mm HDG flanges (Drilling 1600/3, including bolts, nuts & gaskets)	No	15		
C18.3		80mm to 150mm Reducer Standard Dimesions, HDG (Drilling 1600/3, including bolts, nuts & gaskets)	No	2		
C18.4		150mm to 200mm Reducer Standard Dimesions, HDG (Drilling 1600/3, including bolts, nuts & gaskets)	No	2		
C18.5		200mm PVC to 200mm Steel Flanged adapter (Klinger or similar approved)	No	1		
C18.6	SANS LD	Supply and install (coupled with associated clearing & grubbing, excavations, bedding, blanket an backfill for a depth not exceeding 1.0 m depth for a pipe size of 200 mm)	m	200		
		Dosing				
C18.7		Supply dosing material for sewer treatment at specified point by the Engineer.	Prov Sum	1	90 000.00	90 000.00
C18.8		Overheads, charge required by Contractor on sub-item A4.7 above	%		90 000.00	
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
C26		**AREA LIGTHS**				
C26.1		Prepare/Submit the G.A drawing (s), schematic diagram, single line diagram and load list for the Area Light kiosk	Sum	1		
C26.2		Provision for cable material required for the area light kiosk	Prov Sum	1	20 000.00	20 000.00
C26.3		Overheads, charges and profit on item C28.3	%		20 000.00	
C26.4		Install and terminate the Area Ligth Kiosk	Sum	1		
C26.5		Commission the Area Ligth Kiosk	Sum	1		
		Cables				
C26.6		Prepare cable route and layout drawing(s) and cable schedule for the Area Ligth Kiosk	Sum	1		
C26.7		Provision for cable material required for the area lighting and cabling	Prov Sum	1	10 000.00	10 000.00
C26.8		Overheads, charges and profit on item C28.7	%		10 000.00	
C26.9		Install and terminate high mast light 1 cables, at inletworks	Sum	1		
C26.10		Install and terminate high mast light 2 cables, at dosing station	Sum	1		
C26.11		Commission the cables for the Area Ligth	Sum	1		
Total Carried Forward to Summary						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
		SECTION D: REFURBISHMENT OF PUMP STATION				
D1		**CIVIL WORKS**				
D1.1	SANS 1200C	SITE CLEARANCE				
D1.1.1	8.3.1	Site Clearance				
D1.1.1.1		Clear vegetation and trees of girth up to 1m	m²	100		
D1.1.1.2		Remove topsoil to nominal depth of 150mm and stockpile	m²	40		
D1.2	PSC 8.1.11	Fencing				
D1.2.1		Take down, stockpile and dispose of existing steel "Devil's Fork" fence at a designated site approved by Engineer.	m	50		
D1.2.2		Supply, deliver, store and install 1.8m high galvanised, 75 x 150 x 3mm aperture, diamond razor mesh fencing with and including 3000 x 100 x 2mm thick overall circular galvanised plain fencing post with a 600mm long 45 degree bend at the top for flat wrap @ 3500mm cc, binding and straining wires, concrete for footings size 600 x 550mm high and all materials required. Refer to drawing 172-403	m	120		
D1.2.3		Supply, deliver, store and install 500mm galvanised flat wrap razor wire on top of perimeter fencing as per Item F1.2.4.	m	120		
D1.2.5		Additional padlocks. Yale 75mm Iron Shutter padlock.	No	2		
D1.2.6		Cast to excavated surfaces with class 15/19 MPa concrete 200x200mm footing beam for all new fencing. Rate to include all materials, labour and plant.	m³	3		
D2		Gritt Collecting Manhole				
D2.1		Cast 20/19 MPa concrete to floor and cover slabs.	m³	12		
D2.2		Smooth formwork				
D2.2.1		To sides of roof slab	m²	6		
D2.3		Narrow Widths				
D2.3.1		Vertical sides of foundations up to 300mm high	m	60		
D2.4		Steel reinforcing				
D2.4.1		R8	t	2		
D2.4.2		Y12	t	2		
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
D2.5		Supply and install IPE 160 I-beams gantry including all fasteners as similar to "on site". Rate to include 2 coats red oxide.	No.	2		
D2.6		Supply 1.5 ton capacity mobile rolling block and tackle	Prov Sum.	1	20 000.00	20 000.00
D2.7		Overheads, charges and profit on sub-item C above	%		20 000.00	
D2.8		Supply and install step irons to all gritt manholes	No	15		
D3		Restricted excavations				
D3.1		Excavate in all materials for Gritt collecting manholes and use for backfilling or embankments, or dispose:	m³	10		
D3.2		Extra over item F3.1 above				
D3.2.1		Hard rock excavation.	m³	3		
D3.3		Hand excavations in all materials	m³	20		
D3.4		Extra over item F3.3 above				
D3.4.1		Hard rock excavation.	m³	5		
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
D4	**Building Spec**	**Pump shed**				
D4.1		Excavation for structures				
		Excavation in soft material between the following depths and use for backfill, compact and dispose of surplus material:				
D4.1.1		0 m up to 1 m	m³	5		
D4.2		Backfill to excavations utilising :				
D4.2.1		Material from the excavation compacted to 97% of modified AASHTO density	m³	5		
D4.3		**Formwork**				
		Smooth formwork:				
D4.3.1		Vertical to sides of foundations up to 300mm high	m	14		
D4.3.2		Plinths	m²	3		
D4.4		**High tensile steel reinforcing:**				
D4.4.1		R10	t	0.4		
D4.4.2		Y12	t	1.5		
D5		**Concrete**				
D5.1		Blinding: Class 15/19, 50mm thick	m²	20		
		Class 25/19 concrete:				
D5.2		Floor slabs up to 250mm thick	m³	4		
D5.3		Pump plinths	m³	4		
D5.4		Form 25 x 25mm weir chamfer	m	10		
D6		**Roof**				
D6.1		Supply, deliver, store and install new 3m x 0.7m x 0.47mm corrugated roof sheets.	m²	15		
D6.2		Supply, deliver and install new 100 x 50 x 20 x 2mm lip channel for roof support structure with and including two coats of corrosion protection paint.	m	30		
D6.3		Supply, deliver and install new 100 x 100 x 3mm square tubing column for roof support structure with and including two coats of corrosion protection paint.	m	30		
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
D7		**MECHANICAL WORKS**				
		Deinstall, remove and store existing pump station components.				
	SANS 1200L	**Discharge pipework**				
		Pipework up to and including diameter:				
D7.1		0-150mm diameter (including fittings, adapters)	m	30		
D7.2		**Pumps and Motors**				
D7.3		Existing submersible pumps/motor asseblies and store at Municipal storage facility	No	4		
D8		**MANUFACTURE, SUPPLY AND STORE**				
D8.1		Prepare/Compile G.A Drawings for the pump station including, pumps, motors, pipework	Sum	1		
	SANS 1200L	**Pipework**				
		Interconnecting pipework between inflow chamber & sumps				
D8.2		160mm PVC to Steel Flanged adapter (Cast Iron)	No	8		
		Discharge pipework				
D8.3		150mm Hot Dip Galvanized (HDG) steel pipes	m	45		
D8.4		150mm HDG flanges (Drilling 1600/3, including bolts, nuts & gaskets)	No	66		
D8.5		80mm to 150mm Reducer Standard Dimesions, HDG (Drilling 1600/3, including bolts, nuts & gaskets)	No	8		
D8.6		160mm PVC to 150mm Steel Flanged adapter (Klinger or similar approved)	No	8		
	SANS 1200L	**Valves**				
		Sump inflow valves				
D8.7		150mm RSV Gate Valve PN9 (AVK or similar approved)	No	4		
D8.8		150mm Flanged Adapter for PVC to steel (Klinger or similar approved)	No	8		
		Discharge pipework				
D8.9		150mm Silent Check Valve PN12 (AVK or similar approved)	No	4		
D8.10		50mm Vento-Mat RGXII Sewer Air-valve or similar approved	No	2		
D8.11		Gormann Rupp Air Release Valve GRP33-07	No	4		
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
D8.12		150mm RSV Gate Valve PN12 (AVK or similar approved)	No	4		
D8.13		50mm RSV Gate Valve PN12 (AVK or similar approved)	No	2		
D9		**Pump sets** Gormann Rupp T3C60SC-BFM, self priming centrifugal pump. Including :				
D9.1	Mech-Specs	a.Motor - 5.5kW/4P/380V/IP55 b.Belt driven c.Mild steel galvanized base plate, complete with wedge belts, pulleys and guard	No	3		
D10	SANS 1200HA	**Lifting Equipment** Lifting equipment for the pump station. Elephant Manual Chain Block H-100, Model H-1 or similar approved.				
D10.1		Additional equipment to include: a. Plain Trolley, Elephant Model P-1 or similar approved b. Lifting Hooks to a minimum load capacity of 1-ton	No	1		
D11		**Level Control Equipment**				
D11.1		Supply, deliver and store level probes for two sumps: a) APS - 3C or similar approved b) 3 - Probes (Common, low and high) c) Depths to be confirmed on site d) All required cabling and connections to MCC panel	Sum	1		
D12		**INSTALLATION AND COMMISSIONING**				
D12.1		Interconnecting pipework	Sum	1		
D12.2		Dischage pipework	Sum	1		
D12.3		Valves	No	10		
D12.4		Pump sets	No	3		
D12.5		Lifting equipment	No	2		
D12.6		Level Control Equipment	No	2		
Total Carried Forward						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
Brought Forward						
D13	**SANS 1200HA**	**STRUCTURAL STEEL WORKS**				
		Complete supply, manufacturing, corrosion protection (HDG)				
D13.1		152x152x23kg/m H-Section column incuding end/baseplates, chemical anchor bolts	t	2		
D13.2		IPE 200 I-section beam, including end/clear plates and connection bolts, nuts & washers	t	1.5		
D14		**ELECTRICAL WORKS**				
		Main Control Consol (MCC)				
D14.1		Deinstall, remove, store and dispose of existing electrical components.	Sum	1		
D14.2		Prepare/Submit G.A drawings, single line diagrams and load list for MCC panel of the pump station	Sum	1		
D14.3	Elec-Specs	Manufacture, deliver, supply and store MCC Panel for pump station	Prov Sum	1	100 000.00	100 000.00
D14.4		Overheads, charges and profit on item F14.3	%		100 000.00	
D14.5		Install and terminate MCC Panel	Sum	1		
D14.6		Commission MCC Panel	Sum	1		
		Cables (MCC panel to pump sets)				
D14.7		Deinstall, remove, store and dispose existing cables	Sum	1		
D14.8		Prepare/Submit cable route layout drawing (s) and cable schedule for the pump station MCC	Sum	1		
D14.9		Provision for cable material required for the pump station)	Prov Sum	1	40 000.00	40 000.00
D14.10		Overheads, charges and profit on item F14.9	%		40 000.00	
D14.11		Install and terminate for the following cables				
D14.12		Pump set 1 cables	m	40		
D14.13		Pump set 2 cables	m	40		
D14.15		Level probe cabling at sumps	m	40		
D14.15		Earth mat cable for MCC Panel	m	40		
D14.16		Commision all cables for the MCC pump station cables	Sum	1		
D15		**Main supply cabling**				
D15.1		Fault finding on existing feed cable from main power supply to pump station, including breakers	Sum	1		
D15.2		Provisional item for the procurement and installation of cabling damaged or in need of replacement	Prov Sum	1	10 000.00	10 000.00
D15.3		Overheads, charges and profit on item F15.2	%		10 000.00	
Total Carried Forward to Summary						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
		SECTION E: NETWORK REFURBISHMENT				
E1	PSCE	Cleaning of existing sewer pipes				
E1.1		Clearing, unblocking and removal of silt, sand, sludge, roots and other debris from sewer pipe lines, and manholes by using high pressure water jetting equipment and machinery. Remove and deposit this material at the official municipal disposal sites for the following pipe sizes:				
E1.1.1		110mm dia.	m	75		
E1.1.2		160mm dia.	m	2 000		
E1.1.3		200mm dia.	m	200		
E1.1.4		250mm dia.	m	250		
E2		Rebuilding of benching to existing manholes where instructed by the Engineer irrespective of pipe size or depth:	No	3		
E3		Supply, deliver, store and replace damaged covers and frames irrespective of size where instructed by the Engineer	No	3		
E4	PSCI	Camera inspections				
E4.1	PSCI 1.1a)	Allow of camera inspection of the networks designated by the Engineer	Prov Sum	1	30 000.00	30 000.00
E4.1.1		Overheads, charges and profit on sub-item J5.1 above	%		30 000.00	
E4.2	PSCI 1.1b)	Allow of Blocking existing flow per manhole for various diameters	Prov Sum	1	15 000.00	15 000.00
E4.2.1		Overheads, charges and profit on sub-item J5.2 above	%		15 000.00	
E4.3	PSCI 1.1c)	Diversion of flow in existing pipes for				
E4.3.1		Flows up to 1m3/min	hr	40		
E4.3.2		Flows between 1m3/min up to 10m3/min	hr	60		
Total Carried Forward to Summary						

SUMMARY OF SCHEDULES

SECTION	DESCRIPTION	AMOUNT (R)
A	Section A: General	
B	Section B: Dayworks	
C	Section C: Refurbishment of WWTW	
D	Section D: Refurbishment of Sewer Pump Station	
E	Section E: Network Refurbishment	
	SUB-TOTAL 1	
	10% Contingencies	
	SUB-TOTAL 2	
	15% Value added tax	
TOTAL CARRIED FORWARD TO FORM OF OFFER		

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GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C3.1 SCOPE OF WORK

C3.1 DESCRIPTION OF WORKS

C3.1.1 General Description of the project

The project description is Gariepdam: Repairs and Refurbishment of Wastewater Treatment Works and Pump Station.

C3.1.1 Employer's Objectives

The maintenance of the wastewater treatment works and sewer pump station will ensure effective transfer and treatment of effluent generated by the whole of Gariep Dam.

The Employer desires that the work be of a high standard and be completed within the shortest practical time.

C3.1.2 Overview and Location of Works

The Gariep Dam Maintenance of Waste Water Treatment and pump station are currently non-operational and the infrastructure is in the bad condition.

All work will be performed within the District of Xhariep District Municipality by the Kopanong Local Municipality of the town of Gariep Dam.

C3.1.3 Extent of Works

A summary of the scope of works are as follow:

C3.1.3.1 Wastewater Treatment Works

- Refurbish one (1) pump and procure one (1) new pump at a pump station next to Gariep Dam Hotel.
- Supply and install the two (2) pumps at pump station in Hydro Park
- Refurbish the pump station building at Hydro Park
- Hydro-Jetting of 2km existing pipeline
- Electrical refurbishment on both the pump stations
- Fencing pump station next to Gariep dam Hotel with Devil's Fork

C3.1.3.1 Sewer Network

- Maintenance and unblocking of the sewer network;
- Repairing damaged manholes and benching; and
- Estimated 2km of pipe repairs and replacement.

C3.1.3.2 Sewer Pump Station

- Installation of two (3) new pump sets;
- Refurbishment of existing perimeter fence;
- Construction of a grit collection manhole on the outfall sewer line leading towards the sewer pump station;
- Construction of a guard house/ ablution facility which will also house tools and the control panels for the pumps;
- Construction of a gantry for the new sets of pumps; and

NB Note:
The description of the project as described in this section is merely an outline of the contract works and shall not be regarded as limiting to the amount of work to be done by the Contractor under this contract.

C3.1.4 Location of the Works

The following details provide the key elements of the project area:

The location of the project is indicated below as follows

District	: Xhariep District
Local Municipality	: Kopanong Local Municipality
Nearest City	: Bloemfontein
Nearest Town	: Gariep Dam
Location	: Gariep Dam WWTW
Latitude	: 30°35'11.98"S
Longitude	: 25°29'15.13"E

C3.1.5 Temporary Works

The temporary works will be identified during construction. Contractor shall be responsible for all the temporary works required to enable construction and successful completion of the project.

C3.1.6 General Information

C3.1.6.1 Drawings

There are no drawings to refer to. This project is repair and refurbishment, thus the contractor will be working on exiting infrustracture.

C3.1.6.2 Power, Water Supply and Other Services

The contractor shall make his own arrangements concerning the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost of providing these services will be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

C3.1.6.3 Contractor's Camp Site and Security

The contractor shall make his own arrangements regarding the establishment of a camp site and housing for his construction personnel and all regulations stipulated by the local authority shall be adhered to.

It is anticipated that the contractor's choice of a camp site will be influenced by the availability of telephone and electrical connections as well as the supply of potable water. Provision is made in these specifications for the erection of a security fence around the site offices.

The contractor shall be responsible for the security of his personnel and constructional plant on and around the site of the works and for the security of his camp, and the employer will consider no claims in this regard.

C3.1.6.4 Additional Requirements for Construction Activities

C3.1.6.4.1 The contractor may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual.

C3.1.6.4.2 The contractor shall submit proposals in connection with directional signs to the engineer for approval.

C3.1.6.5 Programme Requirements for Construction Activities

The contractor shall programme his activities to be suitable in terms of his resources to complete the contract inside the stipulated time period.

C3.1.6.6 Construction in Confined Areas

It may be necessary for the contractor to work in confined areas. In certain areas the width of the fill material may reduce to zero and the working space may be confined. The method of construction in these confined areas depends on what is specified under the line item.

However, the contractor must note that measurement and payment will be in accordance with the specified cross-sections and dimensions, irrespective of the method used to achieve these cross-sections and dimensions, and that the rates and amounts tendered will be deemed to include full compensation for any special equipment or construction methods or for any difficulty encountered in working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for payment be considered on account of these difficulties.

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C3.2 ENGINEERING

C3.2 ENGINEERING

C3.2.1 Design

(a) The **Employer** is responsible for the design of the permanent Works as reflected in these Contract Documents unless otherwise stated.
(b) The **Contractor** is responsible for the design of the temporary Works and their compatibility with the permanent Works.
(c) The **Contractor** shall supply all details necessary to assist the engineer in the compilation of the as-built drawings.
(d) The **Contractor** is responsible for the accurate setting out the work in accordance with the requirements of the project specifications and drawings. Any discrepancies identified in the setting out information must be reported to the Employer before any work can commence.

C3.2.2 Employer's Design

(a) Detail of the Employer's designs are depicted on drawings listed under **Part C5**
(b) The Employer's designs form part of the General Works

C3.2.3 Contractor's Design

Where contractor is to supply the design of designated parts of the permanent Works or temporary Works he/she shall supply full working drawings supported by a professional engineer's design certificate.

C3.2.4 Design procedures

All designs and modifications thereto shall be communicated in writing and the contractor and engineer shall maintain master lists to record and track all transactions.

C3.2.5 Drawings

On receiving the instruction to commence with construction the Contractor shall receive three (3) sets of construction drawings to be utilised as follows:

- one (1) set shall be the contractor's working drawings on site;
- one (1) set shall be designated to locating positions of existing services and marking them on the same drawing;
- one (1) set shall be for as-built records and updated by the Contractor on a daily basis.

As-Built records shall be:

a) Made available to the Engineer or his duly authorized representative within 24 hours on request.
b) Submitted to the Engineer with the Contractor's request for issue of the Practical Completion Certificate.

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GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C3.3 LABOUR RELATIONS

C3.3.A Labour Regulations

A1 Payment for the labour-intensive component of the works

Payment for works identified in clause 3.1.3 “the Extent of the Project” in the Scope of Works as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the scope of work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

A2 Applicable labour laws

The Ministerial Determination for Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° R63 of 25 January 2002, as reproduced below, shall apply to works described in the scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.

A3 Introduction

This document contains the standard terms and conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.
In this document –

(a) “department” means any department of the State, implementing agent or contractor;
(b) “employer” means any department, implementing agency or contractor that hires workers to work in elementary occupations on a SPWP;
(c) “worker” means any person working in an elementary occupation on a SPWP;
(d) “elementary occupation” means any occupation involving unskilled or semi-skilled work;
(e) “management” means any person employed by a department or implementing agency to administer or execute an SPWP;

(f) "task" means a fixed quantity of work;
(g) "task-based work" means work in which a worker is paid a fixed rate for performing a task;
(h) "task-rated worker" means a worker paid on the basis of the number of tasks completed;
(i) "time-rated worker" means a worker paid on the basis of the length of time worked.

A4 Terms of Work

A4.1 Workers on a SPWP are employed on a temporary basis.

A4.2 A worker may NOT be employed for longer than 24 months in any five-year cycle on a SPWP.

A5 Normal Hours of Work

A5.1 An employer may not set tasks or hours of work that require a worker to work–
(a) more than forty hours in any week
(b) on more than five days in any week; and
(c) for more than eight hours on any day.

A5.2 An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.

A5.3 A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

A6 Meal Breaks

A6.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.

A6.2 An employer and worker may agree on longer meal breaks.

A6.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

A6.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

A7 Special Conditions for Security Guards

A7.1 A security guard may work up to 55 hours per week and up to eleven hours per day.
A7.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

A8 Daily Rest Period

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

A9 Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

A10 Work on Sundays and Public Holidays

A10.1 A worker may only work on a Sunday or public holiday to perform emergency or security work.

A10.2 Work on Sundays is paid at the ordinary rate of pay.

A10.3 A task-rated worker who works on a public holiday must be paid –
(a) the worker's daily task rate, if the worker works for less than four hours;
(b) double the worker's daily task rate, if the worker works for more than four hours.

A10.4 A time-rated worker who works on a public holiday must be paid –
(a) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;
(b) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

A11 Sick Leave

A11.1 Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.

A11.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.

A11.3 A worker may accumulate a maximum of twelve days' sick leave in a year.

A11.4 Accumulated sick-leave may not be transferred from one contract to another contract.

A11.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.

A11.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.

A11.7 An employer must pay a worker sick pay on the worker's usual payday.

A11.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
(a) absent from work for more than two consecutive days; or
(b) absent from work on more than two occasions in any eight-week period.

A11.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.

A11.10 A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

A12 Maternity Leave

A12.1 A worker may take up to four consecutive months' unpaid maternity leave.

A12.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.

A12.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.

A12.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.

A12.5 A worker may begin maternity leave –

(a) four weeks before the expected date of birth; or
(b) on an earlier date –
  (i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
  (ii) if agreed to between employer and worker; or
(c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

A12.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

A12.7 A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.

A13 Family responsibility leave

A13.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -
  (a) when the employee's child is born;
  (b) when the employee's child is sick;
  (c) in the event of a death of –
    (i) the employee's spouse or life partner;
    (ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

A14 Statement of Conditions

A14.1 An employer must give a worker a statement containing the following details at the start of employment –
(a) the employer's name and address and the name of the SPWP;
(b) the tasks or job that the worker is to perform; and
(c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
(d) the worker's rate of pay and how this is to be calculated;
(e) the training that the worker will receive during the SPWP.

A14.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

A14.3 An employer must supply each worker with a copy of these conditions of employment.

A 15 Keeping Records

A41.1 Every employer must keep a written record of at least the following –
(a) the worker's name and position;
(b)in the case of a task-rated worker, the number of tasks completed by the worker;
(c) in the case of a time-rated worker, the time worked by the worker;
(d) payments made to each worker.

A15.2 The employer must keep this record for a period of at least three years after the completion of the SPWP.

A16 Payment

A16.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

A16.2 A task-rated worker will only be paid for tasks that have been completed.

A16.3 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.

A16.4 A time-rated worker will be paid at the end of each month.

A16.5 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

A16.6 Payment in cash or by cheque must take place –
(a) at the workplace or at a place agreed to by the worker;
(b) during the worker's working hours or within fifteen minutes of the start or finish of work;
(c) in a sealed envelope which becomes the property of the worker.

A16.7 An employer must give a worker the following information in writing –
(a) the period for which payment is made;
(b) the numbers of tasks completed or hours worked;
(c) the worker's earnings;
(d) any money deducted from the payment;
(e) the actual amount paid to the worker.

A16.8 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it

A16.9 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

A17 Deductions

A17.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

A17.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

A17.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.

A17.4 An employer may not require or allow a worker to –
(a) repay any payment except an overpayment previously made by the employer by mistake;
(b) state that the worker received a greater amount of money than the employer actually paid to the worker; or
(c) pay the employer or any other person for having been employed.

A18 Health and Safety

A18.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.

A18.2 A worker must–
(a) work in a way that does not endanger his/her health and safety or that of any other person;
(b) obey any health and safety instruction;
(c) obey all health and safety rules of the SPWP;
(d) use any personal protective equipment or clothing issued by the employer;
(e) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

A19 Compensation for Injuries and Diseases

A18.1 It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

A18.2 A worker must report any work-related injury or occupational disease to their employer or manager.

A18.3 The employer must report the accident or disease to the Compensation Commissioner.

A18.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

A19 Termination

A46.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.

A19.2 A worker will not receive severance pay on termination.

A19.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

A19.4 A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

A19.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

A20 Certificate of Service

A20.1 On termination of employment, a worker is entitled to a certificate stating –

(a) the worker's full name;
(b) the name and address of the employer;
(c) the SPWP on which the worker worked;
(d) the work performed by the worker;
(e) any training received by the worker as part of the SPWP;
(f) the period for which the worker worked on the SPWP;
(g) any other information agreed on by the employer and worker.

A21 Contractor's default in payment to Labourers and Employees

Any dispute between the Contractor and labourers, regarding delayed payment or default in payment of fair wages, if not resolved immediately may compel the Employer to intervene.

The Employer may, upon the Contractor defaulting payment, pay the moneys due to the workers not honoured in time, out of any moneys due or which may become due to the Contractor under the Contract.

A22 Provision of Handtools

The Contractor shall provide his labour force with hand tools of adequate quality, sufficient in numbers and make the necessary provisions to maintain the tools in good and safe working conditions

A23 Reporting

The Contractor shall submit monthly returns/reports as specified below:

- Signed Muster rolls/pay sheets of temporary workers and permanent staff detailing the number, category, gender, rate of pay and daily attendance.
- Plant utilization returns
- Progress report detailing production output compared to the programme of works

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C3.4 CONSTRUCTION

C3.4.1 WORKS SPECIFICATION

C3.4.1.1 Applicable SANS standards

a) For the purpose of this Contract the latest issues of the following Standard Specifications for Civil Engineering Construction, applicable at the date of tender advertisement, shall apply -

SANS 1200 A : General
SANS 1200 AB : Engineer's Office
SANS 1200 C : Site Clearance
SANS 1200 D : Earthworks
SANS 1200 DB : Earthworks (Pipe Trenches)
SANS 1200 DE : Small Earth Dams
SANS 1200 DM: Earthworks (Roads, Subgrade)
SANS 1200 G : Concrete (Structural)
SANS 1200 HA : Structural Steelwork (Sundry Items)
SANS 1200 L : Medium-Pressure Pipelines
SANS 1200 LB : Bedding (Pipes)
SANS 1200 LC : Cable Ducts
SANS 1200 LD : Sewers
SANS 1200 LE : Stormwater Drainage
SANS 1200 M : Roads (General)
SANS 1200 ME: Subbase
SANS 1200 MF : Base
SANS 1200 MJ : Segmented Paving
SANS 1200 MK: Kerbing and Channelling

b) The term “project specifications” appearing in any of the SANS 1200 standardised specifications must be replaced with the term “scope of work”.

c) The variations and additions to the specifications listed in C3.4.1.1(a) are as follows:

PS A: GENERAL

PS A 3 MATERIALS

PS A 3.1 QUALITY

Substitute the second sentence of the first paragraph of A 3.1 with the following:

Materials shall bear the official mark of the appropriate standard.

The Contractor is responsible for the cost of all testing to ascertain that the materials do comply with the specified minimum requirements of the relative materials and no additional payment will be made for such testing.

The Contractor shall inform the Engineer of any control testing to be done at least 48 hours before such tests are required and must allow in his program for the time necessary for the tests and the processing of the results thereof.

A 4 PLANT

PS A 4.2 CONTRACTOR'S OFFICE, STORES AND SERVICES

Add the following to A 4.2:

The Contractor's site agent or representative must be contactable at all times by phone. Should use be made of radio and/or cellular-phone, these must be operational at all times with sufficient back-up batteries or recharging facilities.

There exists no housing facilities for the Contractor's work force, and arrangements must be made by the Contractor to accomplish that as well as transport. The Contractor is solely responsible for all housing, or the arranging thereof, and no payment or extension of time will be allowed because of any delay and/or work damage that may arise.

PS A 4.3 HAND TOOLS

Add new sub clause A 4.3:

The Contractor shall provide and maintain all hand tools required for the execution of the Works and all such costs shall be deemed to be included in the tendered rates and no separate payment will be made for it.

PS A 4.4 MEDICAL FACILITIES AND SAFETY EQUIPMENT

Add new sub clause A 4.4:

The Contractor shall provide a First Aid cabinet fully equipped and maintained with the minimum contents as listed in the Annexure (Regulation 3) to the General Safety Regulations of the Occupational Health and Safety Act (Act 85 of 1993), to deal with accidents and ailments which are likely to occur during the construction period.

The Contractor shall provide personal safety equipment and facilities as required by Regulation 2 of the General Safety Regulations of the Occupational Health and Safety Act (Act 85 of 1993).

The Contractor shall designate his Safety Officer and Qualified First Aider. The Contractor shall give copies of the minutes of the site safety meetings to the Engineer.

PS A 5 CONSTRUCTION

PS A 5.1 SURVEY

PS A 5.1.1 Setting Out of The Works

Substitute the first sentence of A 5.1.1 with the following:

The works shall be set out as shown on the drawings. Bench marks will be placed before handing over of the site.

Add the following:

Setting out of the works is the sole responsibility of the Contractor and shall be done from fixed points as indicated on the drawings. The Contractor shall, within two (2) weeks after the site has been handed over to him, ascertain himself of the correctness of all points. Any discrepancy shall immediately be reported in writing to the Engineer. Any costs or subsequent costs arising from discrepancies that had not been reported to the Engineer within the aforementioned period shall be the sole responsibility of the Contractor.

Setting out of the works will not be measured and paid for directly, and compensation for the work involved in setting out shall be deemed to be covered by the tendered rates for the various items of work included under the contract.

PS A 5.2 WATCHING, BARRICADING, ELECTRIC LIGHTING AND TRAFFIC CROSSINGS

Add the following to A 5.2:

All excavations must be marked with drums, reflecting tape and warning signs to satisfaction of the Engineer.

PS A 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

Add the following to A 5.4:

The Contractor shall as soon as possible after handing over of the site, commence with the detection of existing services, continue with it without interruption and finalise it at least seven (7) days before excavation starts at the particular section.

Detected existing services shall also be indicated on the "Record" drawings.

Where the Contractor is responsible for the cost of repairs carried out by the Employer or others, the costs will be recovered by means of a deduction from the Contractor's monthly payment certificate.

PS A 5.5 DEALING WITH WATER ON WORKS

Add the following to A 5.5:

Special treatment of water on site shall, where necessary, be specified separately. The costs of dealing with water (underground water, leaking pipes, rain runoff, etc.) shall include all necessary equipment and consumables required which includes, but not limited to, water pumps, diesel/petrol, labour and tools for the duration of the contract.

PS A 5.6 **POLLUTION**

The Contractor's attention is drawn specifically to dust disturbance (See PS D 5.1.4.1).

PS A.5.7 **SAFETY**

Substitute A 5.7 with the following:

"Pursuant to the provisions of the Conditions of Contract, and without in any way limiting the Contractor's obligations there under, the Contractor shall at its own expense (except only where specific provision (if any) is made in the Contract for the reimbursement to the Contractor in respect of particular items):

(a) Provide to its Employees on the Site of Works, all safety materials, clothing and equipment necessary to ensure full compliance with the provisions of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended and effective measures to ensure the proper usage of such safety materials, clothing and equipment at all times; and

(b) Provide, install and maintain of all barricades, safety signage and other measures to ensure the safety of workmen and all persons in, on and around the Site, as well as the general public; and

(c) Implement on the Site of Works, such procedures and systems and keep all records as may be required to ensure compliance with the requirements of the Act at all times; and

(d) Implement all necessary measures as to ensure compliance of the Act by all subcontractors engaged by the Contractor and their employees engaged on the Works; and

(e) Comply fully with all other requirements pertaining to safety as may be specified in the Contract.

The Employer, Employers Agent and the Engineer shall be entitled, although not obliged, to make such inspections on the Site, as they shall deem appropriate, for the purpose of verifying the Contractor's compliance with the requirement of the Act. For this purpose, the Contractor shall grant full access to the Site of all parts of the Site and shall co-operate fully in such inspection and shall make available for inspection, all such documents and records as the Employer's and/or Engineer's representative may reasonably require.

Where any such investigations reveal, or where it comes to the Engineer's attention that the Contractor is in any way in breach of the requirements of the Act or is failing to comply with the provisions of this clause, the Engineer shall, in accordance with the provision of Clause 39 of the General Conditions of Contract, be entitled to suspend progress on the Works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Engineer, the breach has been rectified.

The Contractor shall have no grounds for a claim against the Employer for extension of time and/or additional costs if the progress on the Works or any part thereof is suspended by the Engineer in terms of this clause and the Contractor shall remain fully liable in respect of the payment of penalties for late completion in accordance with the provisions of Clause 43(1) of the General Conditions of Contract should the Contractor fail to complete the Works on or before the specified Due Completion Date in consequence of the suspension.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this clause shall constitute ground for the Engineer to act in terms of Sub-Clause 55.1.5 of the General Conditions of Contract and for the Employer to terminate the Contract in accordance with the further provisions of the said Clause 55.

PS A 5.9 **TRAINING OF LOCAL LABOUR (in task)**

An aim to this construction project is to provide as many temporary employment opportunities from the local community as possible. It is incumbent on the Contractor to provide the necessary core of artisans, skilled and semi-skilled personnel required to construct, supervise and adequately control the project as well as providing any necessary on-going training in basic construction skills.

PS A 5.10 **WORKMEN's COMPENSATION ACT**

It is a requirement of this contract that all labour employed on the site be covered by the Workmen's Compensation Act. The Contractor is to arrange a suitable method of complying with the Act including the payment of the necessary levies.

PS A 7 **TESTING**

PS A 7.4 **STATISTICAL ANALYSIS OF CONTROL TESTS**

Substitute A 7.4 with the following:

Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements of the materials concerned.

PS A 8 **MEASUREMENT AND PAYMENT**

PS A 8.2 **PAYMENT**

Add the following to A 8.2:

PS A 8.2.5 **Adjusted Payment for Time-related Items**

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:

$$\text{Sum of Tendered amounts for time-related items} \times \frac{\text{Extended contract period as authorised by variation order}}{\text{Tendered contract period}}$$

The above-mentioned 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.

Add the following to A 8.4:

PS A 8.4.6 **Standing Time Costs**

a) labour ..... Unit : Sum per working day

b) other resources (to be specified by Contractor) ..... Unit : Sum per working day

Standing time for plant will be paid in accordance with the rates as per the daywork schedule.

The tendered sum for each item shall include full compensation for all standing time costs of the specified resource of whatever nature and approved by the Engineer, which are not recoverable by way of the provision made in PS A 8.2.5 for the adjusted payment of time-related items.

For the purposes of calculating the total standing time cost, a working week shall be held to consist of five working days and a working day of 9 hours.

Payment for the partial standing of any of the scheduled resources for a day or part thereof, or the standing of a complete resource for a part day, will be made pro rata in proportion to an appropriate factor assessed by the Engineer.

The amount by which the standing time costs is adjusted shall be subject to the contract price adjustment formula as defined in the conditions of contract.

The Contractor shall take note that this payment item shall only apply to delays, which **in the opinion of the Engineer**, are incurred as a result of riot, commotion, politically motivated sabotage and acts of terrorism or disorder outside the Contractor's control. This item shall also apply to standing time incurred as a result of labour boycotts, except that only sub-items (a) and (c), as applicable, will be paid where the Contractor did not pay his labour for the time boycotted. Costs for delays incurred for all other circumstances shall be treated as provided for in the conditions of contract.

The provision of this clause shall in no way prejudice the right of either the Employer or the Contractor to determine the contract in terms of the provisions of clause 54 of the general conditions of contract.

The Contractor shall take note that no payment will be considered for additional cost or time lost for any daily removal of plant and equipment from the site, any additional costs incurred in protecting his plant and site establishment, or loss incurred in respect of damage to construction plant, equipment and materials supplied and the works.

In the event that GCC 43(1) becomes applicable, the time on which such penalties are calculated shall be reduced by the total standing time approved by the Engineer.

PS 8.5 **PROVISIONAL AMOUNTS DETERMINED BY THE ENGINEER**

PS 8.5(b) 1 **Community liaison officer..... Unit : Prov.**

A salary must be paid fortnightly by the Contractor to the person appointed as the Community Liaison Officer for the project. The payment dates will be determined as soon as the CLO is appointed.

PS 8.5(b) 2 **Overhead costs, surcharge and profit on (1) above..... Unit : %**

The tariff is to cover the Contractor's overheads, surcharge and profit on payments made to the Community Liaison Officer and Clerk of Works and will be calculated as percentage levy on payments. No payments will be made on this item before any payments is made to the Community Liaison Officer and Clerk of Works.

PS A 8.7 **DAYWORK**

Replace A 8.7 with the following:

Daywork will be paid according to the percentage allowance method. For calculating the total remuneration the General Conditions of Contract for Construction Works, First Edition (2004) shall apply, with the amendments as in the appropriate Special Conditions of Contract, which is bound into this document. A daywork schedule will be provided for filling in the necessary information.

PS A 8.9 **OCCUPATIONAL HEALTH AND SAFETY**

PS A 8.9.1 **Health And Safety Measures ..... Unit : Sum**

The rate shall cover all costs pertaining to the provision and maintenance for the duration of the contract of the health and safety measures required in terms of Clause 5 (Principal Contractor and Contractor) of the Construction Regulations (2003) of the Occupational Health and Safety Act. No other sum shall be paid in this respect and Tenderers must therefore ensure that adequate provision has been allowed for.

PS A 8.9.2 **Health And Safety Plan ..... Unit : Sum**

The rate shall cover all costs pertaining to the provision and maintenance for the duration of the contract of the Health and Safety Plan as required in the Construction Regulations (2003). The rate shall include for all risk assessments required as well as for the development and implementation of safe work procedures and method statements. No other sum shall be paid in this respect and Tenderers must therefore ensure that adequate provision has been allowed for.

PS A 8.9.3 **Health And Safety File..... Unit : Sum**

The rate shall cover all costs pertaining to the provision and/or collection of data (drawings, design, materials, operation and maintenance manuals etc.) to be contained in the file, co-operation with other parties, compilation and maintenance of the file during the duration of the contract and the handing over of the file to the Client on completion of the contract. No other sum shall be paid in this respect and Tenderers must therefore ensure that adequate provision has been allowed for.

PS A 8.10 **ENVIRONMENTAL MANAGEMENT PLAN**

PS A 8.10.1 **Cost of Environmental Management Plan .....Unit : Sum**

The sum shall cover the Contractor's initial cost of providing and demonstrate to the Engineer a suitable and sufficiently documented Method Statement based on the Client's documented Environmental Management Plan Specifications as set out under Part C3: Scope of Works (ref. Clause C3.5.1.7) of this document.

PS A.8.10.2 **Complying with the Environmental Management Plan (EMP) .....Unit : Sum**

The sum shall cover the time-related cost of whatever nature, for complying with the Environmental Management Plan (EMP) Specifications as set out under Part C3 : Scope of Works (ref. clause C3.5.1.7) of this document and that is not specifically covered in PS A.8.10.1

PS AB: ENGINEER'S OFFICE

PS AB 3 MATERIALS

PS AB 3.1 NAMEBOARDS

Shall be provided by the employer

PS AB 3.2 OFFICE BUILDINGS

Add the following to AB 3.2:

The office must have an adjacent carport with minimum dimensions of 6 m x 3 m with a free draining, wearing course floor. The roof must be built in such a way that a vehicle will always be shielded against the sun throughout the day. An approved shade net may be used for the sides to comply with above-mentioned requirement. The office shall be fitted with the following furniture and equipment:

- 1 x L-Shape office table with three drawers, one office chair & two visitors' chairs;
- 1 x Filing cabinet with 3 shelves
- 1 x mobile phone / landline
- Wifi router for Internet connection
- Electricity and aircon

PS AB 4 PLANT

PS AB 4.1 TELEPHONE

Add the following to AB 4.1:

If a Telkom phone cannot be provided a cell phone shall be made available for the duration of the contract.

PS AB 5 CONSTRUCTION

PS AB 5.1 NAMEBOARDS

Add the following to AB 5.1:

Details of the nameboard shall be provided by the engineer and shown as Figure 1.

The nameboards shall be erected within one month after receipt of the letter of acceptance and shall be placed at the position indicated by the Engineer, and kept in good repair for the duration of the contract and the defects liability period. Any damage to these boards shall be repaired within fourteen days of a written instruction issued by the Engineer. No payment shall be made in terms of the contract prior to the erection of the nameboards.

The Contractor will be permitted to erect a maximum of two of his own nameboards, in positions approved by the Engineer. The Engineer reserves the right to order the removal of these boards if they are not kept in good repair.

PS AB 5.3 **KEY PERSONNEL**

Add the following to AB 5.3:

The Contractor shall inform the Engineer of the person to whom he has assigned duties with respect to the site in terms of the Occupational Health and Safety Act and the person(s) who are in possession of a valid certificate of competency in first aid. The Contractor shall give copies of the minutes of the site safety meeting to the Engineer.

PS AB 5.5 **SURVEY ASSISTANTS**

Substitute "two or more suitably educated survey labourers" in the first sentence of AB 5.5 with "two semi-skilled labourers."

PS AB 5.6 **SURVEY EQUIPMENT**

The Contractor shall provide the following tested and approved survey equipment on site for the duration of the contract and for the use of the Engineer whenever needed:

a) one tacheometer capable of reading to minimum 20 seconds and maximum 6 seconds of arc, plus tripod;

b) one automatic level plus tripod;

c) two tacheometer staffs and one level staff, all graduated metrically; and

d) one 5 m and one 100 m tape measure.

The above-mentioned equipment may by arrangement be shared between the Contractor and the Engineer's representative.

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

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

PS AB 8 **MEASUREMENT AND PAYMENT**

PS AB 8.2 **PAYMENT**

Add the following to AB 8:

PS AB 8.2.2 **Survey Assistants and Survey Equipment**

No payment shall be made for the survey assistants or survey equipment and all costs shall be deemed to be covered by the rates tendered for the Contractor's facilities.

PS C: SITE CLEARANCE

PS C 3 MATERIAL

PS C 3.1 DISPOSAL OF MATERIAL

Substitute the first sentence of C 3.1 with the following:

An area for the disposal of material obtained from clearing and grubbing, demolition of manholes, dismantling and removal of pipes shall be disposed off site to the municipal dumping site. The use of the disposal area must be confirmed with the Employer prior to disposal.

PS C 5 CONSTRUCTION

PS C 5.1 AREAS TO BE CLEARED AND GRUBBED

Substitute the first sentence of C 5.1 with the following:

Clearing and grubbing shall only be done in areas as instructed in writing by the Engineer. Clearing and grubbing of pipe and cable routes, shall be limited to a 3 m wide strip.

The Contractor may proceed with clearing and grubbing after hand-over of the site.

Substitute the last paragraph with the following:

The Contractor shall program his work in such a manner that re-clearing will not be necessary. The cost of reclearing shall be borne by the Contractor.

PS C 5.2 CUTTING OF TREES

Trees outside the area to be excavated for the new structures must be left standing and undamaged, except when otherwise ordered, in writing, by the Client.

A penalty of R1000-00 per tree for trees damaged and/or removed will be charged.

PS C 5.9 EXISTING FENCING

The fences around the site shall not be removed and shall be repaired immediately after damage to them has occurred.

The Contractor is strongly advised to make sketches and, where applicable, take photographs of existing fences before they are removed so as to avoid, as far as possible, arguments that may arise between himself and the property owner as to the quality of the re-erected fences.

PS D: EARTHWORKS

PS D 2 INTERPRETATIONS

PS D 2.3 DEFINITIONS

Add the following to D 2.3:

Sand (cohesionless and non-cohesive)

For the purpose of the compaction requirements, a non-plastic material of which not less than 95 % by mass passes a sieve of nominal aperture size 4,75 mm, and not more than 10 % passes a sieve of nominal aperture size 0,075 mm.

PS D 3 MATERIALS

PS D 3.1.2 Classes of Excavation

Add the following to D 3.1.2:

Under this contract soft and intermediate excavation shall be classified together as soft excavation, and hard rock and boulder excavation shall be classified together as hard rock excavation.

PS D 3.3 SELECTION

PS D 3.3.1 General

Substitute the second paragraph of D 3.3.1 with the following:

The Contractor shall deal in such a way with materials from all excavations for structures and pipe trenches to ensure that usable material is not contaminated with unsuitable material. If usable material is contaminated, such contaminated material shall be removed and replaced with material of standard at least equal to the in situ usable material, all at the Contractor's expense. No additional payment shall be made in respect of this and all relevant costs shall be deemed to be included in the tendered rates.

Add the following to D 3:

PS D 3.4 SUBSOIL DRAIN UNDER STRUCTURES

A subsoil drain consisting of 110 mm diameter perforated or slotted uPVC pipes, or 100 mm diameter geopipes in a bed of 19 mm stone, all as specified and shown in the drawings, shall be installed where shown on the drawings. The pipes shall be connected with approved couplings and a gradient as shown in the drawings, or of 1 in 200 must be maintained towards the discharge point.

PS D 3.4.1 Material for Subsoil Drainage

PS D 3.4.1.1 Pipes

Pipes for subsoil drainage shall be uPVC pipes complying with the requirements of SANS 791, but shall be perforated or slotted.

The size of perforations in perforated pipes shall in all cases be 8 mm in diameter ± 1,5 mm and the number of perforations per metre shall be not less than 26 for 110 mm

pipes and 52 for 160 mm pipes. Perforations shall be spaced in two rows for 110 mm pipes and in three rows for 160 mm pipes.

Slotted pipes shall have a slot width of 8 mm ± 1,5 mm. The arrangement of slots shall be subject to the Engineer's approval, but the total slot area shall be not less than that presented for perforations.

Pipes without slots or perforations required for conveying ground water from the subsoil drainage proper to the point of discharge, shall be uPVC pipes as specified above.

PS D 3.4.2 **Crushed Stone**

Crushed stone in subsoil drains shall be 19 mm single-sized stone complying with the grading requirements of stone for concrete in SANS 1083.

PS D 3.4.3 **Geotextile Blanket**

The geotextile blanket around subsoil drains shall be a woven polypropylene tape similar and equal to Industex S110.

PS D 3.4.4 **Sand**

Sand in subsoil drains shall comply with the requirements of PS D 2.3.

PS D 4 **PLANT**

Add the following to D 4:

PS D 4.5 **AVOIDING QUAGMIRE CONDITIONS**

In order to prevent quagmire conditions occurring in the excavations, relatively static plant such as back-actors shall be used combined with hand trimming to complete the excavation to final level. Should the Contractor allow quagmire conditions to develop, he shall, at his own expense, take such steps to rectify the conditions as the Engineer may order.

PS D 5 **CONSTRUCTION**

PS D 5.1 **PRECAUTIONS**

PS D 5.1.2 **Existing Services**

PS D 5.1.2.2 **Detection, location and exposure**

Add the following to D 5.1.2.2:

The requirements of PS A 5.4 shall apply mutatis mutandis.

PS D 5.1.2.3 **Protection of cables**

Substitute "estimated position" in the second sentence of D 5.1.2.3 with "actual or exposed position".

PS D 5.1.4 **Nuisance**

PS D 5.1.4.1 **Dust Nuisance**

Add the following to D 5.1.4.1:

The Contractor is responsible for dust control and is liable for all claims that may result from 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. No payment regarding the above-mentioned will be made and all costs shall be deemed to be covered by the tendered rates.

PS D 5.2 METHODS AND PROCEDURES

PS D 5.2.2 Excavation: Add or Amend The Following Sub-Clauses

PS D 5.2.2.1 Excavations for general earthworks and for structures

Add the following to D 5.2.2.1:

Strip foundations and encasement of pipes shall be cast directly against excavated surfaces.

Materials under foundations and floors of structures, which are regarded by the Engineer as unsuitable for the bearing of such structures shall be removed to the depths and widths, ordered. The excavated voids shall then be filled with sand compacted to 100 % of MAASHTO density, to the underside of such foundation or floors, unless a soil cement mixture in terms of PS D 5.2.3.2 is ordered by the Engineer.

PS D 5.2.2.3 Disposal

Substitute the second sentence of D 5.2.2.3 with the following:

All surplus material which is suitable for fill shall be transported to an open site, to be designated by the Engineer, spread and compacted as fill.

All material unsuitable for fill shall be transported to the municipal dumping site.

PS D 5.2.2.4 Excavation limits for payment purposes

For measurement and payment purposes, the limits of the excavations for structures shall be as shown on the Drawings.

Were no excavation limits are shown on the Drawings and the Engineer has decided that formwork has to be provided to the sides of a concrete member, the limits of the excavation for measurement and payment purposes shall be the vertical planes 0,5m outside the perimeter of the concrete member for which the formwork is to be provided at the founding level as shown on the Drawings.

PS D 5.2.3.1 Embankments

Add the following to D 5.2.3.1:

Embankments of ponds and terraces shall be constructed of approved material from excavations and shall be compacted to 95 % (100 % for sand) of MAASHTO density, in layers not exceeding 150 mm in depth.

PS D 5.2.3.2 **Backfilling of trenches and backfilling against structures**

Add the following to D 5.2.3.2:

Backfilling around structures shall be compacted to 95 % (100 % for sand) of MAASHTO density.

When specified or ordered by the Engineer the backfilling against structures shall be done using a mixture of soil cement. The mixture shall contain 5 % cement and just sufficient water for it to be placed and compacted like ordinary backfilling material.

Add the following to D5.2.3:

PS D 5.2.3.3 **Filling under floors**

Filling under the floors of buildings shall be done with sand from commercial sources, compacted to 100 % of MAASHTO density.

PS D 5.2.4 **Finishing**

PS D 5.2.4.1 **Final grading**

Add the following to D 5.2.4.1:

Terraces shall be trimmed to an even grade of 1 in 2.

PS D 5.2.6 **Removal of Unsuitable Material**

The provision of SANS 1200 DM: Earthworks (Roads) clause DM 5.2.3.2 shall apply mutatis mutandis.

PS D 5.2.7 **Dewatering of foundation excavations**

Over and above his general obligations in regard to dealing with water as specified in SANS 1200 A, the Contractor shall be responsible for preventing the ingress (from groundwater or leaking adjacent structures) of water into the foundation excavations. The preventive measures shall include the construction of proper drainage channels, diversion channels, berms, sumps, and the supply, operation and maintenance of the necessary bailing and pumping equipment.

The dewatering measures, with the exception of pumping, shall be maintained until the backfilling has been completed, after which all settled silt, mud, etc. shall be removed from the exposed surfaces where necessary. Between the various construction stages, pumping may be interrupted as may be decided by the Engineer. The draining or pumping of water from foundation excavations shall be so done that no concrete materials will be carried away.

PS D 8 **MEASUREMENT AND PAYMENT**

PS D 8.1 **BASIC PRINCIPLES**

Add the following to D 8.1:

The rates for excavation shall also cover the cost of dealing with any stormwater or subsurface water, which may appear in the excavations.

PS D 8.3 **SCHEDULED ITEMS**

PS D 8.3.2 **Bulk Excavation**

Add the following sub items to D 8.3.2:

c) Extra-over 8.3.2(a) for soil cement backfilling where specifically required by the Engineer (percentage of cement indicated) ..... Unit : m^3

The tendered rate for sub item PS D 8.3.2(c) shall be additional to the rates tendered for D 8.3.2(a) and shall cover the cost of all incidentals required for the complete backfilling with soil cement as specified. The rate shall also include for the trimming and compacting of the excavation before placement of soilcrete.

d) Excavate and dispose of unsuitable material from excavation bottom Unit : m^3

The rate shall cover the cost of complying with all the precautions required in terms of D 5.1 in addition to the cost of excavation of the additional depth in any material and the disposal of the unsuitable material as specified in PS D 5.2.2.3.

e) Extra-over 8.3.2(a) for trimming and compacting terraces ..... Unit : m^2

The rate includes for the trimming and compacting of horizontal and sloping sides of the terraces before top soil and grass is placed, including for the removal of large stones and rubble to form a uniform surface.

PS D 8.3.3 **Restricted Excavation**

Add the following sub items to D8.3.3

Restricted excavation shall be limited to those excavations detailed on the drawings or as agreed to by the Engineer as being restricted.

c) Extra-over 8.3.3(a) for soil cement backfilling (percentage of cement indicated) ..... Unit : m^3

The tendered rate for sub-item PS D 8.3.3(c) shall be additional to the rates tendered for D 8.3.3(a) and shall cover the cost of all incidentals required for the complete backfilling with soil cement as specified. The rate shall also include for the trimming and compacting of the excavation before placement of soilcrete.

d) Excavate and dispose of unsuitable material from excavation bottom Unit : m^3

The rate shall cover the cost of complying with all the precautions required in terms of D 5.1 in addition to the cost of excavation of the additional depth in any material and the disposal of the unsuitable material as specified in PS D 5.2.2.3.

e) Extra-over 8.3.3(a) for trimming and compacting terraces ..... Unit : m^2

The rate includes for the trimming and compacting of horizontal and sloping sides of the terraces before topsoil and grass is placed, including for the removal of large stones and building rubble to form a uniform surface.

PS D 8.3.5 **Extra Excavation in All Materials to Provide Working Space Around Structures**

Delete this sub clause and refer to sub clause PSD 5.2.2.4

PS D 8.3.8.1 **c) Excavate by hand in soft material to expose existing service ..... Unit : m^3**

Add the following to D 8.3.8.1(c):

Excavation by hand to expose existing services shall only be measured and paid for if so ordered in writing by the Engineer. After the excavation of trial holes to determine the exact position and depth of existing services, at intervals as required by the Engineer, the excavation to a level of 300 mm above such services shall be measured and paid for as normal excavation, independent of the depth of such excavation. Only excavation within 300 mm of the existing services will be measured and paid for as excavation by hand and then only if ordered in writing by the Engineer. The rate shall also include the backfilling of the excavations and compaction thereof.

PS D 8.4 **SUBSOIL DRAINS UNDER STRUCTURES**

PS D 8.4.1 **Pipes In Subsoil Drains**

a) Perforated or slotted uPVC pipes complete with couplings (state size) Unit : m

b) uPVC fitting (state size and type of fitting) ..... Unit : No

The rate shall cover the cost of supplying and installing the pipe or fitting in a stone bed or no-fines concrete, as indicated on the drawings.

PS D 8.4.2 **Crushed Stone In Subsoil Drains ..... Unit : m^3**

The rate shall cover the cost of supplying, transporting irrespective of the distance and placing the stone in the subsoil drain, as indicated on the drawings.

PS D 8.4.3 **Geotextile Blanket In Subsoil Drains ..... Unit : m^2**

The rate shall cover the cost of supplying the geotextile blanket and of placing it in the subsoil drain, as indicated on the drawings.

PS D 8.5 **Dewatering of foundation excavations ..... lump sum**

Dewatering will be paid for as a lump sum for each structure or series of structures scheduled separately in the Schedule of Quantities. The lump sum shall be paid on a pro rata basis as the work progresses.

The tendered lump sum shall include full compensation for all work and operations required for keeping the excavations dewatered and dry and for the removal of silt and mud from the exposed concrete surfaces, all as specified in Sub-Clause PSD 5.2.7 of this section.

PS DB: EARTHWORKS (PIPE TRENCHES)

PS DB 1 SCOPE

Add the following to DB 1.1:

This specification also covers the excavation for cable trenches.

PS DB 2.2 APPLICATION

Substitute "pipe trenches" with "pipe and cable trenches" in DB 2.2.

PS DB 3 MATERIALS

PS DB 3.1 CLASSES OF EXCAVATION

Add the following to DB 3.1:

Materials excavated by means of Labour-Intensive Construction (LIC) methods will be classified in accordance with SANS 1921-5, as follows:

Classification of excavated materials

Classification	Description
Soft Class 1	Material which can be excavated by means of a suitable shovel without the use of a pick or other hand-swung tool.
Soft Class 2	Material which can be readily excavated with the aid of a pick or hand-swung tool.
Soft Class 3	Material which can be excavated with difficulty with the aid of a hand-swung tool.
Intermediate	Material which is difficult to excavate by hand even with the aid of a crowbar and requires the assistance of pneumatic tools for economic removal
Rock	Material which cannot be economically fragmented and loosened by hand implements and pneumatic tools except by drilling and blasting or the use of rock-breaking equipment.

Classification of materials in terms of consistency and shear strength

Classification	Consistency		Number of dcp blows to penetrate 100 mm*	
	Granular soil	Cohesive soil	Granular soil	Cohesive soil
Soft Class 1	Very loose to loose	Very soft to soft	≤ 2	≤ 1
Soft Class 2	Loose to medium dense	Soft to Stiff	2 – 6	1 – 5
Soft Class 3	Dense	Stiff to very stiff	7 – 15	6 – 8
Intermediate	Very dense	Very stiff	> 15	> 8
Rock	-	-	-	-
* - Only applicable to materials comprising not more than 10% gravel of size less than 10 mm and materials containing no cobbles or isolated small boulders				

PS DB 3.5 BACKFILL MATERIALS

a) Substitute "from trenches" in DB 3.5(a) with "from trenches or excavations for structures".

PS DB 4 PLANT

PS DB 4.1 EXCAVATION EQUIPMENT

Add the following to DB 4.1:

All excavations exceeding the specified widths, shall be backfilled with approved selected material. No payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates.

PS DB 5 CONSTRUCTION

PS DB 5.1 PRECAUTIONS

PS DB 5.1.2 Stormwater, Seepage and Dewatering of Excavations

Substitute DB 5.1.2 with the following:

The costs of dealing with water shall be deemed to be included in the tendered rates for excavation and no additional payment shall be made in this respect.

Add the following to DB 5.1:

PS DB 5.1.5 Hand Excavation

Certain trenches will have to be excavated by hand, because of limited access and space. The Contractor is to ensure that all excavation done by hand is in strict accordance with the requirements of the Occupational Health and Safety Act.

PS DB 5.2 MINIMUM BASE WIDTHS SPECIFIED

Substitute paragraph (b) of DB 5.2 with the following:

The minimum base width for pipes of external diameter not exceeding 125 mm shall be 600 mm plus the nominal diameter of the pipes, irrespective of the depth at which they are laid, except for subsurface drains where the width shall be 400 mm.

The minimum base width for electric cable trenches shall be 300 mm. Where more than one cable is installed in the same trench, the base width shall become 300 mm plus the distance specified between cables. The minimum distance between cables shall be 50 mm.

PS DB 5.5 TRENCH BOTTOM

Substitute "90 %" in the second paragraph of DB 5.5 with "93 % (100 % for sand)".

PS DB 5.6 BACKFILLING

PS DB 5.6.2 Material for Backfilling

Substitute "from trench excavations" in the first paragraph of DB 5.6.2 with "from excavations for trenches and structures.

Add the following to DB 5.6.2:

Where pipe trenches cross a road the selected fill blanket specified in PS LB 3.2 shall be brought up to the bottom of the sub base.

PS DB 5.6.3 Disposal of Soft Excavation Material

Add the following to DB 5.6.3:

The provisions of PS D 5.2.2.3 shall apply mutatis mutandis.

PS DB 5.7 COMPACTION

PS DB 5.7.1 Areas not Subject to Traffic Loads

Add the following to DB 5.7.1:

Where backfilling is specified to be done by means of Labour-Intensive Construction (LIC) methods the following shall apply:

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding a) to 90% Proctor density

b) such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of backfill, provided that backfill does not comprise more than 10% gravel of size less than 10 mm and contains no isolated boulders, or

c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

PS DB 5.7.2 Areas Subject to Traffic Loads

Substitute "98 %" in DB 5.7.2 with "100 %".

Add the following to DB 5.7.2:

Sand backfilling shall be compared to 100 % of MAASHTO density.

PS DB 8 MEASUREMENT AND PAYMENT

PS DB 8.1 BASIC PRINCIPLES

Delete "along the route of the pipeline" in DB 8.1.1.

Add the following to DB 8.1.2(b):

The depth of electric cable trenches is as indicated on the relevant drawings.

PS DB 8.2 COMPUTATION OF QUANTITIES

PS DB 8.2.4 Shoring

Add the following to DB 8.2.4:

Shoring will only be measured and paid for if written approval is given by the Engineer before it is installed.

PS DB 8.3 **SCHEDULED ITEMS**

PS DB 8.3.2 **Excavation ..... Unit : m**

Add the following to DB 8.3.2:

The rate shall also cover the cost of dealing with any stormwater or subsurface water, which may appear in the trenches.

Add the following sub item:

d) Excavate by hand in soft material to expose existing service ..... Unit : m^3

The provisions of sub clause PS D 8.3.8.1(c) shall apply mutatis mutandis.

e) Excavations and backfill by hand ..... Unit : m^3

The provisions of sub clause DB 8.3.2(a) shall apply mutatis mutandis.

PS DB 8.3.5 **Existing Services That Intersect or Adjoin a Pipe Trench**

PS DB 8.3.5 **a) Services that intersect a trench ..... Unit : No**

Add the following to DB 8.3.5(a):

Existing services with a depth of cover exceeding 300 mm, measured from the bottom of excavation to the top of the existing service shall not be measured and paid for.

The rate shall also cover the cost of the following:

i) Sufficient photo's being taken of existing services and submitted to the Engineer before they are being crossed, if there is a possibility of a difference of opinion over the condition of these services.

ii) Repair of damaged services to its original condition.

iii) If such a service is removed, replacement thereof.

PS DB 8.3.5 **b) Services that adjoin a trench ..... Unit : No or m**

Add the following to DB 8.3.5 (b):

The unit "number" will only be used for services such as poles and trees.

No payment will be made for overhead services that do not rest directly on the ground except where allowance is made for this in the schedule of quantities.

Existing services that rest directly on the ground e.g. poles, trees, walls and structures are handled in the same way as underground services, but the axis of the service will be determined as follows:

The vertical axis is defined as the nearest side or corner of the existing structure to the excavation, measured at the point where the structure and natural ground level intersect.

The horizontal axis will be at the point where the structure and the natural ground level intersect. In this instance, where the excavation falls above the 45° line but within 1,0 meter horizontally from the structure, the service will also be measured as adjoining.

If the structure, according to the above-mentioned, does not qualify as an adjoining service but the foundation of the structure is such that if a 45° line drawn from the nearest bottom corner thereof cuts through the excavation, the structure will be measured as an adjoining service **if approved by the Engineer**.

There will be distinguished between existing trunk services and existing erf connection.

PS DB 8.3.6.2 **Extra-over DB 8.3.6.1 for imported material ..... Unit : m^3**

The quantity will be calculated according to the actual volume of material placed in the final position according to the specified dimensions.

The rate is an “extra-over” Item DB 8.3.6.1 and includes all costs of supplying and placing of imported material in the final position with material from commercial sources.

PS DB 8.3.8 **Pipe Trenches Crossing Existing Gravel Roads ..... Unit : m^3**

The rate shall cover the cost to backfill the trenches with sand, stabilise with 5 %, by volume, with cement and compact to 100 % MAASHTO density.

PS DM: EARTHWORKS (ROADS, SUBGRADE)

PS DM 3 MATERIALS

PS DM 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

Add the following to DM 3.1:

The requirements of PS D 3.1.2 shall apply mutatis mutandis.

All in situ pavement material shall be classified as soft material for excavation purposes.

PS DM 3.2 CLASSIFICATION FOR PLACING PURPOSES

PS DM 3.2.3 Selected Layers

Substitute DM 3.2.3 with the following:

All imported material underlying the sub base or base of the final road prism, whichever may be applicable, that does not comply with the requirements for lower selected layer or upper selected layer in the respective depth categories, shall be removed and replaced with material complying with the requirements of selected layers, all at the Contractor's expense.

PS DM 5 CONSTRUCTION

PS DM 5.1 PRECAUTIONS

PS DM 5.1.1 Safety, Existing Services, Stormwater, Etc. And Nuisance

Add the following to DM 5.1.1:

The requirements of PS A 5.4 shall apply mutatis mutandis.

PS DM 5.2 METHODS AND PROCEDURES

PS DM 5.2.2.3**b) Cut to spoil**

Substitute DM 5.2.2.3(b) with the following:

The requirements of PS D 5.2.2.3 shall apply mutatis mutandis.

PS DM 5.2.2.4 Temporary stockpiling of materials

Add the following to DM 5.2.2.4:

The Contractor shall program the works in such a manner that suitable excavated material shall, if practically possible, be placed directly in the appropriate position to ensure that temporary stockpiling is limited to an absolute minimum. No payment shall be made for the temporary stockpiling of material where such material is to be used for backfilling of pipe trenches, except when so ordered in writing by the Engineer.

PS DM 5.2.3 **Treatment of Road bed**

PS DM 5.2.3.3**Treatment of road bed**

a) Preparation and compaction of road bed

Substitute the first paragraph of DM 5.2.3.3(a) with the following:

The road bed shall be scarified to a depth of 150 mm, watered, shaped and compacted to 90 % of MAASHTO density (100 % for sand), except where otherwise ordered by the Engineer.

In clay areas only excavation and shaping to the correct level will be necessary.

PS DM 6 **TOLERANCES**

PS DM 6.5 **DIMENSIONS AND LEVEL CONTROL**

The Contractor shall submit to the Engineer, in a form acceptable to the Engineer, records of dimension and level control, prior to requesting the Engineer to carry out any routine inspections.

PS DM 7 **TESTING**

PS DM 7.3 **ROUTINE INSPECTION AND TESTING**

Substitute DM 7.3.2 with the following:

No density shall be less than the specified minimum density for the relevant layer.

The cost of all routine testing done by the Engineer, 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 from the monthly payment certificates.

PS DM 8 **MEASUREMENT AND PAYMENT**

PS DM 8.3 **SCHEDULED ITEMS**

PS DM 8.3.3 **Preparation of Road Bed**

Substitute DM 8.3.3(b)(1) and (2) with the following:

b) Preparation of in situ road bed in:

1) Intermediate material ..... Unit : m^3

2) Hard rock material ..... Unit : m^3

PS DM 8.3.4 **Cut To Fill, Borrow To Fill ..... Unit : m^3**

Substitute "90 %" in DB 8.3.4 with "90 % (100 % for sand)" and "road prism" with "road prism and borrow pits".

PS DM 8.3.7 **Cut To Spoil Or Stockpile From ..... Unit : m^3**

Add the following to DM 8.3.7:

Payment for temporary stockpiling shall be made under DM 8.3.11, only if so instructed in writing by the Engineer.

PS DM 8.3.12 **Overhaul ..... Unit : m^3 or m^3.km**

Substitute DM 8.3.12 with the following:

The provisions of clause D 8.3.6 shall apply mutatis mutandis.

PS G: CONCRETE (STRUCTURAL)

PS G 3 MATERIAL

PS G 3.2 CEMENT

PS G 3.2.1 Applicable Specifications

Substitute G 3.2.1 with the following:

All cement types shall comply with the requirements of SANS EN 197-1.

For this contract only CEM I portland cement shall be used in structural concrete.

PS G 3.2.3 Storage of Cement

Add the following to G 3.2.3:

Separate storage facilities shall be provided for the various types of cement specified.

Consignments of cement shall be used in the same sequence as that in which they are delivered to site. No cement shall be used which has been stored on site for a longer period than 6 (six) weeks. All cement so stored for a longer period than 6 (six) weeks, all cement damaged in any way, and all cement which does not comply with the specification, shall be removed immediately and permanently from the site.

PS G 3.5.2 Air-entraining Agents

Substitute G 3.5.2 with the following:

Air-entraining agents shall not be used in concrete.

PS G 4 PLANT

PS G 4.5.2 Finish

Add the following to G 4.5.2:

All external corners shall be chamfered by the fixing of fillet strips into the corners of the formwork to form 20 mm x 20 mm chamfers, all at no extra payment.

PS G 4.5.3 Ties

Add the following to G 4.5.3:

Permanent metal ties shall have a minimum concrete cover of 40 mm after formwork has been removed.

Tie holes shall be filled with an approved expansive cementitious grout similar to "Durabed" of ABE. The product shall be prepared to a non-slump consistency, but where no cracking occurs when pressed into a firm ball. Trial mixes shall be made to arrive at the required working consistency.

PS G 5 CONSTRUCTION

PS G 5.1 REINFORCEMENT

PS G 5.1.3 **Cover**

Substitute G 5.1.3 with the following:

The cover of concrete over reinforcement, unless otherwise indicated on the drawings, shall in no case be less than 40 mm.

PS G 5.2.1 **Classification of Finishes**

Add the following to G 5.2.1:

The following surface conditions are required on the various portions of the finished concrete:

(c) **Special smooth, repaired and rubbed**

Imperfections such as small fins, bulges, irregularities, surface honeycombing, and slight surface discolorations shall be made good and repaired by approved methods including rubbing down or grinding to the complete satisfaction of the Engineer. The finish of the concrete shall be accurate to Degree of Accuracy I as defined in terms of Clause 6 (also see 5.5.10.3)

(d) **Exposed arises**

All exposed arrises (i.e. where the angle between adjacent sides is 110° or less) unless otherwise indicated on the drawings, shall be chamfered 20 mm x 20 mm by means of triangular fillets fixed to the formwork.

(e) **Repair of concrete**

Immediately after the removal of the formwork, the Engineer shall inspect the concrete for defects. Skilled workmen only shall perform all repairs of such defects, by approved methods and to the satisfaction of the Engineer and at the expense of the Contractor.

Repairs shall be carried out as soon as practicable after the removal of the formwork and in any case not longer than twenty four (24) hours after exposure. Concrete that is damaged from any cause and concrete that is honeycombed, fractured or otherwise defective, and concrete which, because of excessive surface depressions must be excavated and built up to bring the surface to the prescribed lines, shall be removed and replaced with mortar or concrete as hereinafter specified or as otherwise directed by the Engineer.

Concrete filling generally of the same class as the damaged concrete shall be used for holes extending entirely through concrete sections and of such a size as will accept concrete and for holes in mass concrete greater in area than 0,1 m^2 and deeper than 100 mm and for holes in reinforced concrete which are greater in area than 0,15 m^2 and which extend beyond the reinforcing. Mortar filling composed of sand and cement in the same proportions as used for the concrete and of a consistency such as will make the mortar sufficiently plastic to be easily placed, shall be used for all other imperfections.

A filling shall be bonded tightly to the surface of the area being repaired and shall be bound and free from shrinkage, cracks and hollow areas after the filling has been cured and dried. Curing of repaired areas shall be performed in such a manner and for such periods as the Engineer may direct.

Particular care shall be exercised to ensure that the colour of the repair work shall match as nearly as possible to the colour of the surrounding concrete. No cement washing or plastering shall be carried out except on the written instruction of the Engineer.

PS G 5.2.5 **Removal of Formwork**

In Table 2 of G 5.2.5.2, substitute "Portland cement and Portland cement 15" in columns 2, 3 and 4 with "CEM 1 Portland cement, delete columns 5 to 10.

PS G 5.4 **PIPES AND CONDUITS**

Add the following to G 5.4:

All pipes and specials, which must be installed in the floors and walls of structures, shall be embedded in the concrete during the casting of such concrete. No holes shall be left for the later installation of pipes and specials, without the written approval of the Engineer.

Where such holes have been approved by the Engineer, the Contractor shall be responsible for the grouting-in of such pipes or specials with an approved expansive cementitious grout as specified in PS G 4.5.3, regardless of whether or not these have been supplied by himself. The Contractor shall provide a smooth, dense and waterproof finish around the pipes or specials.

The clear space between pipes of any kind embedded in reinforced concrete and the clear space between such pipes and reinforcement shall at any point be not less than -

(a) 40 mm, or

(b) 5 mm plus the maximum size of coarse aggregate,

Whichever is the greater.

PS G 5.5 **CONCRETE**

PS G 5.5.1.5 **Durability**

Substitute G 5.5.1.5 with the following:

Concrete shall be so proportioned to ensure that the water/cement ratio does not exceed 0,5 and, to ensure workability, water-reducing admixtures of approved manufacture shall be used in preference to increasing the cement content.

PS G 5.5.1.7 **Strength concrete**

Add the following to G 5.5.1.7:

The grade of strength concrete and the maximum nominal size of coarse aggregate for each portion of the works, unless otherwise indicated on the drawings, shall be as follows:

(a) Mass concrete under floors and foundations ..... 20 MPa/19 mm

(b) Blinding layers ..... 20 MPa/19 mm

(c) Encasing of pipes ..... 20 MPa/19 mm

(d) Strip foundations ..... 20 MPa/19 mm

(e) Benching and screeds ..... 20 MPa/10 mm

(f) All Reinforced concrete ..... 35 MPa/19 mm

(g) All water retaining concrete ..... 35 MPa/19 mm

PS G 5.5.7 **Construction Joints**

Add the following to G 5.5.7.1:

Construction joints shall be limited to the minimum and shall only be made in positions as shown on the drawings or in positions as specifically approved by the Engineer. Construction joints between tank bottoms, floors, or wall bases, and the walls standing on them shall not be made flush with the supporting surface, but shall be made in the wall 150 mm above the base. The 150 mm high riser wall shall be cast as an integral part of the bottom, floor or base, i.e. the concrete in the riser shall be deposited simultaneously with the concrete in the bottom, floor or base adjacent to it. Where there is a fillet at the bottom of a wall, the construction joint shall be made 150 mm above the fillet.

A PVC waterstop without centre bulb shall be installed at all construction joints in walls of water retaining structures. The size of the waterstops shall be 150 mm in walls thinner than 200 mm and 200 mm in walls of 200 mm thickness and more, or as indicated on the drawings.

PS G 5.5.7.4 **Expansion joints**

Expansion joints shall be formed in positions and in accordance with details as shown on the drawings. All expansion joints shall be formed with an approved closed cell polyethylene fill material with a density of not less than 100 kg/m^3, or as otherwise specified. Joint sealers shall consist of a two component polyurethane sealing compound complying with SANS 1077. Rearguard S-type PVC water stops with centre bulbs shall be installed under floors and Hydrofoil PVC water stops with centre bulbs in walls, as shown on the drawings.

All sealants, fill material and waterstops shall be installed strictly in accordance with the specification of the manufacturers and to the satisfaction of the Engineer. The sealant shall be installed in one operation and jointing to already hardened sealant will not be permitted.

PS G 5.5.9 **Adverse Weather Conditions**

Add the following to G 5.5.9.1:

No material having a temperature of below 5 °C shall be used for concrete, and no concrete shall be deposited when the ground or air temperature is below 2 °C. Furthermore, if the air or ground temperature is likely to fall below 2 °C within 12 (twelve) hours after depositing of concrete, no concreting shall be done without the written consent of the Engineer. If such consent is given the Contractor shall heat the aggregate stockpiles and mixing water, and defrost the formwork and reinforcement.

PS G 5.5.10 **Concrete Surfaces**

Add the following to G 5.5.10.1:

Concrete surfaces under screeds, granolithic floor finishes or benching, and surfaces of strip foundations and footings shall be brought up to a plane, uniform surface with a suitable screed board.

Add the following to G 5.5.10:

PS G 5.5.10.4 **Wood-floated finish**

Where wood floating is specified or scheduled, the surface shall first be given a finish as specified in G 5.5.10.1 and after the concrete has hardened sufficiently, it shall be floated to a uniform surface free from trowel marks. The screeded surface shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface free from screed marks.

PS G 5.5.10.5 **Steel-floated finish**

Where steel floating is specified or scheduled, the surface shall be treated as specified in PS G 5.5.10.4 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.

PS G 5.5.11 **Watertight Concrete**

Add the following to G 5.5.11:

All structures shall be deemed to be water retaining, unless otherwise specified.

PS G 5.5.11.1 **Requirements and tests for watertightness of structures**

The completed structure shall be watertight, and the quality and finish of the work shall be such that no after-treatment of the work such as plastering or cement wash is necessary to ensure compliance with this requirement.

The works will not be certified complete until the structures enumerated in PS G 5.5.11 has been proved by testing to be watertight.

Upon completion of construction and when so agreed by the Engineer, the structure shall be filled by the gradual admission of water until the water level reaches the designed maximum level. The water level shall then be carefully noted and recorded by the Engineer in relation to a fixed bench mark, and the structure shall be allowed to remain filled for a period of 2 (two) weeks or such longer time as may be required to permit complete saturation of the concrete. During this period, readings will be taken by the Engineer and the results so obtained will be available for the information of the Contractor.

At the end of this period more water shall be added, if necessary, to bring the water level back to the designed maximum level and the water shall be left undisturbed for a period of at least 4 (four) days during which time the level shall again be recorded by the Engineer at regular intervals. The structure shall be considered to be watertight if the drop in water level does not exceed 6 mm in 96 (ninety-six) hours in the case of a roofed structure and if no leakage is apparent.

The acceptable drop in level in the case of an unroofed structure shall be such that it allows for normal evaporation during the time of the test.

If appreciable leakage is evident at any stage of the filling or testing or if, in the opinion of the Engineer, the degree of watertightness is unsatisfactory, the Contractor shall, when so ordered by the Engineer, discontinue the test immediately and at his own expense take approved steps to rectify the work. The work of rectification shall be continued assiduously until, on repetition of the test procedure, a satisfactory test result is obtained and the degree of watertightness is acceptable.

Backfilling around structures shall not commence until a satisfactory test result has been obtained.

The Engineer shall have the right to retest the structure before the expiry of the defects liability period and the results of these tests will be made available to the Contractor. If these tests indicate to the Engineer that the degree of watertightness is unsatisfactory, the Engineer (before issuing the final certificate) will be entitled to order the Contractor to rectify the work at his own expense in such a manner as will cause least interruption of the water supply to consumers and will ensure that the degree of watertightness of the structure is satisfactory.

PS G 5.8 NO-FINES CONCRETE

PS G 5.8.1 Materials

Cement shall be CEM II.

Water and aggregate shall comply with the requirements of G 3.3 and G 3.4.

Each size of aggregate shall be a single size aggregate graded in accordance with SANS 1083.

PS G 5.8.2 Classes of No-fines Concrete

No-fines concrete shall be classified by the prefix NF and the size of aggregate to be used. Class NF 19 means a no-fines concrete with a 19 mm nominal size aggregate.

The volume of aggregate per 50 kg of cement for each class of concrete shall be as follows:

CLASS	AGGREGATE PER 50 kg CEMENT
NF 38	0,33 m^3
NF 19	0,30 m^3
NF 13	0,27 m^3

PS G 5.8.3 Batching and Mixing

Cement shall be measured by mass or in full pockets of 50 kg each and aggregate shall be measured by volume in approved measuring boxes or barrows.

The aggregate shall be moist or wetted before the cement is added. Where drum mixers are used, about 20 % of the water shall be poured into the drum before the aggregate and cement are loaded. The mixing time in the drum shall be about 45 to 50 seconds.

The quantity of water added shall be just sufficient to form a smooth grout which will adhere to and completely coat each and every particle of aggregate, and which is just wet enough to ensure that, at points of contract of aggregate, the grout will run together to form a small fillet to bond the aggregate together. The mix shall contain no more than 20 litres of water for every 50 kg of cement.

Mixing shall be done in an approved batch-type mechanical mixer, but small quantities may be hand mixed.

PS G 5.8.4 **Placing**

No-fines concrete shall be placed in accordance with the procedure approved by the Engineer. It shall be placed in its final position within 15 minutes of having been mixed.

The concrete shall be worked sufficiently to ensure that it will completely fill the space to be concreted and that adjacent aggregate particles are in contact with one another. Excessive tamping shall be avoided and the concrete shall not in any circumstances be vibrated.

PS G 5.8.5 **Protection**

All no-fines concrete shall be protected from the elements and loss of moisture. Protection against loss of moisture shall be accomplished by one or more of the following methods:

a) Retaining formwork in place;

b) Covering exposed surfaces with sacking or other approved material kept continuously wet;

c) Covering exposed surfaces with plastic sheeting.

No-fines concrete placed during cold weather shall be adequately protected against frost for at least three (3) days.

PS G 5.9 **JOINING NEW CONCRETE TO EXISTING**

Where partial demolition is required for extension work to existing structures, the contact face shall be cut to predetermined line and level, and any loose and fragmented material shall be removed, and projecting steel cleaned and bent as directed by the Engineer. Where partial demolition is not required but extension work only, the contact surface shall be scabbled and cleaned of all dirt and loose particles.

If dowels are required, they shall be installed in holes drilled into the existing structure, in accordance with the details shown on the drawings, and secured by means of an approved type of epoxy bonding compound such as Epidermix 372 or similar.

Fresh concrete shall be bonded to the old concrete with an approved type of epoxy bonding compound, such as Epidermix 344 or similar.

PS G 6 **TOLERANCES**

PS G 6.2.2 **Concrete Surfaces**

Add the following to G 6.2.2:

The top surface of the clarifier wall shall be finished to Degree of Accuracy I in G 6.2.3(d)7, but there shall be no abrupt changes in the continuous surface. Deviations shall be measured as set out in G 6.1.2(a).

PS G 8 MEASUREMENT AND PAYMENT

PS G 8.1 MEASUREMENT AND RATES

PS G 8.1.1 Formwork

Delete “or the plan size of the excavation where additional excavation is provided to facilitate erection of forms" in the first sentence of PS G 8.1.3.1(c).

Delete the following in G 8.1.1.3(c):

"and for different prop heights for beams and slabs".

PS G 8.1.3 Concrete

Delete “or the plan size of the excavation where additional excavation is provided to facilitate erection of forms“ in the first sentence of PS G 8.1.3.1(c).

Add the following to PS G 8.1.3.1(d):

Strip foundations and encasement of pipes shall be cast directly against the sides and bottoms of excavations. No payment shall be made for additional concrete in over-break.

Delete the full stop at the end of G 8.1.3.3(a) and add the following:

"and special steps necessary before depositing concrete during cold weather, as prescribed in PS G 5.5.9".

PS G 8.2 SCHEDULED FORMWORK ITEMS

PS G 8.2.5 Narrow Widths ..... Unit : m

Substitute G 8.2.5 with the following:

Narrow widths of formwork shall not be measured separately, but shall be included in G 8.2.1 and G 8.2.2, as applicable, unless a specific item has been allowed for in the schedule of quantities.

Add the following to G 8.2:

PS G 8.2.7 Chamfers Exceeding 20 mm x 20 mm, Grooves And Rebates ..... Unit : m

The size of chamfers, or the width and depth in the case of grooves and rebates, is stated.

PS G 8.4 SCHEDULED CONCRETE ITEMS

PS G 8.4.4 Unformed Surface Finishes ..... Unit : m^2

Add the following to G 8.4.4:

The concrete surface finishes under screeds, granolithic finishes or benching as prescribed in PS G 5.5.10 shall not be measured separately. The rates for the related concrete items shall

PS G 8.4.7 **Concrete Complete With Formwork And/or Trowel Finish ..... Sum or m^3**

The rate shall cover the cost of the provision of concrete (made from ordinary Portland cement, unless otherwise scheduled), mixing, testing, placing, compacting, the forming of stop-ends and unforeseen construction joints, striking-off or levelling as applicable, trowelling and curing and repairing where necessary, together with the cost of all parts of formwork in contact with the concrete and the necessary bearers, struts, and other supports, plus the layout and plant necessary to erect and strike such formwork.

PS G 8.5 **JOINTS ..... Unit : m**

Add the following to G 8.5:

Only construction joints with PVC waterstops shall be measured separately. The cost of all other construction joints shall be deemed to be included in the rates for the relevant concrete items.

The cost of all construction and expansion joints shall include formwork, joint filler and sealer as well as waterstops where applicable.

PS G 8.9 **TEST STRUCTURE FOR WATERTIGHTNESS ..... Unit : Sum**

The rate shall cover the cost of all equipment and labour necessary to test the structure for watertightness as described in PS G 5.5.11.1, including the supply of water and filling such structure.

No additional payment will be made for re-testing the structure for watertightness after the repair of leaks.

PS G 8.10 **BUILDING PIPES INTO CONCRETE WORK AND GROUTING PIPES INSTALLED BY THE MECHANICAL CONTRACTOR ..... Unit : No**

The rate shall cover the cost of forming the opening for the pipe, scabbling, cleaning and preparing the concrete surface, providing an approved non-shrink epoxy grout, placing and ramming of it solidly into all voids, formwork and finishing to a smooth watertight surface.

PS G 8.11 **JOIN NEW CONCRETE TO EXISTING**

a) Partial demolition (describe) ..... Unit : Sum

b) Scabbling of existing surface ..... Unit : m^2

c) Steel dowels ..... Unit : No

The rate for (a) shall cover the cost of partial demolition as described, and of exposing, cleaning, cutting and bending the existing reinforcement, as well as repairing the concrete surface that is to be retained and disposing of waste material.

The rate for (b) shall cover the cost of scabbling the existing surface, as well as the cost of supplying and applying the epoxy bonding compound.

The rate for (c) shall cover the cost of drilling for and supplying and installing the steel dowels, as well as the cost of supplying and applying the epoxy bonding compound.

PS HA: STRUCTURAL STEELWORK (SUNDRY ITEMS)

PS HA 5 CONSTRUCTION

PS HA 5.2 FABRICATION AND ASSEMBLY

PS HA 5.2.6 Handrails

Substitute the first sentence of HA 5.2.6 with the following:

Handrails shall be of the tube and sphere type similar to Monoweld and shall be manufactured by an approved firm specialising in such works from grade 304 L stainless steel or hot dipped galvanized (heavy duty coating), as scheduled or shown on the drawings.

Handrails shall be 1 000 mm high and shall consist of a handrail and a knee-rail, both manufactured of steel tubing of nominal thickness 2,6 mm and of nominal outside diameter of at least 34 mm.

Stanchions shall be manufactured pre-formed in one piece and shall be of steel tubing of nominal thickness of 2,6 mm and of nominal outside diameter of at least 42 mm. The bases of the stanchions shall be manufactured of 150 mm x 75 mm x 12,5 mm flat bars and shall be pre-formed to suit the situation in which they are to be installed (i.e. for platform- or side-mounting, and for horizontal- or sloped-mounting on concrete or steel), and the stanchion spheres shall be pre-formed to suit right angled or other angled intersections), all as shown on the drawings.

Stanchions shall be spaced at intervals not exceeding 1,5 m and shall be fixed with two M16 bolts, washers and nuts each. All joints shall be welded.

Materials shall be as shown on the drawings or as scheduled.

PS HA 5.2.11 Ladders

Add the following to HA 5.2.11:

Materials shall be as shown on the drawings or as scheduled.

PS HA 5.2.12 Prefabricated Open Grid Floors

Add the following to clause 5.2.12.1:

Open grid flooring shall be of square pattern type of approved manufacture with 40 x 4 mm minimum thickness bearer bars spaced at not more than 40 mm centres and shall be manufactured in grade 304 stainless steel or 3 CR 12 steel (as scheduled or as shown on the drawings). The tendered rate shall include for all cutting into the required panels, banding and for frames detailed below.

Open grid flooring shall be provided with welded frames as scheduled, made of 50 x 50 x 5 mm thick 3 CR 12 steel angle to provide a seating for the open grid flooring. The nett clearance between the side bars of the open steel flooring and the vertical leg of the frame or strip shall be 5 mm per side. The frames shall be complete with 100 x 40 x 3 mm 3 CR 12 steel anchors fixed at 500 mm centres for building the frame into the concrete work.

Pickling and passivation shall be carried out in accordance with the requirements of the Standardized Corrosion and Painting Specification for Civil Engineering Works.

PS HA 8 **MEASUREMENT AND PAYMENT**

PS HA 8.3.2 Handrails

PS HA 8.3.2(b) **Handrail assembly complete ..... Unit : m**

Delete the reference to “details given” and add: as specified in Sub-Clause PS HA 5.2.6 (state material to be used).

The tendered rate shall include handrails comprising hand and kneerails installed complete as specified

PS HA 8.3.6 **Corrosion Protection**

Substitute HA 8.3.6 with the following:

The corrosion protection of sundry steel items shall not be measured separately. The cost thereof shall be included in the rate for the related item.

PS L: MEDIUM PRESSURE PIPELINES

PS L 3 MATERIALS

PS L 3.1 GENERAL

Substitute the first sentence of L 3.1 with the following:

Types and classes of materials shall be as scheduled.

PS L 3.8 JOINTING MATERIALS

PS L 3.8.4 Loose Flanges

Substitute the first sentence of the last paragraph of L 3.8.4 with the following:

Bolts and nuts shall comply with the requirements of SANS 135.

PS L 3.9 CORROSION PROTECTION

PS L 3.9.2.1 Steel pipes of nominal bore up to 150 mm

Add the following to L 3.9.2.1:

The requirements of PS L 3.9.2.2 shall apply mutatis mutandis.

PS L 3.9.2.2 Steel pipes of nominal bore over 150 mm

Add the following to L 3.9.2.2:

All mild steel pipes under this contract shall be treated in accordance with L 3.9.2.2(b)(2) on the inside and the outside, with a polyamide-cured epoxy system similar and equal to Copon EP 2300 or Amercoat 385. The Contractor shall furnish the Engineer with certificates of tests in accordance with L 7.4.

Substitute "250 μm" in L 3.9.2.2(b)(2) with "300 μm".

PS L 3.9.5 Joints, Bolts, Nuts and Washers

Substitute L 3.9.5 with the following:
All joints, bolts, nuts and washers shall be of grade 304 stainless steel, where installed above ground level or below water level. For underground installations, hot dipped galvanised bolts, nuts and washers shall be used.

PS L 3.10 VALVES

PS L 3.10.1 Gate Valves

All gate valves shall comply with the requirements of SANS 664 – Figure 2 and shall be suitable for a working pressure of 1,0 MPa unless otherwise specified. All gate valves must be supplied with a square spindle nut, suitable to be used with a valve key.

Gate valves shall have spigot ends unless shown differently on the drawings and shall close clockwise. The direction for opening and closing shall be permanently displayed on the valves. Valves shall have non-rising spindles.

Spindles, spindle nuts and body rings shall be of bronze.

All flanged gate valves shall be drilled according to SANS 1123 Table 16 for valves with a diameter smaller than 150mm and Table 10 for diameters exceeding 150mm.

PS L 3.11 **MANHOLES AND SURFACE BOXES**

PS L 3.11.4 **Step Irons**

Substitute L 3.11.4 with the following:

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.

PS L 4 **PLANT**

PS L 4.3 **TESTING**

Add the following to L 4.3:

The Contractor must ensure that the test equipment is in good working order and that it is calibrated.

PS L 7 **TESTING**

PS L 7.3 **STANDARD HYDRAULIC PIPE TEST**

PS L 7.3.1.2 **Test pressure**

Substitute L 7.3.1.2 with the following:

The test pressure for field testing shall be 1,5 times the rated maximum working pressure of the pipe e.g. class 4 uPVC pipes shall be tested to 0,6 MPa.

PS L 8 **MEASUREMENT AND PAYMENT**

PS L 8.2 **SCHEDULED ITEMS**

PS L 8.2.11 **Anchor/Thrust Blocks and Pedestals ..... Unit : m^3**

Substitute L 8.2.11 with the following:

The concrete shall be measured net volume to the specified width and depth in excess of the external volume of the pipe (i.e. the volume of the pipe will be deducted). The rate shall cover the cost of formwork and concrete.

PS L 8.2.16 **Cut Into Existing Mains/Structure ..... Unit : No**

The cutting into existing mains and structures shall be measured by the number of each type and diameter of pipe cut into. The rate shall include full compensation for all arrangements with the relevant authorities, isolating the existing service, cutting into the existing service to accommodate the connecting fitting, dewatering, excavating, taking steps to prevent the ingress of soil, stones and other material into the existing service, as well as for any liaison with others required and for making good any damages to the existing service and all material and labour to connect the pipe.

PS LB BEDDING (PIPES)

PS LB 1 SCOPE

Add the following to LB 1.1:

This specification also covers the bedding required for electric cables.

PS LB 3 MATERIALS

PS LB 3.1 SELECTED GRANULAR MATERIAL

Substitute LB 3.1 with the following:

Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100 % passing a 13,2 mm sieve and not more than 5 % passing a 0,075 mm sieve.

In very wet conditions and if so ordered by the Engineer, a non plastic crushed material with the specification as stated underneath should be used for bedding cradle.

a) **Grading**

Sieve size (mm)	% going through
19,0	100
13,2	84 - 100
9,5	70 - 84
4,75	45 - 65
2,36	29 - 47
1,18	19 - 33
0,600	13 - 25
0,300	10 - 18
0,150	6 - 13
0,075	4 - 10

b) **Crusher value**

The aggregate crushing value, calculated at minus 13,2 mm plus 0,5 mm fraction, may not exceed 29.

PS LB 3.2 SELECTED FILL MATERIAL

Substitute LB 3.2 with the following:

The requirements of PS LB 3.1 shall apply mutatis mutandis.

PS LB 3.3 BEDDING

Add the following to LB 3.3:

All pipes shall be classified as rigid pipes and shall be laid on a Class C bedding except water connections, which shall be classified as flexible pipes. Cable bedding is specified separately.

PS LB 3.4.1 Suitable Material Available from Trench Excavations

Substitute LB 3.4.1 with the following:

The provisos of PS D 3.3.1 shall apply mutatis mutandis.

PS LB 3.5 **BEDDING IN WATERLOGGED CONDITIONS**

In waterlogged conditions, the Engineer may instruct the Contractor in writing to use a bedding cradle comprising single sized 6,7 mm crushed stone complying with SANS 1083.

PS LB 5 **CONSTRUCTION**

PS LB 5.1 **GENERAL**

PS LB 5.1.4 **Compacting**

Substitute "90 %" in LB 5.1.4 with "93 % (100 % for sand)".

PS LB 5.5 **PLACING AND BEDDING OF CABLES**

Bedding and backfilling for cables shall be executed under this contract. Cables shall be installed by the mechanical contractor.

Machine compaction shall not be carried out directly over cables, unless the cables are covered by at least 300 mm of fill material.

PS LB 8 **MEASUREMENT AND PAYMENT**

PS LB 8.1 **PRINCIPLES**

PS LB 8.1.5 **Disposal of Displaced Material**

Add the following to LB 8.1.5:

The requirements of PS D 5.2.2.3 shall apply mutatis mutandis.

PS LB 8.2 **SCHEDULED ITEMS**

Add the following to LB 8.2:

PS LB 8.2.6 **Supply and Place Bedding Material for Cables, From**

a) Trench excavations ..... Unit : m^3
b) Other excavations ..... Unit : m^3
c) Borrow pits ..... Unit : m^3
d) Commercial sources ..... Unit : m^3

Bedding and selected fill for cables shall not be measured separately.

No differentiation shall be made between trenches, bedding and backfilling for cables to be installed by the Contractor or the mechanical contractor.

The rate shall cover the cost of acquiring, regardless of the distance of bedding and selected fill material that complies with the requirement of PS LB 3.3, of delivering it to points alongside the trench spaced to suite the Contractor's methods of working, placing it in layers and compacting, as specified, and of disposing of displaced

material. No additional payment will be made for co-operating with the mechanical contractor during the laying of cables and the cost related thereto shall be deemed to be included in the rate for supplying and placing the bedding material.

PS LC: CABLE DUCTS

PS LC 3 MATERIALS

PS LC 3.1 DUCTS

Add the following to LC 3.1:

Class 6 uPVC pipes (dia 110 mm or 160 mm) shall be used as ducts for electric cables under roads and paved areas.

PS LC 3.2 BEDDING

Substitute LC 3.2 with the following:

The provisions of SANS 1200 LB: Bedding (Pipes) and the relevant project specification shall apply mutatis mutandis and payment shall be made under the appropriate payment clauses of SANS 1200 LB.

PS LC 3.3 BACKFILL

Substitute LC 3.3 with the following:

The provisions of SANS 1200 DB: Earthworks (Pipe Trenches) and the relevant project specification shall apply mutatis mutandis and payment shall be made under the appropriate payment clauses of SANS 1200 DB.

PS LC 3.4 CABLE DUCT MARKERS

Add the following to LC 3.4:

Cable duct markers shall be provided as specified in LC 5.10.

PS LC 5 CONSTRUCTION

PS LC 5.1 EXCAVATION OF TRENCHES

PS LC 5.1.1 Trench Widths and Depths

Add the following to LC 5.1.1:

Trench widths shall be in accordance with the provisions of SANS 1200 DB: Earthworks (Pipe Trenches).

The minimum depth of cover over ducts shall be 600 mm from the final road level or the finished ground level.

PS LC 5.1.3 Excavation of Trenches at Road Crossings

The minimum depth of cover over ducts shall be 300 mm where construction traffic is liable to cross them. Road crossings shall therefore be constructed after the construction of the roadworks has reached the stage where the required cover is available.

PS LC 5.2 BEDDING AND COMPACTION OF BEDDING

Substitute LC 5.2.1 and LC 5.2.2 with the following:

All ducts shall be laid on a Class C bedding according to the provisions of SANS 1200 LB: Bedding (Pipes). Backfilling shall be according to the provisions of SANS 1200 DB: Earthworks (Pipe Trenches).

PS LC 5.4 **BACKFILLING AND COMPACTION**

Add the following to LC 5.4:

Road crossings shall be backfilled with sand (stabilised with 5 % cement by volume) from designated borrow pits, the site or commercial sources, whichever is applicable, up to underneath the sub base, and compacted to a minimum of 100 % of MAASHTO density.

PS LC 5.8 **ROAD CROSSINGS**

Substitute "0,5 m" in the last sentence of LC 5.8 with "1,0 m" and add the following:

Ducts for road crossings shall be effectively sealed by means of end caps.

PS LC 8 **MEASUREMENT AND PAYMENT**

PS LC 8.2 **SCHEDULED ITEMS**

PS LC 8.2.8 **Cable Markers ..... Unit : No**

Substitute LC 8.2.8 with the following:

The rate shall also cover the cost of the end cap and the incisions, concrete marker and draw wire, as specified in LC 5.10.

PS LD: SEWERS

PS LD 3 **MATERIALS**

PS LD 3.1 **PIPES, FITTINGS, AND PIPE JOINTS**

PS LD 3.1.5 **uPVC-pipes**

Substitute "approved flexible joints" in LD 3.1.5 with "spigot and socket rubber ring joints".

PS LD 3.5 **MANHOLES, CHAMBERS, ETC.**

PS LD 3.5.7 **Step Irons**

Substitute LD 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.

PS LD 5 **CONSTRUCTION**

PS LD 5.6 **MANHOLES, INSPECTION CHAMBERS, ETC**

PS LD 5.6.1 **General**

Substitute LD 5.6.1(a) with the following:

Manholes shall be of precast concrete sections with an inside diameter of at least 1 000 mm and shall be constructed as shown on the drawings bound into the document.

1. Final cover levels of manholes in roads and paved areas shall be to the same level as the road or paved area.

2. In the veld 100 mm above natural ground level.

If a manhole is positioned at a low point or in a hollow where stormwater infiltration may occur, the manhole cover level must be raised to a level to avoid the danger of infiltration, or to a level as agreed with the Engineer.

If the manhole needs to be raised with more than 300 mm, precast concrete sections with the same diameter shall be installed and sealed with epoxy.

PS LD 5.6.2 **Benching**

Add the following to LD 5.6.2.3:

Benching for all manholes except those with sand traps shall be in accordance with the drawings bound into the document.

PS LD 5.6.3 **Step Irons**

Add the following to LD 5.6.3:

Step irons shall only be installed in manholes deeper than 1,2 m.

PS LD 5.6.4 **Brick Manholes**

Add the following to LD 5.6.4.3:

Walls of brick manholes, as well as the extension of precast manholes above the concrete roof slab, shall be plastered internally. External plasterwork shall extend to at least 150 mm below ground level. Manholes shall not be extended above the concrete roof slab by more than 300 mm with brickwork.

If manhole covers are raised with bricks, a half-brick recess, as a foothold, shall be left directly below the concrete slab above the step irons.

PS LD 7 **TESTS**

PS LD 7.1 **GENERAL**

Add the following to LD 7.1.5:

All tests shall be repeated after the completion of backfilling of pipe trenches.

PS LD 8 **MEASUREMENT AND PAYMENT**

PS LD 8.2 **SCHEDULED ITEMS**

PS LD 8.2.3 **Manholes**

Add the following to LD 8.2.3:

Manholes shall be measured complete as indicated on the drawings and the rate shall be all inclusive for benching, step irons, type 4A CI cover and frame, and it shall make provision for all additional excavation and backfilling.

The depth of manholes as mentioned in the schedule of quantities, shall be measured from the final cover level to the outlet invert level (flow level).

PS LD 8.2.3.3 **New manholes on existing pipes ..... Unit : No**

The tendered rate shall be all inclusive for the handling of sewage flow, all excavation and backfilling, cutting of pipe and supply and installation of the new manhole, complete as described in LD 8.2.3.1, with finish and benching to accommodate the level difference of approximately 200 mm.

PS LD 8.2.11 **Connection To Existing Sewers ..... Unit : No**

Add the following to LD 8.2.11:

Separate items will be scheduled for each diameter of connecting pipe.

The tendered rate shall include full compensation for connecting the proposed pipe, any additional channelling and benching associated with the connection, cutting the pipe to suit the connection, supplying and building in the short junction pipe, extra

couplings, dealing with existing flow, preventing foreign material from entering the sewer and making the connection.

The excavation for pipelines, pipes, backfilling and manholes shall be measured separately.

Where a direct connection is made to an existing pipe, the rate covers all labour involved in opening the existing pipe, the removal of the existing end cap and disconnection at the pipe.

PSM: ROADS (GENERAL)

PS M3 **MATERIAL**

PS M 3.2 **RESPONSIBILITY FOR LOCATION**

Add the following to M3.2:

The sub base and base layers of all roads shall be constructed with material from designated borrow areas. The Contractor is responsible for the selection of the material in the borrow areas and if the material in the paving layers do not comply with the minimum requirements it shall be removed and replaced with suitable material at the expense of the Contractor.

PS M 5 **CONSTRUCTION**

PS M 5.1 **SELECTION**

The Contractor shall deal selectively with material in order that suitable material is not contaminated with unsuitable material. If suitable material is contaminated, the Contractor shall replace such contaminated material with suitable material, at his own expense.

PS M 6 **TOLERANCES**

PS M 6.3 **FREQUENCY OF CHECKS**

Add the following to M 6.3:

These checks shall be submitted to the Engineer for his approval.

PS M 7 **TESTING**

PS M 7.3 **ROUTINE INSPECTION AND TESTING**

Substitute M 7.3.3 with the following:

Statistical evaluation of test results shall not be applicable to this contract and all tests shall meet the specified minimum requirements for the specific material.

PS M 8 **MEASUREMENT AND PAYMENT**

Add the following to M 8.1:

The cost of all routine testing done by the Engineer, and of which the results do not comply with specified minimum requirements for the material, shall be borne by the Contractor.

These costs shall be deducted from the Contractor's monthly payment certificates.

PS ME: SUBBASE

PS ME 3 MATERIALS

PS ME 3.2 PHYSICAL PROPERTIES

PS ME 3.2.1 Subbase Material

Substitute ME 3.2.1 with the following:

a) Materials of G5 quality for use in the unstabilised subbase shall comply with the requirements of SABS 1200 M 3.3.3.

b) Materials of G7 quality for use in the unstabilised subbase shall comply with the requirements as specified in SABS 1200 M 3.3.3, except that the maximum aggregate size after compaction shall not exceed 63 mm.

PS ME 3.2.2 **Gravel Shoulder and Gravel Wearing Coarse Material**

Substitute ME 3.2.2 with the following:

The material used for gravel shoulders and/or gravel wearing course shall comply with the following requirements:

i) Maximum aggregate size after compaction .....37,5 mm
ii) Oversize index (Io) ..... nil
iii) Shrinkage product (Sp) 100-240
iv) Grading coefficient (Gc) 16-34
v) Minimum CBR at 95 % of MAASHTO of density 25

Where:

Oversize index (Io) is the mass of the material larger than 37,5 mm, expressed as a percentage of the total mass of material;

Shrinkage product (Sp) is the product of the linear shrinkage and the percentage smaller than 0,425 mm (expressed as a percentage of the material smaller than 37,5 mm) of the material;

and

Grading coefficient (Gc) is the product of the percentage of material smaller than 26,5 mm but larger than 2,0 mm and the percentage smaller than 4,75 mm (expressed as a percentage of the material smaller than 37,5 mm) divided by 100.

ME 3.3 STABILISING AGENT

PS ME 3.3.1 **General**

Substitute ME 3.3.1 with the following:

Where ionic stabilisation is required, the stabilising agent shall be approved by the Engineer, and the rate of application shall be 0,03 ℓ/m2 for layer thickness of 150 mm and 0,02 ℓ/m2 for layer thicknesses of 100 mm.

ME 5 CONSTRUCTION

ME 5.4 PLACING AND COMPACTION

PS ME 5.4.1 **Placing**

Substitute "the project specification" in the second paragraph of ME 5.4.1 with "ME 6.1.4".

PS ME 5.4.5 **Work in Restricted Areas**

No additional payment shall be made for work in restricted areas and any relevant costs shall be deemed to be included in the tendered rates.

ME 5.7 **TRANSPORT**

PS ME 5.7.1 **Free-haul**

Substitute ME 5.7.1 with the following:

An unlimited free-haul distance shall apply to subbase material.

ME 7 **TESTING**

ME 7.2 **PROCESS CONTROL AND ROUTINE INSPECTION AND TESTING**

PS ME 7.2.1 **Process Control**

Substitute "1 500 m^2" with "1 200 m^2" and "5 000 m^2" with "3 000 m^2" in Table 2 of ME 7.2.1.

PS ME 7.2.2 **Routine Inspection and Testing**

Substitute the second sentence of ME 7.2.2 with the following:

No density shall be less than the specified minimum density for the relevant layer.

ME 8 **MEASUREMENT AND PAYMENT**

PS ME 8.2 **COMPUTATION OF QUANTITIES**

Substitute ME 8.2 with the following:

Measurement and payment shall be to the exact dimensions as shown on the drawings.

ME 8.3 **SCHEDULED ITEMS**

PS ME 8.3.8 **Stabilising Agent**

Add the following subitem to ME 8.3.8:

g) Ionic stabilising agent ..... Unit : ℓ

The rate shall also cover the cost of application and mixing in of the stabilising agent.

PS ME 8.3.11 **Preparation of Road bed to a depth of 150 mm as subbase compacted to 95 % of MAASHTO density (100 % for sand) ..... Unit : m3**

The rate covers the cost of crust breaking up to a minimum depth of 150 mm, watering, shaping, building and compaction of subbase, final scraping, compliance with the tolerances and testing.

PS MF: BASE

MF 3 **MATERIALS**

MF 3.3 **PHYSICAL AND CHEMICAL PROPERTIES**

PS MF 3.3.1 **Natural Gravel (Unstabilised or Stabilised)**

Substitute the requirements of MF 3.3.1 for unstabilised natural gravel with the following:

1) Natural gravel, of G4 quality which is placed in the base shall, after compaction, comply with the requirements of SABS 1200 M 3.3.3.

2) Natural gravel, of G5 quality which is placed in the base shall, after compaction, comply with the requirements of SABS 1200 M 3.3.3.

PS MF 3.3.2 **Graded Crushed Stone**

Substitute the requirements of MF 3.3.2 with the following:

Graded crushed stone placed in the base shall, after compaction, comply with the requirements for type G1 as specified in 3.3.3 in SABS 1200 M.

PS MF 3.3.3 **Graded Crushed Stone and Soil Fines**

Substitute the requirements of MF 3.3.3 with the following:

Graded crushed stone that is admixed with soil fines, placed in the base shall comply with the requirements for type G2 or G3 as specified in 3.3.3 in SABS 1200 M.

MF 5.4 **PLACING AND COMPACTION OF A BASE OTHER THAN A WATER BOUND MACADAM BASE**

PS MF 5.4.6 **Work in Restricted Areas**

No additional payment shall be made for work in restricted areas and any relevant costs shall be deemed to be included in the tendered rates.

MF 5.9 **TRANSPORT**

PS MF 5.9.1 **Free-haul**

Substitute M 5.9.1 with the following:

An unlimited free-haul distance shall apply to basecourse material.

MF 6 **TOLERANCES**

MF 6.1 **DIMENSIONS, LEVELS, ETC**

PS MF 6.1.2 **Grade**

Add the following to MF 6.1.2:

In addition to the above-mentioned requirements the surface shall be of such a grade that all surface water shall drain freely to the adjacent kerbs and/or channels, and all

subsequent costs to rectify the surface to comply hereto shall be borne by the Contractor.

MF 7 TESTING

PS MF 7.2 PROCESS CONTROL

Substitute "1 500 m^2" with "1 200 m^2", "1 500 m^3" with "1 200 m^3" and "5 000 m^2" with "3 000 m^2" in Table 3 of MF 7.2.

MF 7.3 ROUTINE INSPECTION AND TESTING

Substitute MF 7.3.2 with the following:

No density shall be less than the specified minimum density for the relevant layer.

MF 8 MEASUREMENT AND PAYMENT

PS MF 8.2 COMPUTATION OF QUANTITIES

Substitute MF 8.2 with the following:

PS ME 8.2 shall apply mutatis mutandis.

PS MF: SEGMENTED PAVING

MJ 3 **MATERIAL**

MJ 3.1 **UNITS**

PS MJ 3.1.2 **Class, Strength and Type**

Add the following to MJ 3.1.2:

All paved parking areas shall be constructed of 60 mm thick Type S-A class 25 precast concrete blocks (interlocking type). Footpaths shall consist of 60 mm thick Type S-C class 25 precast rectangular concrete blocks. A "Terracotta" colour shall be used.

MJ 5 **CONSTRUCTION**

MJ 5.1 **PREPARATION**

PS MJ 5.1.2.3 Stabilised **subbase**

Add the following to MJ 5.1.2.3:

The subbase for the parking area shall be stabilised.

PS MJ 5.7 **JOINT FILLING**

Joint filling shall be done with a 1:3 cement-sand mix.

MJ 6 **TOLERANCES**

PS MJ 6.2 **PERMISSIBLE DEVIATIONS**

Add the following to MJ 6.2:

The degree of accuracy shall be degree I.

MJ 8 **MEASUREMENT AND PAYMENT**

MJ 8.2 **SCHEDULED ITEMS**

PS MJ 8.2.2 **Construction Of Paving Complete ..... Unit : m^3**

Add the following to MJ 8.2.2:

The rate shall also cover the cost of the cement-sand mix as specified in PS MJ 5.7.

PS MJ 8.2.6 **Placement Of Pavers In Stead Of Painted Lines ..... Unit : m**

If required by the Engineer, parking bays and other painted markings on the parking area shall be indicated with tan-coloured paving blocks.

The rate shall cover the cost of all material, labour and equipment for the placing of such blocks.

PS MF: KERBING AND CHANNELLING

MK 3 **MATERIALS**

MK 3.2 **PRECAST KERBING AND CHANNELLING**

PS MK 3.2.3 **Strength**

Substitute MK 3.2.3 with the following:

Precast kerbs, edging and channels shall be of grade 20 MPa/19 mm concrete.

PS MK 3.9 **BEDDING MATERIAL**

Substitute MK 3.9 with the following:

The material on which concrete kerbs, channels and edging are bedded, shall be in accordance with the dimensions shown on the drawings and shall consist of a 1:3:6 concrete mix with a 6,7 mm single size coarse aggregate.

MK 5 **CONSTRUCTION**

PS MK 5.1 **EXCAVATION AND BEDDING**

Substitute "90 %" in MK 5.1 with "93 % (100 % for sand)".

PS MK 5.2 **PRECAST CONCRETE KERBING AND CHANNELLING**

Substitute the first sentence of MK 5.2 with the following:

Precast concrete kerbing and channelling shall be laid and bedded on a concrete bedding complying with the requirements of PS MK 3.9 and to the dimensions shown on the drawings.

PS MK 5.11 **TRANSITION SECTIONS AND INLET AND OUTLET STRUCTURES**

Substitute the first sentence of the second paragraph of MK 5.11 with the following:

Inlet and outlet structures shall be in accordance with the details shown on the drawings.

MK 8 **MEASUREMENT AND PAYMENT**

PS MK 8.1 **BASIC PRINCIPLES**

Substitute the second sentence of MK 8.1.1 with the following:

Deductions will be made for catchpits, etc.

Add the following to MK 8.1.1:

Payment shall include the provision of expansion joints as specified.

MK 8.2 **SCHEDULED ITEMS**

PS MK 8.2.14 **Street Name And Transition Kerbs ..... Unit : No**

The provisions of MK 8.2.1(b) shall apply mutatis mutandis.

C3.4.1.3 Particular / Generic specifications

The following Particular Specifications attached as Annexes, are applicable to this Contract:

i) Specification PA: Network Refurbishment

ii) Specification PB: Building Work

iii) Specification PC: EPWP Labour Intensive Specification

C3.4.2 EXISTING SERVICES

C3.4.2.1 Known services

The positions of existing services, insofar as they are known, are shown on the drawings. Items have been allowed in the Bill of Quantities for dealing with and protecting services.

C3.4.3 SITE ESTABLISHMENT

C3.4.3.1 Service and facilities provided by the employer

(i) Source of Water Supply

Arrangements for water can be made with the employer. The water will however be from the existing reservoir on site and the available pressure will be such that it can only reach the lower lying areas of the site.

Water used by the Contractor will be charged for at the tariffs ruling at the time of use.

The Contractor shall make himself thoroughly acquainted with the regulations relating to the use of water and shall take adequate measures to prevent the wastage of water.

The Employer accepts no responsibility for the shortage of water due to any cause whatsoever, nor additional costs incurred by the Contractor as a result of such shortage.

The Contractor shall take note that no direct payment will be made for any costs incurred for the provision of a water supply point or for the cost of water drawn. Payment for the aforementioned shall be deemed to be covered by the rates and prices tendered and paid for the various items of work included under the Contract.

(ii) Source of Power Supply

Arrangements for an electrical connection can be made with the employer. The quantity and supply can however not be guaranteed and the Contractor shall therefore also make his own arrangements for an electrical supply, should it be required.

Electricity used by the Contractor will be charged for at the tariffs ruling at the time.

The Contractor shall take note that no direct payment will be made for any costs incurred for the provision of an electrical supply point or for cost of electricity used. Payment for the aforementioned shall be deemed to be covered by the rates and prices tendered and paid for the various items of work included under the Contract.

(iii) Location of Camp and Materials storage area

The camp site and storage area will be the contractors own responsibility and may be on any open space in the areas under construction. The municipality must approve this camp area before site establishment takes place.

The Contractor shall confine his camp and storage of materials to the areas designated. On completion of the construction works the surface of the areas utilised shall be re-instated to their original condition.

C3.4.3.2 Facilities provided by the contractor

(i) Temporary Offices

An office for the Engineer will be required. Refer to PS AB 3.2 for the Engineers requirements.

Site meetings will be held in the Contractor's site office.

(ii) Sanitary Facilities

The Contractor shall supply chemical toilets for use by his workmen. The number of toilets shall be based on one toilet per fifteen personnel on site.

Under no circumstances will the Contractor's staff be allowed to use existing toilet facilities.

(iii) Telephone Facilities

A site telephone will be required by the Engineer. Refer to PS AB 4.1.

C3.4.3.3 Housing for contractor's employees

No housing is available for the contractor's employees, and the Contractor shall make his own arrangements for housing his employees or transporting them to and from the site. The Contractor is in all respects responsible for the housing and transporting of his employees and for the arrangement thereof, and no extension of time due to any delays resulting from this will be granted.

C3.4.4 SURVEY CONTROL AND SETTING OUT OF THE WORKS

Survey pegs will be indicated to the Contractor. The Contractor shall be solely responsible for the protection of survey pegs. The Contractor's attention is specifically drawn to the requirements of SANS specification 1200 A: General, clause 5.1 survey, in this respect.

C3.4.5 FEATURES REQUIRING SPECIAL ATTENTION

C3.4.5.1 Safety regulations

Both the "Factories, Machinery and Building Work Act (Act 22 of 1941) and the "Machinery and Occupational Safety Act (Act 6 of 1983)" must, wherever they appear in the SANS 1200 standardised specifications, be substituted by the "Occupational Health and Safety Act (Act 85 of 1993)".

The Contractor shall apply suitable proven methods for construction complying with the OHS Act so that his activities will not constitute a hazard to his work force, the public or any adjacent property. All excavations shall be suitable safeguarded and barricaded especially during night-time, weekends or holidays and any other day of inactivity by the Contractor. The Contractor shall also ensure that excavations are shored or otherwise made safe. The camp and construction site will be locked after hours to ensure safety of passers by. No additional payment will be made to the Contractor for complying with these requirements.

C3.4.5.2 Excavation for pipeline

Pipes are to be laid on a prepared bed of soft material, as detailed in the Standard Specification SANS 1200 LB, except in special cases where concrete encasement or crushed stone is ordered by the Engineer.

No specific payment will be made for localised widening of trenches to accommodate, with a minimum of 100 mm clearance between pipe and trench side, special alignment of pipelines in the vicinity of bends negotiated by deflection at flexible couplings, or for excavation for pipe couplings etc, the cost of which must therefore be allowed for by the Contractor in the rates tendered in the Bill of Quantities.

Tenderers are to make a close and careful inspection of the site of the works so as to inform themselves fully of the nature of the ground to be excavated, the necessity or otherwise for timbering or side sloping in places, and generally to make them fully acquainted with all matters that will affect their pricing of the work. Despite any information given, the Contractor's prices will be held to be fully inclusive of all work, material and labour necessary to execute the excavation in the manner and to the conditions specified or ordered.

Unless otherwise permitted in writing by the Engineer, not more than 200 metres of trench shall be opened in advance for pipes. No trench may be left open during the holiday and Easter seasons.

No special payment will be made for side sloping or timbering trenches and until the trenches are backfilled, the Contractor shall be entirely responsible for any falls, slips and caving-in and for the safety of workmen and work.

C3.4.5.3 "Record" drawings

As the work progresses, the Contractor shall keep full records of all amendments to and deviations from the drawings as issued to the Contractor at the start of the contract. The Contractor must submit this information monthly with his payment certificate to the Engineer. The true positions, invert levels and ground levels of all services shall be indicated on the drawings, for which purpose the Contractor shall receive a separate complete set of drawings from the Engineer at no cost. The actual position and depth of any future connections, as well as any previously unknown existing services shall also be provided.

The completion certificate shall only be issued after the Engineer has received a properly completed set of **"record"** drawings from the Contractor. No separate payment shall be made for this service as all costs related thereto shall be deemed to the included in the relevant items.

C3.4.5.4 Finishing and tidying

Progressive and systematic finishing and tidying will form an essential part of this contract. Under no circumstances shall spoil, rubble, materials, equipment or unfinished operations be allowed to accumulate unnecessarily and in the event of this occurring the Engineer shall have the right to withhold payment for as long as necessary in respect of the relevant works in the area(s) concerned.

C3.4.6 SITE INSTRUCTION BOOK

A triplicate book for site instructions shall be supplied free of charge by the Contractor and shall at all times be kept on the Site and accessible to the Engineer during normal working hours. At the end of the Contract the Contractor shall hand the site instruction book to the Engineer.

C3.4.7 CONSTRUCTION IN RESTRICTED AREAS

Working space may sometimes be restricted. The construction method used in these restricted areas largely depends on the Contractor's plant. However, the Contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used, and that the rates and prices tendered will be deemed to include full compensation for difficulties encountered while working in restricted areas. This will also apply to overbreak during any excavation. Payment will always be based on specified cross sections and dimensions. No extra payment or any claim for payment due to these difficulties will be considered.

C3.4.8 WORK CONSIDERED TO BE LABOUR BASED (LABOUR INTENSIVE)

The following components of work must be executed using labour-based construction methods.

- Clearing and Grubbing:
- Grass and small bushes shall be cleared by hand.
- All material excavatable by hand (refer to clause 4.1 of SANS 1921-5:2004) in trenches that have a depth of less than 1.5 m.
- Shaping
- All shaping in material excavatable by hand shall be undertaken by hand.

- Spreading:
- All material shall be spread by hand.
- Preparation of bedding cradle for pipelines.
- Loading and Off-loading
- All loading shall be done by hand, regardless of the method of haulage. All material, however transported, shall be off-loaded by hand, unless tipper-trucks are utilised for haulage.
- Pipe Laying:
- The laying of pipes, fittings, valves and specials where the mass of individual pipe lengths does not exceed 320 kg shall be undertaken by hand.
- Construction of manholes.
- Excavate by hand to expose existing services.
- Remove and re-erect existing fences to their original condition.
- Excavate and dispose of unsuitable material from trench bottom.
- Soilcrete encasing.

Note:

In the Schedule of Quantities, the cost of labour-based construction activity is covered by using the standard SANS 1200 payment item with no additional extra-over payment item to cover the additional cost of using labour-based construction methods.

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C3.5 PARTICULAR & VARIATIONS TO STANDARD SPECIFICATIONS

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

PART C3.5.1

STANDARD SPECIFICATIONS

SABS 1200

1200 A	GENERAL
1200 AB	ENGINEER'S OFFICE
1200 AD	GENERAL (STRUCTURAL)
1200 C	SITE CLEARANCE
1200 D	EARTHWORKS
1200 DK	EARTHWORKS (GABIONS & PITCHING)
1200 DM	EARTHWORKS (ROADS & SUBGRADES)
1200 G	CONCRETE STRUCTURAL
1200 GB	ORDINARY BUILDINGS
1200 GF	PRECAST CONCRETE
1200 H	STRUCTURAL STEELWORK
1200 HB	CLADDING AND SHEETING
1200 HC	CORROSION PROTECTION OF STRUCTURAL STEELWORKS
1200 L	MEDIUM-PRESSURE PIPELINES
1200 LB	BEDDING
1200 LC	CABLEDUCTS
1200 LD	SEWER
1200 LE	STORMWATER DRAINAGE
1200 LF	ERF CONNECTIONS (WATER)
1200 M	ROADS

Note 1 These Specifications are not issued with this volume but are available at the Contractor's expense from South Africa National Standards:

Office Address:
1 Dr Lategan Road
Groenkloof
PRETORIA

Postal Address:
Private Bag X191
PRETORIA
0001

Telephone:
National: (012) 428 7911
International: + 27 12 428 7911
Email: sales@sabs.co.za

Telefax:
National: (012) 3441568
International: + 27 12 344 1568

Note 2 Each of the Standard Specifications contains an appendix, which in turn lists further specifications, which are not bound into the tender and contract documents.

Note 3 Both of the Standard Specifications, as well as those specifications that are listed in the appendix to the Standard Specifications, shall apply to the Contract to the same extent as if each of these specifications had been bound into the tender/contract documents.

The following Norms & Standards also for part of this contract document and apply to this Contract to the same extent as if each of its specifications had been bound into the tender/contract documents

PART C3.5.2

VARIATIONS AND ADDITIONS TO THE STANDARDISED SPECIFICATIONS

SABS 1200

INTRODUCTION

Detailed under this section of the Document are the variations to the standardised specifications (SANS1200). The clause numbers hereunder consist of a prefix, such as “PSA” indicating an amendment to SANS 1200A, and a number that represents the number of the clause in SANS 1200A.

SANS 1200A: PRELIMINARY AND GENERAL

PSA GENERAL (1986)

PSA 2 INTERPRETATION

Add the following new clause:

“PSA2.9 SUPPORTING SPECIFICATIONS

KOPANONG Local Municipality’s (KLM) By-laws.
The KLM By-Laws is available at the Municipality’s Offices,

PSA 3 MATERIALS

PSA 3.1 QUALITY

Add the following to this sub-clause:
“The Contractor must supply and/or take delivery as necessary, deliver all material and is responsible for the handling, transport and storing of the material. All material, but especially fragile material, must be handled with care and any damaged material must be repaired or replaced according to the Engineer's instructions at the Contractor's expense.

Before material is used the Engineer must approve the manufacturer's published instructions. All material used must carry the appropriate official standardization mark and the Tenderer must produce on request certificates that show that the material comply with this requirement”.

.

SANS1200 C SITE CLEARANCE (1982)

PSC 1 SCOPE

PSC 1.1 Add:

Except where noted, all the work covered by this specification shall be done labour intensively.

PSC3 MATERIALS

PSC3.1 DISPOSAL OF MATERIALS

All excavated material which is unsuitable for the use in the permanent works or is unsuitable for local dumping and spreading on site must be removed and dumped at a separate spoil site by the Contractor, identified by the Contractor to be suitable and legal for this type of dumping.

The Contractor is responsible for all arrangements and all costs for the attainment of suitable spoil site and fulfilment of all associated prescriptions. The individual spoil sites must conform to the environmental management plan for the Contract.

PSC 4 PLANT

PSC 4.1 Delete this clause and replace with:
The Contractor shall provide all tools and equipment needed for clearing and grubbing.

PSC5 CONSTRUCTION

PSC5.1 AREAS TO BE CLEARED AND GRUBBED

All areas to be cleared, if in undisturbed natural surroundings, shall have undulating borders, so as to create a softer look.

PSC 5.2 CUTTING OF TREES

PSC 5.2.1 Protection of persons, animals and structures

To this clause add:

PSC 5.2.1.1 Preferred method of removing trees

Where trees are to be cut down and their root systems grubbed out labour-intensively, the following method is recommended:

1. The first team should trim the trees within the area to be cleared. The treetops should be cut, leaving a trunk about 5 m high. All side branches should be cut off using axes and saws. The timber resulting from the trees should be sawn up into convenient lengths and stacked to one side. Separate piles should be made for leaves and thin branches.

2. Bush and other tough vegetation should be cut down by the second team, to ground level if possible, cut to convenient lengths and stacked.

3. After trees have been trimmed and bushes have been cleared from an area of at least 100 m^2, the third team can start. Grass, leaf litter and remaining vegetation should be

removed at ground level by means of spades or hoes. The resulting debris should be raked to one side and added to the piles of thin branches and leaves.

4. Once a large enough portion of ground is clear, the fourth team should fix a strong rope to the top of the remaining portion of a tree-trunk. Then they should dig a trench around the tree and chop through the roots. The trench should be about one metre deep (less if the tree is small) and the team should attempt to undermine the tree stump. As soon as one tree has been trenched and all accessible roots cut through, a team of labourers should be gathered to pull the tree down by means of the rope. As the tree moves, further roots may become visible and accessible: these roots should be cut free at the level of the base of the hole while the pulling team rests. Progressively the tree trunk is thus brought down, using the leverage of the length of the trunk to tear out as many roots as possible. Once the tree and stump have been brought down, they should be rolled away from the hole and cut into convenient lengths. All major roots must be dug out and removed to the specified depth.

5. Large bushes should be trenched and their root systems removed. The roots of smaller bushes can be dug out together with the grass roots.
   The soil dug out of the trenches around trees and large bushes should then be returned to the trenches. Roots should be carefully separated from the soil and only clean soil used for backfill. The tree hole backfill is to be compacted in thin layers as follows: the soil is to be dampened and mixed and then placed into the trenches in layers about 100 mm thick. The soil in each layer shall be compacted with hand stampers until firm. The trenches shall be compacted up to 200 mm below the ground surface. The rest of the soil can then be thrown loose into the trenches.

PSC5.2.3.2 Individual trees

Care shall be taken to protect indigenous trees. The Contractor shall replace any tree damaged or removed outside the areas to be cleared and grubbed. A tree is defined as having a trunk diameter of more than 150mm at a height of more than 0,3 m above ground level.

PSC 5.3 CLEARING

a) Delete the content of this clause and replace with:
"the removal and disposal of structures that encroach upon or may otherwise obstruct other work on the Site (see requirements of clause 5.8);"

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PSDA 1 SCOPE

PSDA 1.1 Add:

Except where noted, all the work covered by this specification shall be done labour intensively.

PSDA 3 MATERIALS

PSDA 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

PSDA 3.1.1 Method of classifying
To this clause add: Material supplied from commercial sources will not be classified.

PSDA 3.1.2 Classes of excavation
Delete this clause and replace with:
The classification of excavations shall be according to clause PSDB 3.1 Classification for hand excavation (pipe trenches) of this project specification.

PSDA 4 PLANT

PSDA 4.1 EXCAVATION PLANT

Delete this clause and replace with:

As the project is required to be labour based, the only excavation equipment allowed will be (an) air compressor(s) and appropriate hand held pneumatic tools.

PSDA 4.2 TRANSPORT

To this clause add:

For hauls up to 200 m wheelbarrows shall be used. For hauls over 200 m, mechanical equipment is permitted with the stipulation that it shall be hand loaded. Off-loading may be by mechanical means.

Add a new clause:

PSDA 4.3 COMPACTION EQUIPMENT

No limitations are placed on the Contractor in his choice of compaction equipment.

PSDA 5 CONSTRUCTION

PSDA 5.1 PRECAUTIONS

PSDA 5.1.1 Safety

PSDA 5.1.1.1 Barricading and lighting

Delete this clause and replace with:

In terms of the Occupational Health and Safety (OH&S) Act, No. 85 of 1993, every excavation by which the safety of persons may be endangered shall be barricaded

with a barrier sufficiently strong to contain pedestrians and prevent them from falling into the excavations at times when visibility is low.

Delete a) and b) and insert the following:

"The Contractor shall light and barricade all materials, excavations and objects, which constitute an obstruction or danger to the public as a result of his operations.

In addition to the above, the following shall apply to all excavations:

1) Barricading supports shall be portable and self-standing i.e. such as not to disturb the existing surface. Horizontal planks shall be at least 100 mm wide, painted in red and white bands and shall be fixed to the support at heights of 0,45 m, 0,75 m and 1,25 m above the ground.

   The system shall be rigid when erected and shall present a neat and orderly appearance. The system of barricading either as specified above or an alternative, must be approved by the Engineer before excavations commence. It should be noted that chevron plastic tape alone, is not regarded as adequate protection around excavations and its use for that purpose shall not be approved. The use of the "fluorescent orange plastic netting" would be considered provided the support system complies with the requirements of the Works, Machinery and Safety Act.

2) At night, flashing orange lights shall be placed at each end of every trench under construction and at intervals not exceeding 15m apart along barricades. The proximity of street lights shall not relieve the Contractor of any responsibility in respect of barricading and lighting.

3) All signs and barricades shall be inspected every day before the morning and evening peak traffic periods and at least once during the day. The Contractor shall advise the Engineer of the name of the individual appointed to carry out these inspections.

4) Warning lights and barricading components which are damaged, disturbed, lost or stolen shall be replaced and repositioned by the Contractor immediately at his own expense. Night watchmen are to be utilized where necessary to guard barricading and lighting from theft and vandalism. The Contractor shall comply with the requirements for barricading of the Municipal By-Laws, save where the requirements of the code are varied by Portion 1 and 2 of the Project Specification. Should the Contractor fail to provide adequate lighting, signing and barricading, access to properties, or leaves the site in a dangerous condition, the Engineer shall be entitled to:

   1) Suspend all work under the Contract until in the Engineer's opinion the Contractor's obligation in these respects have been fulfilled.

   2) Arrange for any emergency work to be carried out by some other agency and to deduct the cost of this work from any monies due to the Contractor "

PSDA 5.1.1.2 Safeguarding of excavations

In this clause delete the words "Factories, Machinery and Building Work Act, 1941" and replace with "Occupational Health and Safety (OH&S) Act, No. 85 of 1993 and as amended".
In addition to the existing clause, the following shall apply:

a) Loose ground, materials, tools and appliances shall be kept clear of the edge of the excavations and a pathway at least 1.0m shall be left clear around such edge.

No separate or additional payment shall be made for timbering and shoring and allowance must be made for this work in the Schedule Rates for excavation.

Timbering, shoring, etc. directed to be left in the excavations will be paid for at the scheduled rates.

The Contractor shall be solely and entirely responsible for maintaining excavations in a safe condition and his responsibility shall in no way diminish by any instruction by the Engineer to take additional or improved protection or precautionary measures.

PSDA 5.1.1.3 Explosives

Explosives shall not be used on this project. Non explosive methods shall be used. Hard rock and large boulders shall be drilled at suitable spacing using hand held pneumatic tools and shall be split by means of suitable equipment or expanding materials.

Add a new clause:

PSDA 5.1.1.4 Maximum length of open trench

Unless otherwise permitted by the Engineer, not more than 100 m of trench in one place shall be opened in advance of the completed pipeline that has been backfilled.

PSDA 5.1.6Excavated material not to endanger or interfere

In addition to the existing clause the following shall apply:
A safe, clear path must be kept open at all times for pedestrians. Equipment, materials and waste must be stored, stockpiled or removed in such a manner that pedestrians are never endangered and that the nuisance level is kept to a minimum. If construction activities occupy the whole footway and verge area so that pedestrians are forced to walk in the traffic lane, adequate protection from traffic must be provided.

Where instructed by the Engineer or where the Works impose a danger to traffic or pedestrians, the Contractor shall remove off Site excavated material to temporary stockpiles (approved by the Engineer) and the return to Site, excavated material for use as backfill or bedding.

PSDA 5.1.8 Road Traffic Control

The complete closure of any road is not permitted without the prior written consent of the Engineer.

PSDA 5.2 METHODS AND PROCEDURES

PSDA 5.2.3 Placing

PSDA 5.2.3.2 Restricted backfill and compaction at structures
In the second paragraph:
delete the figures "250" and replace with "120";
delete the word "mechanical" and replace with "hand".

PSDA 5.2.6 Transport for Earthworks

PSDA 5.2.6.1 Freehaul

All haul shall be freehaul.

PSDA 5.2.6.2 Overhaul

Delete and replace with:
All haul shall be freehaul

SANS1200 DB: EARTHWORKS (PIPE TRENCHES) (1989)

PSDB 1 SCOPE

PSDB 1.1 Add:

Except where noted, all the work covered by this specification shall be done labour intensively.

PSDB 2 INTERPRETATION

PSDB 2.1 SUPPORTING SPECIFICATIONS

Add the following sub-clause:

e) KOPANONG Local Municipality By-laws.
Should any requirement of By-Laws conflict with any requirement of the standardised or particular specifications the requirements of the By-Laws shall prevail.

PSDB 3 MATERIALS

PSDB 3.1 CLASSES OF EXCAVATION

Delete this clause and replace with:

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

The interval between test locations shall be determined by the variation of material type but shall not exceed 50m. The depth of testing shall be determined by the variation of material type and can vary in hardness with increasing depth of excavation. Table PSDB 3.1 indicates the categories:

TABLE PSDB 3.1: Classification for Hand Excavation

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

Category of Material	Consistency		DCP Blows to Penetrate 100 mm	
	Granular	Cohesive	Granular	Cohesive
mechanical equipment, such as pavement breakers with clay spades, before removal from the trench.				
Rock Rock excavation shall be excavation in material other than described above which by nature of the material requires prior breaking using mechanical equipment, such as pavement breakers with moil points, before being removed from the trench	-	-	>50	>15

PSDB 3.5 BACKFILL MATERIAL

Delete sub-clause (b) of this sub-clause and replace with the following:
The quality of materials used for subgrade in areas subject to traffic loading shall comply with PSDB 5.9.4.

PSDB 3.6 MATERIALS FOR RE-INSTATEMENT OF ROADS AND PAVED AREAS

PSDB 3.6.2 Gravel

Delete these sub-clauses and replace with the following:
Material used in the re-instatement of pavement layers shall fall into either of the following categories:

(a) Foundation material recovered from the excavation of trenches across existing roadways which, if so instructed by the Engineer, shall be set aside and re-used as sub-base material.
(b) New material which shall conform to the requirements of:
- Clause 3.2.1 of SABS 1200 ME for the Sub-base.
- Clauses 3.2 and 3.3 of SABS 1200 MF for the Base course.
- Clause 3.2.2 of SABS 1200 ME for the Gravel Wearing Course.

Material used in the backfill underneath the pavement layers shall fall into either of the following categories:

(a) Stabilised backfill

The aggregate used for stabilised backfill shall be a sandy or gravely material containing particles up to 38 mm and shall not have a plasticity index of more than 10. Aggregate must be obtained from an approved source.

The tendered rate for stabilised backfill shall include full compensation for all material including the Portland cement used at a rate of 6% of the dry mass of the backfill. Wherever pipes cross surfaced streets the backfill must be stabilised.

(b) Soilcrete

Where so ordered and scheduled, the culverts shall be backfilled with soilcrete in lieu of a compacted gravel or lean concrete. Soilcrete shall consist of an approved soil or gravel mixed with 5 % by mass of Portland cement and only sufficient water to give it a consistency that will permit the soilcrete to be placed, using vibrators, so that all voids

between the culverts and the sides of the excavation are properly filled. The height to which the backfill in soilcrete is taken shall be as determined by the Engineer and any remaining backfill shall be carried out as described for granular material.

The aggregate used for soilcrete shall be a sandy material but may contain larger particles up to 38 mm and it shall have a plasticity index of more than 10. Material containing detrimental amounts of silt or clay shall not be used for soilcrete. The aggregate shall be obtained from an approved source.

The soilcrete shall be mixed on Site by means of suitable concrete mixers and the water and cement contents shall be carefully controlled. The material shall be placed and then thoroughly compacted by means of vibrators so that all voids are filled. Stones or other approved form work shall be packed at culvert ends to prevent the soilcrete from flowing outside the required limits. The rate shall cover the cost of constructing soilcrete backfilling complete, including Portland cement calculated at the rate of 5% of the dry mass of the soil used. Overhaul will not be paid on any cement, water or aggregate used for the soilcrete.

PSDB 3.6.4 Asphalt carpet

Delete this sub-clause and replace with the following:
The bituminous surfacing shall be a medium grade hot-mix asphalt.

PSDB 3.7 SELECTION

Delete the second sentence and replace with the following:
The Contractor shall use selective methods of excavating in order to produce material suitable for the bedding cradle or the bedding blanket.

c) Delete the last paragraph and replace with:

Subject to the provisions of clause 3.5, hard rock and boulders from the excavations shall be incorporated in the main fill, but shall be suitably mixed with other backfill materials.

PSDB 4 PLANT

PSDB 4.1 EXCAVATION EQUIPMENT

Delete this clause and replace with:
All trenches shall be excavated by hand to the specified width and depth. As the project is contractually required to be labour based, the only excavation equipment allowed will be (an) air compressor(s) and appropriate hand held pneumatic tools.

PSDB 5 CONSTRUCTION

PSDB 5.1 PRECAUTIONS

PSDB 5.1.1 General

Add the following to this sub-clause:
The Contractor shall programme his activities in such a way that long sections of trenches do not lie open for undue periods of time, as this poses a security risk. The pipes shall be laid as soon as possible after excavation of the trenches and the trenches then backfilled. Under no circumstances will trenches be left open for more than 1 week.

The Contractor shall inform the infrastructure department of the Kopanong Local Municipality at least 3 days in advance of the actual date on which he proposes to excavate in any road or footway.

PSDB 5.1.3 Accommodation of traffic and access to properties

Delete this sub-clause and replace with the following:
The Contractor shall comply with the requirements of the **Kopanong Local Municipality By-Laws** and **PS 5.7**.

PSDB 5.1.4 Existing services that intersect or adjoin trenches

Add the following to this sub-clause:
Where it is necessary for a pipeline to pass under existing drains, the Contractor shall carefully excavate and backfill around them. During the course of the work, the drains shall be adequately supported to the satisfaction of the Engineer. Any damage shall be reported without delay and shall be made good by the Contractor before backfilling.

The penalty payable for damaging existing services shall be **R5 000 per offence**, which exclude the cost of the repair of the service that will be for the account of the Contractor.

PSDB 5.2 MINIMUM BASE WIDTH

Delete this sub clause and replace with the following:
The base width and depths of all trenches shall be as follows:

DESCRIPTION	DEPTH (mm)	WIDTH (mm)
Secondary mains up to 250 mm dia in road reserves	1000 cover	800
Secondary mains up to 250 mm dia	700 cover	600
Erf connections	500 cover	400
Yard connections	450	300

For secondary mains lager than 250 mm the requirements of clause 5.2 above shall still apply. Should the excavated trench width exceed the specified width adjacent to and for 300 mm above the barrel of the pipe, remedial measures shall be directed and shall be provided at the Contractor's cost unless it can be shown that such excess width is due to factors beyond the Contractor's control.

PSDB 5.4 EXCAVATION

Add the following to this sub-clause:
Where the pipe trench crosses surfaced roads the Contractor shall neatly cut four parallel grooves into and through the "black top" before excavating between the inside 2 grooves. The outside 2 grooves should be 100 from the inside ones. The cost of this operation, where not scheduled separately, will be deemed to have been included in the general rates for excavation.
Pipe trenches shall be excavated in lengths not exceeding 100m, unless approved otherwise by the Engineer.

PSDB 5.5 TRENCH BOTTOM

Delete the existing clause and replace with:
Compaction of the trench bottoms shall be by the way of power driven plant.

The Contractor shall maintain the floors of completed trenches in good condition. Floors softened or eroded through stormwater, seepage water or otherwise, must be rectified by removal of the softened material and its replacement with approved material firmly compacted in layers not exceeding 150mm in compacted thickness or with 10MPa concrete where directed, at the Contractor's cost.

Accurately located recesses shall be cut into the bedding cradle or trench bottom to accommodate pipe joints and such recesses shall be properly shaped and sized to enable jointing to be carried out without difficulty. For welded joints the recesses shall provide a clear space not shallower than 500mm below the pipes - refer to drawing number LB-2.

The placing of hardcore or concrete screed shall be entirely at the Contractor's cost in any section of the work where softening of floors has been due to the method of excavation or inadequate provision for drainage.

Floors of trenches in bad or waterlogged ground shall be excavated and replaced with hardcore filling, a hardcore base and/or a 20 MPa concrete screed as directed.

i) Hardcore filling shall consist of 75 – 150 mm stone well rammed and compacted.
ii) Hardcore base shall consist of 50 – 75 mm stone laid and compacted across the full width of the trench.

Preparation of trench bottoms shall be included in the schedule rates for excavation. Approved granular material imported to the site, or hardcore base, hardcore filling or concrete screed, used on trench floors shall be paid for separately.

PSDB 5.6 BACKFILLING

In addition to the existing clauses, work shall be carried out in accordance with PSDB 5.9.

PSDB 5.6.1 General

Add the following to this sub-clause:
Notwithstanding the requirements of sub-clauses 5.6.1 and 5.6.6, no pipe joint or pipe-fitting shall be covered by either the blanket or the backfill prior to the successful completion of the visual inspection and the pressure testing of the relevant section of the pipeline without the written permission of the Engineer.

Insert the following after the first paragraph:
Trenches shall be backfilled level with adjacent surfaces immediately after completion of pipe laying and successful pressure testing (in addition all joints shall be watertight under normal operating conditions). Should pipe laying not be completed before work is due to cease for the day, the Contractor shall backfill the trench and re-excavate it the following day in order to complete pipe laying. The cost of the above activity shall be included in the Contractor's rates for excavation.

PSDB 5.6.3 & Disposal of Surplus or Unsuitable Excavated Material

PSDB 5.6.4 *Add the following to this sub-clause:*
Excavated material from the trench that is unsuitable or has become surplus because of bulking, displacement by the pipe and importation shall be disposed of at approved tipping sites to be located by the Contractor. All unsuitable material shall be spoiled within 48 hours of excavation, failing which the Engineer shall be entitled to suspend work under the Contract.

The prior approval of the Engineer must be obtained before surplus material may be deposited, spread and levelled at agreed sites within the area of the works.

PSDB 5.6.5 Deficiency of Backfill Material

Refer to clause PSD 5.2.5.1 for free haul distances.

PSDB 5.7 COMPACTION

PSDB 5.7.2 Areas subject to traffic loads

Add the following to this sub-clause:
In areas subject to traffic loading and in constructed footways compaction shall be done in accordance with the requirements specified in this Project Specification requirements.

PSDB 5.8 CONSTRUCTION IN HEADINGS

In addition to the existing clause the following shall apply:
Generally in soft material the buttresses and portions of ground left for the purpose of supporting the sides of the trenches or headings providing access to private properties, shall be broken down as the refilling and compaction proceeds.

Where excavation for branch pipelines are refilled, after the main pipeline excavations, the materials in the latter shall be stepped or raked back and compacted in 300 mm layers, simultaneously with the refilling of the branch pipelines excavation.

PSDB 5.9 RE-INSTATEMENT OF SURFACES

Insert the following to the existing clause:
Re-instatement of surfaces shall be in accordance with the Project Specification, variations and additions to the SANS 1200 specification and the Municipal By-Laws, where the By-Laws will enjoy preference.
The permanent re-instatement of the top 100 mm (or 150 mm in the case of arterial roads) of trenches in surfaced roads and sidewalks will be done by the Roads Directorate, unless instructed otherwise by the Engineer.

The Contractor shall backfill the trenches in accordance with the Project Specifications and Municipal By-Laws for Excavations, Backfill and Re-instatements in the Kopanong Municipal Area. The Contractor's attention is drawn to the requirements regarding bearing capacity of the materials used at the various levels of backfilling under roadways, and the need for selection and modification of the in-situ materials excavated, or for importing suitable approved materials.
The Contractor will be held responsible for placing and maintaining the temporary top 100 mm (or 150 mm as above) until the permanent surface re-instatement carried out, and for settlement of the trench backfill, excluding that part of the permanent re-instatement is carried out by the Council. It is recommended that the Contractor avails himself of the facilities offered by the Roads Directorate's Laboratory for testing the materials and the compaction of backfill layers as the work progresses. The Contractor shall provide the Engineer with copies of all test results, irrespective of what agency does the testing.

Except where separate provision for payment is made in the Bill of Quantities, the tendered rates shall include for:

a) the selection and, where required, modification of excavated materials, or alternatively the importing of suitable approved materials used in trench backfill for re-instatement;
b) all testing of the materials and the compaction;
c) the provision of copies of the test results;
d) the provision and proper maintenance of the temporary re-instatement of the top 100 mm (or 150 mm as stated above) of the trench until it is permanently re-instated, or for a maximum period of twelve weeks after completion of the Work;
e) the cost of permanent re-instatement work done by the Roads Directorate.

Should the Contractor fail to reinstate the surface of any trench or any other excavation, other than where re-instatement is to be carried out by the Municipality, within two weeks of the conduit concerned having been laid or other work having been approved, the Engineer may, at his discretion, arrange for such re-instatements to be carried out by some other party and the cost of this work shall be deducted from monies due to the Contractor. The Contractor shall not be relieved of any responsibility for defects or claims arising from the condition of any trench reinstated by the other party on the instructions of the Engineer.

PSDB 5.9.2 Re-instatement - private property and commonage

Delete existing clause and replace with the following:
"Re-instatement shall be with the same type of surfacing (including supporting structures; example bedding layers, jointing sand, structural joints, etc) and to at least the same standard and conditions as existed before excavation took place.

Grass sods shall be neatly cut out from grassed areas to be excavated and shall be preserved and kept damp until they can be replaced during the re-instatement. All other material to be used for re-instatement shall be suitably stored for such purpose. Any settlement below original ground level that occurs during the execution of the Contract or the Defects Liability Period shall be made good by and at the cost of the Contractor within a reasonable period as determined by the Engineer."

PSDB 5.9.4 Bitumen roads and surfaced footways: sub-base and base

In addition to the existing clause the following shall apply:
"No separate payment shall be made for the above procedure, which shall be deemed to be included in the rates and prices tendered. The tendered rates shall allow for the substitution of re-instatement of sub-base and base course layers with material complying with the Specifications and Municipality's By-Laws. Additional re-instatements necessitated by cover excavation, slips or falls shall be to the account of the Contractor."

PSDB 5.9.5 Bitumen roads and surfaced footways – surfacing

Delete the existing clauses 5.9.5.1 and 5.9.5.2 and replace with the following:

PSDB 5.9.5.1 General

The Contractor shall inform the Engineer in writing when the road or surfaced verges are ready for re-instatement. The scheduled item for re-instatement of surfacing allow for widths 0,20 m greater than the specified trench widths for road crossings. Extra re-instatements necessitated by over excavation, slips or falls shall be to the account of the Contractor.

The Contractor shall not carry out re-instatement of surface trenches in roadways under the maintenance of the MUNICIPALITY, unless otherwise authorised in writing by the MUNICIPALITY and copied to the Engineer. The Contractor, at tendering stage, shall thus obtain rates in consultation with the MUNICIPALITY and shall be responsible for payment to the MUNICIPALITY.

PSDB 5.9.7Re-instatement of concrete

In addition to the existing Clause 5.9 the following shall apply: All existing concrete surface shall be reinstated to original level and final finish (wood floated or steel floated or other) with un-reinforced concrete of 15 MPa (minimum) strength. The reinstated concrete shall also not exceed 125 mm but shall not be less than 50 mm.)

PSDB 5.9.8Interlocking blocks, paving slabs and bricks

All the existing blocks, slabs or bricks shall be cleaned and re-used. The blocks, slabs or bricks, which have been taken up, shall be stacked in a safe manner without restriction to vehicular or pedestrian traffic. Blocks, slabs or bricks around manhole covers shall be finished level with the manhole cover top. The cost of additional interlocking blocks, paving slabs or bricks required for complete re-instatement, over and above those taken up and stacked, shall be included in the rates tendered for the re-instatement of surfaces.

PSDB 5.9.9Kerbing

All existing types of kerbing that has been removed shall be cleaned and stacked in a safe manner without restricting to vehicular or pedestrian traffic. The Contractor shall replace all kerbing removed during trenching.

PSDB 7 TESTING

PSDB 7.1 DENSITY TESTS AND IN-SITU SHEAR STRENGTH TESTS

Add the following to this sub-clause:
A reputable/authorised laboratory shall carry out quality control testing of compaction densities and in-situ shear strength. Any testing by a laboratory or client will not relieve the Contractor of his responsibility to ensure adequate compaction and material quality throughout and the Contractor should therefore carry out his own regular tests. The Contractor shall furnish the Engineer with the originals of all such test results.

In the event that the Contractor does not conduct his own regular compaction and in-situ shear strength tests and relies on the results of the laboratory, the Contractor will be liable for the costs associated with the re-testing of all failed sections of reinstated trench. If any test result shows that the specified compaction or shear strength requirements have not been met, the Contractor shall at his own expense and within 7 days of receipt of the Engineer's instruction take the following remedial action:

1) Backfill material other than structural layers of bituminous roads and constructed footways

a) Trench excavations (other than road crossings)

The backfill material shall be removed to a depth of 450 mm for a distance of 2 m on either side of the point at which the test was taken. If the backfill material is suitable, it shall be replaced and re-compacted to the specified densities. Otherwise suitable material shall be imported and compacted and the excess material removed.

Where adjacent test results show that the backfill densities are below specified requirements, the entire length of trench between the points at which the tests were taken shall be re-excavated and re-compacted as required above. Density testing along trench excavations shall be carried out at intervals, as directed by the Engineer.

b) Trench excavations (road crossings)
As for (a) above save that the backfill material shall be removed to a depth of 450 mm over the full length of the trench.

c) All other excavations
As for (a) above save that the backfill material shall be removed to a depth of 450 mm over the extent of the excavation.

2) Structural layers of bituminous roads and constructed footways
In the case where a structural layer does not meet the shear strength requirements, the structural layer in question shall be removed. If, however, any other layers have been constructed on top of the layer in question, then all such layers shall also be removed at the cost of the Contractor, even if the shear strengths of these layers meet the specification.

a) Trench excavation (other than road crossings)
The layer shall be removed to its full depth for a distance of 2 m on either side of the point at which the test was taken. If the material is suitable, it shall be replaced and re-compacted to the specified shear strength. Otherwise suitable material shall be imported and compacted and the excess material removed.

Where adjacent test result show that the shear strengths are below specified requirements, the entire length of trench between the points at which the tests were taken shall be re-excavated and re-constructed as required above. In-situ shear strength testing along trench excavations shall be carried out at intervals, as directed by the Engineer.

b) Trench excavation (road crossings)
As for (a) above save that the layer shall be removed to its full depth over the full length of the trench.

c) All other excavations
As for (a) above save that the layer shall be removed to its full depth over the extent of the excavation.

3) Premix re-instatement

a) Trench excavations (other than road crossings):
The premix shall be removed for a distance of 1m on either side of the point at which the test was taken and reinstated in accordance with the project or by-laws requirement.

b) Trench excavations road crossings:
As for (a) above save that the premix shall be removed over the full width of the road.

c) All other excavations:
As for (a) above save that the premix shall be removed over the full extent of the excavation.

The Employer (where the Employer wishes to perform additional control tests) or the Engineer shall not be liable for additional costs or delays arising from remedial work

required to excavations, which have already been finally reinstated before their test results, become available.

PSDB 7.2 INSPECTION AT INTERMEDIATE STAGES OF CONSTRUCTION

The contractor shall call for an inspection of the works at the following intermediate stages of construction.

(1) After completion of the trench excavation and preparation of the trench bottom; and before any pipe is laid.
(2) After the selected backfill material has been placed around the pipe; and before the remainder of the trench is backfilled.
(3) Before placing of premix on roads or any final surfacing on constructed footways.

Work shall not progress through the specified stages without the approval of the Engineer or his representative on site. Failure to comply with the provision of this clause shall result in the suspension of work for a period as determined by the Engineer.

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.1 BASIC PRINCIPLES

PSDB 8.1.4 All haul shall be free haul.

PSDB 8.2 COMPUTATION OF QUANTITIES

PSDB 8.2.3 Computation of Quantities

The base widths tabled in clause PSDB 5.2 shall be the maximum widths measured for payment.

PSDB 8.3 SCHEDULED ITEMS

Add the following new clauses:

8.3.1 Site Clearance and Removal Of Topsoil

Add new items as follows:

PSDB8.3.1.1 Saw cut, remove and dispose of existing asphalt

The rate shall cover saw, cut, removal, handling, transport and proper off-site site disposal of all types of existing asphalt and stone crush base up to a maximum thickness of 40 mm. **Unit: m^2**

PSDB8.3.1.2 Saw cut, remove and dispose of concrete (un-reinforced)

The rate shall cover saw, cut, removal, handling, transport and proper off-site disposal of existing un-reinforced concrete of maximum thickness 150 mm.....**Unit: m^2**

PSDB8.3.1.3 Remove and temporarily store of paving block units

The rate shall cover removal, handling, transport and proper storage of all types of existing paving block units for later re-instatement. **.....Unit: m^2**

PSDB8.3.1.4 Remove and temporarily store of grass sods

The rate shall cover removal, handling, transport and proper storage and maintenance of existing grass in sods for later re-instatement. .....**Unit: m^2**

PSDB8.3.1.5 Remove and temporarily store all types of kerbing

The rate shall cover removal, handling, transport and proper storage of all types of existing kerbing for later re-instatement. .....**Unit: m**

PSDB 8.3.2 (a) Extra-over for intermediate material and rock

The extra-over rates for excavating in, intermediate and rock materials shall cover the additional cost of excavating and handling materials classified as such and shall include the cost of importing suitable bedding and backfill materials and the disposal of unsuitable material to the Contractor's tipping site and the replacement of same with suitable material.

PSDB 8.3.3.Excavation ancillaries

PSDB 8.3.3.4 Overhaul

Delete this sub-clause and replace with the following:
Overhaul is not applicable. Hence all distances applicable are considered as free haul distances and no additional payment will be applicable.

PSDB 8.3.5 Existing services that intersect or adjoin a pipe trench

Add the following to the end of the sub-clause:
(v) notifying and attending upon the proprietor of the service,
(vi) supporting and protecting the service while the pipeline is installed, inspected, tested and backfilled.

PSDB 8.3.6 Finishing

General

Delete "road". This clause shall be extended to cover surfaces other than road surfaces,

The width of any trench through an area grassed or paved with bricks or pre-cast concrete units shall be the minimum practicable width, which in the opinion of the Engineer is sufficient. In the case of blocks this minimum area will be the minimum area over which units (whether bricks or pre-cast units) can be removed without requiring cutting.

The Contractor's rate for supply and lay of asphalt must provide for all plant, labour and material costs associated with the work, including inter alia:

The cost of the asphalt and foamed concrete, the collection, transport to site and placing in accordance with the project specification. All wastage and over break re-instatement costs, including the purchase of the asphalt and foamed concrete.

PSDB8.3.6.1 Replace "parking areas" with "areas other than roadways".

Add the following new clauses:

PSDB 8.3.6.1 (a) Re-instatement of asphalt surfaces

The rate shall cover supplying, loading, transporting and re-instatement all layers complete to previous levels (or levels to suite proper stormwater drainage), and surfacing in accordance with the specifications .....**Unit: m^2**

PSDB 8.3.6.1 (b) Re-instatement of concrete, complete

The rate shall cover loading, transporting and re-instatement complete to previous levels (or levels to suite proper stormwater drainage), and surface finish of 15 MPa (minimum) un-reinforced concrete strength. The reinstated concrete shall also not exceed 125 mm but shall not be less than 50 mm.) .....**Unit: m^2**

PSDB 8.3.6.1 (c) Re-instatement of bricks and pre-cast units, complete

The rate shall cover loading, transporting and re-instatement complete with bricks/pre-cast unit-receival area preparation, compaction (minimum 90%Mod AASHTO density),

levelling, 20 mm river sand bedding, laying bricks/units, plaster sand jointing, and compaction. .....**Unit: m^2**

PSDB 8.3.6.1 (d) Re-instatement of grass sods, complete

The rate shall cover loading, transporting, and re-instatement complete with grass-receival area preparation, compaction, levelling, laying sods, top soiling, and watering (water not from property supply). .....**Unit: m^2**

PSDB 8.3.6.1 (e) Re-instatement of all types of kerbing, completing

The rate shall cover loading, transporting and re-instatement complete with sand-cement bedding, laying units, mortar jointing, haunching, and backfilling, compaction (minimum 90 % Mod AASHTO density) and levelling behind kerb. **Unit: m**

SANS 1200 G: CONCRETE (1982)

PSG 3 MATERIALS

PSG 3.1 APPROVAL OF MATERIALS

In addition to the existing clause the following shall apply:
The type of brand of cement stated in the Tender Certificate shall not be changed unless the Engineer's prior written approval to do so has been given.

PSG 5 CONSTRUCTION

PSG 5.1 REINFORCEMENT

PSG 5.1.2 Fixing

Add the following to this sub-clause:
No welding of reinforcement shall be allowed.

PSG 5.1.3 Cover

Add the following to this sub-clause.
Nominal cover to all elements to be 50mm for cast in-situ concrete and 40mm for precast units.

PSG 5.2 FORMWORK

PSG 5.2.2 Preparation of formwork

In addition to the existing clause, the following shall apply.
Tapered plugs of wood or other material shall be used on the inside surfaces of formwork at all tie bolts and shall be withdrawn after the removal of the forms. Boltholes and the recesses formed by the plugs shall be completely filled with cement mortar smoothly and neatly finished flush with the concrete surface. Recesses with smooth interiors shall be roughened adequately to provide bond for the mortar filling.

Inside corners in the formwork shall have 25 mm by 25 mm triangular fillets, unless otherwise detailed or directed.

PSG 5.5 CONCRETE

PSG 5.5.1 Quality

PSG 5.5.1.7 Strength concrete

Add the following to this sub-clause:
The following concrete classes must be used in the following positions unless shown differently on the drawings:
Class 15MPa/19 mm ..... Blinding layer, mass concrete, pipe encasings
Class 25MPa/19 mm ..... All structural concrete

PSG 5.5.3 Mixing

PSG 5.5.3.2 Ready-mixed concrete

Concrete from an approved ready mixed concrete supplier shall be permitted provided it conforms to the specification. Such supplier shall be deemed to be a Sub-Contractor in terms of the Contract. The test results shall be acceptable when evaluated in terms of SANS 1200 G-7.3.

PSG 5.5.5 Placing of concrete

PSG 5.5.5.1 *In addition to the existing clause, the following shall apply:*

Concreting shall not commence until approval to do so has been granted, at least 24 hours notice being required. Concrete shall not be placed before the steel reinforcement has been checked and approved. Concreting shall be done during normal working hours and only, in exceptional circumstances, outside such hours.

PSG 5.5.6 Compaction

PSG 5.5.6.1 *Add the following to this sub-clause:*

Only mechanical vibrators will be allowed for compaction, unless the Engineer approves in writing any other method.

PSG 5.5.10 Concrete surfaces

PSG 5.5.10.3 *Add the following to this sub-clause:*

Benching in manholes and channels ..... steel float finish
Top of manhole covers ..... steel float finish
All other surfaces ..... wood float finish

PSG 5.5.15 Records

Add the following new clause:

The Contractor shall maintain written records that provide detailed information in the form of a control chart indicating the compressive strengths of test cubes at 7 days and 28 days, including identification of the section where the concrete was cast and the class of concrete specified.

PSG 7 TESTS

PSG 7.2 TESTING

Add the following new clause:

PSG 7.2.5 Testing by the Engineer

The Engineer may, from time to time, require check tests to be done on concrete cube strengths in addition to the regular tests performed by the Engineer. The results of these tests will also be recorded on the control chart and will form part of the criteria for assessment of concrete quality. If required, a Provisional Sum has been included in the Bill of Quantities for this purpose.

SANS 1200L: MEDIUM PRESSURE PIPELINES (1983)

INTERPRETATIONS

PSL 2.4 ABBREVIATIONS

In addition to the existing clause the following shall apply:
HDPE: High density polyethylene

Pipe classes as indicated in the Drawings and Specifications will mean the following:

Work pressure kPA	*HDPE*	*Steel Pipes*	*uPVC Pipes*
300			
600	6	6	6
900	9		9
1 000		10	
1 200	12		12
1 500			
1 600	16	16	16
1 800			
2 100			
2 400			
2 500		25	

PSL3 MATERIALS

Add the following to the existing specified clauses:

PSL 3.1 GENERAL

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

PSL3.7.1 uPVC pipes

uPVC pipe systems shall conform to SANS 966 - 1998 Part I or II as applicable. All uPVC pipes shall have integral pipe-end sockets of the rubber ring joint type. All uPVC pipes shall be in 6m lengths.

Fittings and specials for uPVC pipes shall be manufactured in Grade 14 cast iron, rated to at least 1 600 kPa working pressure. Unless otherwise specified by the engineer, fittings and specials shall be bitumen dipped. Fittings and specials shall comply with SANS 546. Socketed ends shall be to SANS 966.

PSL 3.7.2 Polyethylene pipes

Class 16 HDPE type IV pipes, plain ended for butt-welding, shall be used unless otherwise indicated. All HDPE pipes greater than or equal to 75 mm diameter are to be heat fusion welded (i.e. butt welded) in accordance with SANS specifications. The internal butt welds shall not protrude by more than 4 mm. Pipes smaller than 75 mm are to be jointed with compression type fittings.

PSL3.8.3 Flanges

Flanges shall comply with the requirements of SANS 1123 (as amended). Flanges designed for working pressures of less than 1 600 kPa shall have flat flange faces and those for working pressures equal or greater than 1 600 kPa shall have raised flange faces.

It shall be the responsibility of the Contractor to ensure that flanges on pumps, valves, fittings, specials and pipes to be fitted together, are fully compatible.

Machined surfaces shall be coated with a mixture of white lead and tallow or another approved protective composition before these are affected by rust.

PSL 3.8.8 Jointing of HDPE pipe

Add the following new sub clause
Jointing of HDPE pipe shall be by means of welding, welded flanges or approved external compression type fittings (Plasson or similar approved).

PS L3.10 VALVES (CLAUSE 3.10)

Add the following to this clause

PSL3.10.1 General

All valves for this Contract shall be supplied with a full set of instruction manuals describing routine maintenance and repairs, as well as a complete parts list. All wearing parts for all valves used during this Contract shall be readily available in South Africa.

PSL3.10.2 Gate valves

All gate valves up to 200 mm diameter and up to 1 600 kPa working pressure shall be a resilient seal gate valve type. All other gate valves shall be wedge gate valves.

Resilient seal gate valves (RSV) shall comply with SANS 664 (as amended). All RSV valves shall be Class 16. Plain-ended valves shall be suitable for the type of pipe specified, and, in the case of spigotted valves shall be complete with couplings for the type of pipe specified. The valves shall have a straight, unobstructed body passage without pockets. The valves shall allow back sealing to allow replacing of spindle seals under pressure. The spindle seal shall consist of a double O-Ring arrangement with a wiper ring. RSV valves shall have non-rising stainless steel spindles. Gates shall be completely rubber covered and shall be supported by guides.

Wedge gate valves shall be of the class as specified, but not less than Class 16. Plain-ended valves shall be suitable for the type of pipe specified, and, in case of spigotted valves shall be complete with couplings for the type of pipe specified. All wedge gate valves shall be of Trim C: Stainless steel trim. Seat rings shall be pinned in position. The gland shall have a back sealing ring and at least 3 rings of acceptable packing material. The lugs on the gate and spindle are to be machined.

On all valves the design of the guides shall be such that the valve can be mounted in any position. All flanges, unless otherwise required, shall be to SANS 1123-1600. Flanges for valves larger than 200 mm and/or working pressure higher than 1 600kPa shall be spot-faced. All valves larger than 150 mm to be installed in pump stations shall have indicators. All valves shall, unless otherwise specified, be clockwise closing. Gearing shall be chosen to limit the effort on hand wheels or valve keys to 500N. Unless

otherwise specified, caps for key operations will be required for buried valves and hand wheels on valves situated in accessible chambers.

PSL3.10.3 Air valves

All air valves shall be double purpose air valves suitable to:

- Vent a filling pipeline.
- Release pressurized air from a full pipeline.
- Relieve vacuum (allow air intake) during emptying of a pipeline.

The air valve shall be of a single chamber design incorporating an integral “anti shock” orifice to limit shock induced pressure to twice the rated working pressure of the valve. The air valve shall have an intake orifice diameter of at least the nominal diameter of the valve. The valve design shall incorporate an over-pressure safety feature that will prevent explosive failure. The feature shall consist of easily replaceable components. Air valves up to 50 mm nominal diameter shall, unless otherwise specified, be for a screwed BSP connection. All other air valves shall be flanged. The air valve provision and installation shall also include the provision and installation a control valve and a chamber as per the applicable detail drawing.

PSL3.10.4 Control valves (pressure reducing / sustaining / relief, rate-of-flow)

The control valves shall be fully automatic, requiring no external power source. The control valves shall have large filter(s) in the control circuit. All pilot valves shall after being set, be sealed with sealing wire and lead seals. All pilot valves shall be permanently marked. The valve shall be delivered complete with a appropriate brick chamber (similar to that of the bulk meters) and a full set of operating instructions and a diagram indicating the control logic.

PSL 5 CONSTRUCTION

In addition to the existing clause the following shall apply:

PSL 5.1.3 Keeping pipelines clean

Pipe laying operations and precautions taken during pipe laying shall be aimed at eliminating the necessity for cleaning of completed mains. However, should foreign matter have entered or remained in the pipelines, the Contractor shall arrange for the mains to be cleaned (at the Contractor’s expense) to the satisfaction of the Engineer prior to testing.

PSL5.6 VALVE AND HYDRANT CHAMBERS

Valve, scour valve and hydrant chambers shall be constructed as detailed on the standardised typical drawings of the Employer or approved designed chambers by the Engineer. The rate tendered for the specific valve and hydrant chamber shall exclude all pipes, valves, hydrants and fittings but shall include excavation, compacted backfill, all concrete or brick work, formwork and steel reinforcing as well as concrete covers.

PSL 5.8 BRICKWORK

The joints of exposed faces shall be flush trowelled, hard and smooth and shall be rubbed for the full width of the joint as the work proceeds to give a hard polished finish.

PSL 5.10 DISINFECTION OF WATER PIPELINES

Delete existing clause and replace with:
On satisfactory completion of hydrostatic testing all pipelines shall be flushed with potable water supplied by the Employer. The Contractor shall ensure that the water used for flushing is disposed of in an approved manner without causing damage, nuisance or injury. If required the Contractor shall arrange for all pipelines to be sterilised by chlorination by an approved specialist firm after flushing has been complete. The preferred method of sterilisation is as follows:

The volume of the section of the pipeline to be chlorinated is calculated. A concentration of 8 – 10 ppm of chlorine to this volume of water is injected into the pipeline at the point of charging to form a highly concentrated chlorine block about 20 m in length. Charging of the pipeline is then commenced with chlorine being continuously inject at a concentration of 3 – 4 ppm. This moves the highly concentrated block throughout to end of that section of the pipeline. This results in high concentration and short contact times in the high contamination zones and lower chlorine concentration with longer contact times in the other zones.

During this process each scour is left closed. When the section of pipeline is fully charged, each scour in "blown" under pressure until there is no evidence of turbidity. The highly concentrated block is scoured out of the pipeline at the end of the section of pipeline. During this scouring process, chlorine is injected into the pipeline at the charging point at a concentration of 3 – 4 ppm. Generally, after a 24-hour contact time water sample analysis indicates chlorine concentrations of 1-2 ppm.

In all cases of chlorination, HTH granular chlorine is to be dissolved with water prior to injection.

The chlorinated water shall thereafter be drained from the pipelines and disposed of in an approved manner if necessary, after dechlorination, without casing damage, nuisance or injury. The mains shall then be refilled with potable water.

PSL 8 MEASUREMENT AND PAYMENT

Add the following new clauses:

PSL 8.2.16 Disinfection and pressure testing of existing secondary dormant mains in the road reserve. **Unit: Sum**

The rate shall include the cost for the exposing through excavation (no extra-over compensation shall be for intermediate, hard or rock excavation), and disinfecting secondary main including; transportation, handling and use of disinfecting and pressure testing equipment and material, labour and cleaning of the pipework, for pipe diameters up to and including 300mm, in accordance with clause PSL 5.11.1 above.

PSL 8.2.17Removal of existing mains fittings

The rate shall include the complete (labour, material, plant and equipment) cost for removing all existing fittings, with care, from the existing secondary main to be decommissioned, and transporting them to the Employer's designated premises. The rate shall also include the cost of backfilling the existing chambers with suitable material

(40% (12mmm granite stone): 60% (river sand)) and restoring the ground surface to the same condition as the surrounding area.

PSL 8.2.18Secondary mains leakage detection and repair

a) Supply or hire specialist equipment for the detection of leaking underground water pipes, recording of leak location and size and submission of a report to engineer..... **..... Unit: Sum**

The rate shall include the cost for the supply or hire of specialist leak detection equipment, resources and materials, preparation work (locating and excavation) and the execution of the activity as described above and the re-instatement of the excavation through backfilling, compaction, levelling and cleaning.

SANS1200LB BEDDING (PIPES) (1983)

PSLB3 MATERIALS

PSLB3.3 BEDDING

Bedding for all pipes shall be Class B.

PSLB3.4.1 Suitable material available from trench excavation

The Contractor shall be required to use selective methods for preserving material suitable for bedding and to prevent it from being contaminated.

PSLB3.4.2 Suitable material not available from trench excavation

When suitable material is not available from trench excavations, material shall be obtained from commercial sources, unless otherwise indicated by the Engineer.

SANS1200 LF: ERF CONNECTIONS (WATER) (1983)

The following variations are applicable to the standard specification

PSLF5 CONSTRUCTION

PSLF5.8 Labour-intensive construction methods

Add the following new sub-clause:

Where any portion of works is to be executed by means of labour-intensive construction methods, the Contractor shall not utilise any mechanical equipment, plant or vehicles. Only hand-held or hand-powered equipment such as picks, shovels, crowbars, wheelbarrows, tampers and the like shall be utilised in all excavation, compaction and transport operations.

Where intermediate material is encountered during the excavation process, this shall be removed using hand-held and hand operated pneumatic drilling and breaking equipment.

PSLF 5.9 Erf connection provision and installation

Add the following new sub-clause:

The Contractor shall be required to provide and install HDPE (Class 12) erf connection as per detailed drawings, refer to applicable details drawings herewith attached, for domestic and non-domestic consumers.

PSLF 5.10 Provision and installation of ball valves

Add the following new sub-clause:

a) Provision and installation of ball valves on existing and new yard connections
The Contractor shall provide and install ABB Kent (or similar approved) consumer valve boxes, complete with valves and couplings. The ball valve shall be provided in a box to be installed at least 400 mm into the ground and no more than 500 mm on the outside next to the property boundary, unless otherwise instructed by the Engineer.

PSLF 5.11 Communal standpipe (LOS1) provision and installation

Add the following new sub-clause:

The Contractor shall provide and install a LOS1, as per the applicable detail drawing, as an alternative to a LOS 2 and 3, for stands where so directed by the Engineer. The communal stand pipe shall be installed minimum 1m from the secondary mains, outside any trafficable area.

PSLF8 MEASUREMENT AND PAYMENT

PSLF8.2.1.1 EXTRA OVER FOR ITEM 8.2.1 – FOR SADDLES

Add the following new sub-clause:

This rate shall cover only the cost to supply a saddle as per size stated below:

8.2.1.1	4	Bolt saddle	110 x 1"	**Unit: No**
8.2.1.2	4	Bolt saddle	90 x 1"	**Unit: No**
8.2.1.3	4	Bolt saddle	75 x 1"	**Unit: No**
8.2.1.4	4	Bolt saddle	63 x 1"	**Unit: No**
8.2.1.5	4	Bolt saddle	110 x 1½"	**Unit: No**
8.2.1.6	4	Bolt saddle	90 x 1½"	**Unit: No**
8.2.1.7	4	Bolt saddle	75 x 1½"	**Unit: No**
8.2.1.8	4	Bolt saddle	63 x 1½"	**Unit: No**

PSLF 8.2.4 *Delete the existing clause and replace with the following:*

PSLF 8.2.4.2Conventional consumer meter

PSLF 8.2.4.2.1Conventional consumer meter collection and installation. **Unit: No**

The rate shall include the cost for the collection, transportation, handling, installation complete including minor excavations in all materials (no extra over item shall be allowed for intermediate, hard or rock materials), backfilling, compaction (minimum 90 % Mod AASHTO density), cutting of existing pipe in two places, disposal of cut-off pipe, installation of meter box and meter, commissioning, listing and submitting a location and meter detail record to the Engineer.

PSLF 8.2.4.2.2 Conventional consumer meter provision and installation. **Unit: No**

The rate shall include the cost for the supply, transportation, handling, installation complete including minor excavations in all materials (no extra over item shall be allowed for intermediate, hard or rock materials), backfilling, compaction (minimum 90 % Mod AASHTO density), cutting of existing pipe in two places, disposal of cut-off pipe, installation of meter box and meter, commissioning, listing and submitting a location and meter detail record to the Engineer.

PSLF 8. 2.9*Add the following new sub-clause:*

Erf connection provision and installation. .....Unit: m or No

The rate shall include the cost for the provision and installation of erf connections, complete as per the applicable detail drawing. Thus, the rate shall cover the cost for the provision of erf connections complete including HDPE (class 12) pipes, saddles, bends, tees, reducer and adapter connections, connecting to the mains, laying in light sandy material for the approximate pipe length as per item PSLF8.2.2 per erf, the laying of erf connections complete including supply of pipes, bends, tees, reducer and adapter connection and connecting erf and yard connection. For the following types of connections for specified diameters:

1) Domestic erf connection
a) Single short erf connections
b) Double short erf connections
c) Single long erf connections

d) Double long erf connections
2) Non-domestic erf connections
a) Single short erf connections
b) Single long erf connections

PSLF 8.2.10 *Add the following new sub-clause:*

PSLF 8.2.10.1 Provision and installation of ball valves. Unit: No

a) Provision and installation of ball valves on existing and new yard connections
b) Provision and installation of ball valves on existing yard connections

The rate shall include the cost for the provision, installation, all types of surface removals, excavation in all materials, cutting into pipes of all material and sizes (up to 25 mm diameter), installation of the valve, backfilling, compaction and surface re-instatements.

b) Provision and installation of ball valves on existing yard connections

The Contractor shall provide and install consumer valve boxes, complete with valves and couplings. At most properties the existing house connections are located close to the surface, therefore the ball valve shall be provided in a box to be installed at a depth less than 400 mm into the ground and no more than 500 mm on the outside next to the property boundary, unless otherwise instructed by the Engineer.

PSLF 8.2.10.2 Extra-over for ball valve installation. Unit: No

Some of the properties with existing road reserve originated yard connection are not HDPE pipes and 20 mm in diameter requiring additional couplings and HDPE pipe sections, each of maximum 1,000 mm length, to facilitate the new valve installation as per above item.

The rate shall include the cost for the additional cutting effort, couplings and sections of HDPE pipes required for existing yard connections of all materials other than HDPE and diameters less than 25 mm.

PSLF 8.2.11 Add the following new sub-clause:

Communal standpipe (LOS1) provision and installation ……..Unit: No

The rate shall include the cost for the provision, assembly and installation of communal stand pipes with all couplings complete including all pipework, bends and fittings (as per applicable detail drawing), excavation in all materials, providing saddles for secondary main pipes of all material and size (up to 160 mm diameter), backfilling, compaction and surface reinstatements.

KOPANONG LOCAL MUNICIPALITY

TENDER NO. KLM/GAR/MWWTW/24/25

GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C3.6 Health and Safety Specifications

1. BACKGROUND

In terms of the Construction Regulation 4 (1) (*a*) of the Occupational Health and Safety Act, No. 85 of 1993, the Client is required to compile a Health & Safety Specification for the intended project and provide such specification to any prospective tenderer.

The Client's further duties are as 4(1) to 4(6) in The Construction Regulations, July 2003.

2. SCOPE

Development of a Health & Safety Specification that addresses all aspects of occupational health and safety as affected by the **GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION.**

3. OH&S MANAGEMENT

3.1.1 Structure and Organization of OH&S Responsibilities

3.1.1. Overall Supervision and Responsibility for OH&S

- The Client is to ensure that the Principal Contractor, appointed in terms of Construction Regulation 4(1)(*c*), implements and maintains the agreed and approved OH&S Plan.
- The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act is to ensure that the Employer (as defined in the Act) complies with the Act. **Annexure 2 -** "Legal Compliance Audit" may be used for this purpose.
- Any OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her respective appointment forms.
- The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 6.

3.1.2. Further (Specific) Supervision Responsibilities for OH&S

Appointments required by the Act and Regulations:

- OH&S Representatives (Sections 17/18 of the Act)
- OH&S Committees (Sections 19/20 of the Act)
- Risk Assessor (Construction Regulation. 7(1))
- Accident/Incident Investigations Co-ordinator (General Administrative Regulation 9 (2))
- Form/Support work Supervisor (Construction Regulation 10(a))
- *Batch Plant Supervisor (Construction Regulation 18(1))*
- *Stacking & Storage Supervisor (Construction Regulation 26(a))*
- *Fire Equipment Inspector (Construction Regulation 27(h))*
- Electrical Installations, Machinery & Appliances Inspector (Construction Regulation 22)
- Excavations Supervisor (Construction Regulation 11(1))
- Demolition Supervisor (Construction Regulation 12(1))
- OH&S Officer (where necessary) (Construction Regulation 6(6))
- Person Responsible for Machinery (General Machinery Regulation 2)
- Emergency, Security and Fire Co-ordinator (Construction Regulation 27(h) & Environmental Regulation 9)
- Fire Equipment Inspector (Construction Regulation 27(h) Environmental Regulation 9)
- First Aider (General Safety Regulation 3(2))
- Hazardous Chemical Substances Supervisor (HCS Regulations)
- Ladders Inspector (General Safety Regulation 13A)
- Lifting Equipment Inspector (Construction Regulation 20)
- Operators & Drivers of Construction Plant & Vehicles (Construction Regulation 21 (i))
- Structures Supervisor (Construction Regulation 9)
- Users Operators of Construction Equipment (Construction Regulation 21(i))
- Welding Supervisor (General Safety Regulation 9)

3.2. Communication and Liaison

- OH&S liaison between the Client, the Principal Contractor, the other Contractors, the Consulting Engineer and other concerned parties will be through the OH&S Committee as in **3.10.**
- In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.
- Consultation with the workforce on OH&S matters will be through their Supervisors, OH&S Representatives, the OH&S Committee and their elected Trade Union Representatives, if any.
- The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and the Consulting Engineer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.

3.3. OH&S File

The Principal Contractor must, in terms of Construction Regulation 5 (7), keep a health and safety file on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done. The following documents must be kept in the OH&S file:

- Notification of Construction Work (Construction Regulation 3.)
- Copy of OH&S Act (updated) (General Administrative Regulation 4.)
- Proof of Registration and good standing with a COID Insurer (Construction Regulation 4 (g))
- Copy of health and safety plan (construction regulation 5 (1)
- OH&S Programme agreed with Client including the underpinning Risk Assessment and Method Statements (Construction regulation 5 (1))

Designs/drawings (Construction Regulation 5 (8))

- A list of Contractors (Subcontractors) including copies of the agreements between the parties and the type of work being done by each contractor (Construction Regulation 9)
- Appointment / Designation forms as per 3.1.1. and 3.1.2. above.
- Registers as follows:

1. Accident/Incident Register (Annexure 1 of the General Administrative Regulations)

2. OH&S Representatives Inspection Register

3. Form/Support work Inspection

4. Excavations Inspection
5. Lifting Equipment
6. Demolition Inspections
7. Designer's Inspection of Structures Record
8. Batch Plant Inspections
9. Arc & Gas Welding & Flame Cutting Equipment Inspections
10. Construction Vehicles & Mobile Plant Inspections
11. Electrical Installation and Machinery Inspections
12. Fire Equipment Inspection & Maintenance
13. First Aid
14. Hazardous Chemical Substances
15. Lifting Tackle and Equipment Inspections
16. Inspection of Cranes
17. Inspection of Ladders
18. Inspection of Vessels under Pressure
19. Machinery Inspections
20. Drivers/Operators of Mobile Plant/Construction Vehicles Daily Inspections

The Principal Contractor will be required to submit the abovementioned relevant registers monthly to the chairperson of the OH&S Committee for endorsement.

The Health & Safety File must be handed over to the Client on completion of the contract. It must contain all the documentation handed to the Principal Contractor by any subcontractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project.

3.4. OH&S Goals and Objectives and Arrangements for Monitoring and Review of OH&S Performance

The Principal Contractor is required to maintain a Compensation Incidence Frequency Rate **(CIFR)** of at least 8 (Refer **Annexure 3** - "Measuring Injury Experience") and to report on this to the Client on a monthly basis.

3.5. Identification of Hazards and Development of Risk Assessments, Standard Working Procedures (SWP) and Method Statements

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project (Refer to **Section 4**. below "Project/Site Specific Requirements")

3.6. Arrangements for Monitoring and Review

3.6.1. Monthly Audit by Client

The Client will be conducting a Monthly Audit to comply with Construction Regulation 4 (1) (d) to ensure that the Principal Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

3.6.2. Other Audits and Inspections by Client

The Client reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

A representative of the Principal Contractor must accompany the Client on all Audits and Inspections and may conduct his/her own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results.

3.6.3 Reports

The Principal Contractor is required to provide the Client with a monthly report in the format as per the attached **Annexure 4**: "SHE Risk Management Report"

The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die, or to suffer a permanent physical defect, or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control

to the Provincial Director of the Department of Labour within seven days. (Section 24 of the General Administrative Regulation 8.). The Principal Contractor is required to provide the Client with copies of all statutory reports required in terms of the Act.

The Principal Contractor is required to provide the Client with copies of all internal and external accident/incident investigation reports including the reports contemplated in 3.9. below.

3.6.4 Review

The Principal Contractor is to review the Hazard Identification, Risk Assessments and SWP's at each two weekly site inspection/meeting as the construction work develops and progresses and each time that changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client, other Contractors and all other concerned parties with copies of any changes, alterations or amendments.

3.7. Site Rules and Other Restrictions

3.7.1 Site OH&S Rules

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the OH&S aspects of the construction.

3.7.2. Security and Emergency Arrangements

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period.

Access control must include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of security rules and procedures and maintain these throughout the construction period.

The Principal Contractor must appoint a competent Emergency Controller who must develop emergency contingency plans for any emergency that may arise on site as indicated by the risk assessments. These must include a monthly practice/testing programme for the plans e.g. January: trench collapse, February: flooding etc. and practiced/tested with all persons on site at the time, participating.

3.8. Training

The contents and syllabi of all training required by the Act and Regulations must be included in the Principal Contractor's OH&S Plan.

3.7.2 General Induction Training

All employees of the Principal and other Contractors to be in possession of proof of General Induction Training

3.7.3 Site Specific Induction Training

All employees of the Principal and other Contractors to be in possession of Site Specific OH&S Induction Training.

3.7.4 Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment to be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations to be in possession of valid proof of training.

OH&S Training Requirements: (as required by the Construction Regulations and as indicated by the OH&S Specification and the Risk Assessment/s):

* General Induction (Section 8 of the Act)

* Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
* Site/Project Manager
* Construction Supervisor
* OH&S Representatives (Section 18 (3) of the Act)
* Training of the Appointees indicated in 3.1.1. & 3.1.2. above
* Operation of Cranes (Driven Machinery Regulations 18 (11))
* Operators and Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
* Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction regulation 27)
* Basic First Aid (General Safety Regulations 3)
* Storekeeping Methods & Safe Stacking (Construction Regulation 26)
* Emergency, Security and Fire Co-ordinator

3.9. Accident and Incident Investigation

The Principal Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she had to be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9).

The results of the investigation to be entered into the Accident/Incident Register. (General Administrative Regulation 9)

The Principal Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The Principal Contractor is responsible for the investigation of all road traffic accidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

3.10. OH&S Representatives and Committees

3.10.1. Designation of OH&S Representatives

Where the Principal Contractor employs more than 20 persons (including the employees of other contractors (sub-contractors) he has to appoint one OH&S Representative for every 50 employees or part thereof. General Administrative Regulation 6 requires that the appointment or election and subsequent designation of the OH&S Representative is executed in consultation with Employee Representatives or Employees. (Section 17 of the Act and General Administrative Regulation 6. & 7.)

OH&S Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

3.10.2. Duties and Functions of the OH&S Representatives

The Principal Contractor must ensure that the designated OH&S Representatives conduct a minimum monthly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor.

OH&S representatives must be included in accident/incident investigations.

OH&S representatives must attend all OH&S committee meetings.

3.10.3. Appointment of OH&S Committee

The Principal Contractor must establish an OH&S Committee consisting of all the designated OH&S Representatives together with a number of management representatives (this number is not to exceed the number of OH&S representatives on the committee) and a representative of the Client who shall act as the chairperson without a vote. The members of the OH&S committee must be appointed in writing.

The OH&S Committee must meet minimum monthly and consider, at least, the following Agenda:

- Opening and welcome
- Present/Apologies/Absent
- Minutes of previous meeting
- Matters arising from the previous minutes
- OH&S Representatives Reports
- Incident Reports & Investigations
- Incident /Injury statistics
- Other matters
- Endorsement of Registers and the statutory documents by a representative of the Principal Contractor
- Close/Next Meeting

4. PROJECT / SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and the construction site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

* Clearing & Grubbing of the Area/Site

* Site Establishment including:

  - Office/s

  - Secure/safe storage for materials, plant & equipment

- Ablutions
- Sheltered eating area
- Maintenance workshop
- Vehicle access to the site

* Dealing with existing structures (NB: the existing pipeline is also a structure.)
* Location of existing services
* Installation and maintenance of temporary construction electrical supply, lighting and equipment
* Adjacent land uses/surrounding property exposures
* Boundary and access control/Public Liability Exposures (NB: the Employer is also responsible for the OH&S of non-employees affected by his/her work activities.)
* Health risks arising from neighbouring as well as own activities and from the environment e.g. threats by dogs, bees, snakes, lightning etc.
* Exposure to noise
* Exposure to vibration
* Protection against dehydration and heat exhaustion
* Protection from wet & cold conditions
* Dealing with HIV/Aids and other diseases
* Use of Portable Electrical Equipment including
  - Angle grinder
  - Electrical drilling machine
  - Skill saw
* **Excavations including**
  - Ground/soil conditions
  - Trenching
  - Shoring
  - Drainage of trench
* **Welding including**
  - Arc Welding
  - Gas welding
  - Flame cutting

- Use of LP gas torches and appliances

* Loading & offloading of trucks
* Aggregate/sand and other materials delivery
* Manual and mechanical handling
* Lifting and lowering operations
* Driving & operation of construction vehicles and mobile plant including
  - Trenching machine
  - Excavator
  - Bomag roller
  - Plate compactor
  - Front end loader
  - Mobile cranes and the ancillary lifting tackle
  - Parking of vehicles & mobile plant
  - Towing of vehicles & mobile plant
* Use and storage of flammable liquids and other hazardous substances
* Layering and bedding of trench floor
* Installation of pipes in trench
* Pressure testing of pipeline
* Installing heat shrink joint sleeves
* Backfilling of trench
* Protection against flooding
* Gabion work
* Use of explosives
* Protection from overhead power lines
* As discovered by the Principal Contractor's hazard identification exercise
* As discovered from any inspections and audits conducted by the Client or by the Principal Contractor or any other Contractor on site
* As discovered from any accident/incident investigation.

Annexure 1: Construction Occupational Health – Safety – Environment Audit System

Annexure 2: Guidelines for the development of a Health and Safety Plan.

Annexure 3: Guide to Risk Assessment

ANNEXURE 1

CONSTRUCTION OCCUPATIONAL HEALTH - SAFETY - ENVIRONMENT

AUDIT SYSTEM

(Based on the New Construction Regulations)

**** Denotes items applicable to both Construction sites and Contractors Plant/Storage***

1. ADMINISTRATIVE & LEGAL REQUIREMENTS

Section/ Regulation	Subject	Requirements	Yes/ No
Construction. Regulation 3	Notice of carrying out Construction work	Department of Labour notified Copy of Notice available on Site	
General Admin. Regulation 3	*Copy of OH&S Act (Act 85 of 1993)	Updated copy of Act & Regulations on site Readily available for perusal by employees	
COID Act Section 80	*Registration with Compens. Insurer	Written proof of registration / Letter of good standing available on Site	
Construction. Regulation 4 & 5(1)	OH&S Specification & Plan	OH&S Specification received from Client OH&S plan developed &Updated regularly	
Section 8(2)(d) and Construction. Regulation 6	*Hazard Identification & Risk Assessment	Hazard Identification carried out/Recorded Risk Assessment and Plan drawn up/Updated Risk Assessment Plan available on Site Employees/Subcontractors informed/trained	
Section 16(2)	*Assigned duties (Managers)	Responsibility of complying with the OH&S Act assigned to other person/s by CEO.	
Construction. Regulation 5(2)	Designation of Person Responsible on Site	Competent person appointed in writing as Construction Supervisor	
Construction. Regulation 5(5)(a)	Designation of Subordinate Person	Competent person appointed in writing as Sub-ordinate Construction Supervisor	
Section 17 & 18	*Designation of Occupational Health & Safety Representatives	More than 20 employees - one OH&S Representative, one additional OH&S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful OH&S Rep. reports. Reports actioned by Management.	
Section 19 & 20	*Occupational Health & Safety Committee/s	OH&S Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by Management.	
Section 37	*Agreement with Mandatories (Sub-Contractors)	Written agreement with Subcontractors. List of Subcontractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing	

Section/ Regulation	Subject	Requirements	Yes/ No
		Construction Work Supervisor designated Written arrangements concerning OH&S Reps & OH&S Committee Written arrangements regarding First Aid	
Construction. Regulation 7	Fall Prevention & Protection	Competent person appointed to draw up and supervise the Fall Protection Plan Proof of appointees competence available on Site Risk Assessment carried out for work at heights Fall Protection Plan drawn up/updated Available on Site	
Construction. Regulation 8	Roof work	Competent person appointed to plan & supervise Roof work. Proof of appointees competence available on Site Risk Assessment carried out Roof work Plan drawn up/updated Roof work inspect before each shift. Inspection register kept Employees medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 9	Structures	Information re. the structure being erected received from the Designer including: - geo-science technical report where relevant - the design loading of the structure - the methods & sequence of construction - anticipated dangers/hazards/special Measures to construct safely Risk Assessment carried out Method statement drawn up All above available on Site Structures inspected before each shift. Inspections register kept	
Construction. Regulation 10	Formwork & Support work	Competent person appointed in writing to supervise erection, maintenance, use and dismantling of Support & Formwork Design drawings available on site Risk Assessment carried out Support & Formwork inspected: - before use/inspection - before pouring of concrete - weekly whilst in place - before stripping/dismantling. Inspection register kept	
Construction. Regulation 11	Scaffolding	Competent persons appointed in writing to: - erect scaffolding (Scaffold Erector/s) - act as Scaffold Team Leaders - inspect Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Written Proof of Competence of above appointees available on Site Copy of SABS 085 available on Site	

Section/ Regulation	Subject	Requirements	Yes/ No
		Risk Assessment carried out Inspected weekly/after bad weather. Inspection register/s kept	
Construction. Regulation 12	Suspended Scaffolding	Competent persons appointed in writing to: - erect Susp.Scaffolding (Scaffold Erector/s) - act as Susp.Scaffold Team Leaders - inspect Susp.Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Risk Assessment conducted Certificate of Authorization issued by a registered professional engineer available on Site/copy forwarded to the Department of Labour The following inspections of the whole installation carried out by a competent person - after erection and before use - daily prior to use. Inspection register kept The following tests to be conducted by a competent person: - load test of whole installation and working parts every 12 months - hoisting ropes/hooks/load attaching devices quarterly. Tests log book kept Employees working on Susp.Scaffold medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 13	Excavations	Competent person/s appointed in writing to supervise and inspect excavation work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Inspected: - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept Method statement developed where explosives will be/ are used	
Constructions . Regulation 14	Demolition Work	Competent person/s appointed in writing to supervise and control Demolition work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Engineering survey and Method Statement available on Site Inspections to prevent premature collapse carried out by competent person before each shift. Inspection register kept	
Construction. Regulation 16	Materials Hoist	Competent person appointed in writing to inspect the Material Hoist Written Proof of Competence of above appointee available on Site.	

Section/ Regulation	Subject	Requirements	Yes/ No
		Materials Hoist to be inspected weekly by a competent person. Inspections register kept.	
Construction. Regulation 17	Caissons & Coffer dams	Competent person appointed in writing to supervise, control & inspect the construction, installation/dismantling of caissons/coffer dams Written Proof of Competence of above appointee available on Site Risk Assessment carried out to be inspected daily by a competent person. Inspections register kept	
Construction. Regulation 18	Explosive Powered Tools	Competent person appointed to control the issue of the Explosive Powered Tools & cartridges and the service, maintenance and cleaning. Register kept of above Empty cartridge cases/nails/fixing bolts returns recorded Cleaned daily after use	
Construction. Regulation 19	Batch Plants	Competent person appointed to control the operation of the Batch Plant and the service, maintenance and cleaning. Register kept of above Risk Assessment carried out Batch Plant to be inspected weekly by a competent person. Inspections register kept	
Construction. Regulation 20/ Mine Health & Safety Act (29 of 1996)	Tunneling	Complying with Mines Health & Safety Act (29 of 1996) Risk Assessment carried out	
Construction. Regulation 21/ Driven Machinery Regulations 18 & 19	Cranes & Lifting Machines Equipment	Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment Written Proof of Competence of above appointee available on Site. Cranes & Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection: - All cranes - **daily by operator** - Tower Crane/s – **after erection/6monthly** - Other cranes – **annually by comp. person** - Lifting tackle (slings/ropes/chain slings etc.) - **3 monthly** Risk Assessment carried out	

Section/ Regulation	Subject	Requirements	Yes/ No
Construction. Regulation 22/Electrical Machinery Regulations 9 & 10/Electrical Installation Regulations	*Inspection & Maintenance of Electrical Installation & Equipment (including portable electrical tools)	Competent person appointed in writing to inspect/test the installation and equipment. Written Proof of Competence of above appointee available on Site. Inspections: - Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept Portable electric tools and -lights and extension leads identified/numbered. Monthly visual inspection by User/Issuer/ Storeman. Register kept.	
Construction. Regulation 2 Diving Regulations	Water Environments	Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an Approved Inspection Authority of equipment used Written Proof of Competence of above appointee available on Site Proof of registration of all divers present on site available Risk Assessment carried out Diving Manual produced. Available on Site Record of Voice Communications kept Diving Operations record kept Each Diver keeps a personal logbook. Entries countersigned by the Diving Supervisor Decompression tables available on Site Records of any Decompression illness kept Certificate of Manufacture of any Compression Chamber or Diving Bell in use available on Site	
Construction. Regulation 30/ General Safety Regulation 8(1)(a)	*Designation of Stacking & Storage Supervisor.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site	
Construction. Regulation 31/ Environmental Regulation 9	*Designation of a Person to Co-ordinate Emergency Planning And Fire Protection	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on register. Inspected weekly. Inspection Register kept Serviced annually	
Construction. Regulation 32/	*First Aid	Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed)	

Section/ Regulation	Subject	Requirements	Yes/ No
General Safety Regulation 3		First Aid freely available Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aiders and Certificates Name of person/s in charge of First Aid box/es displayed. Location of F/Aid box/es clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries	
Construction. Regulation 33/ General Safety Regulation 2	Personal Safety Equipment (PSE)	PSE Risk Assessment carried out Items of PSE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PSE	
Construction. Regulation 34/ General Safety Regulation 9	*Inspection & Use of Welding/Flame Cutting Equipment	Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment Written Proof of Competence of above appointee available on Site Equipment identified/numbered and entered into a register Equipment inspected monthly. Inspection Register kept	
Construction. Regulation 35/ Hazardous Chemical Substances **(HCS)**	*Control of Storage & Usage of HCS	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of **HCS** Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site	
Construction. Regulation 36/Vessels under Pressure Regulations	Vessels under Pressure (VUP)	Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections & testing of VUP's Written Proof of Competence of above appointee available on Site Risk Assessment carried out Certificates of Manufacture available on Site Register of VUP's on Site Inspections & Testing by Approved Inspection Authority (AIA): - after installation/re-erection or repairs - every 36 months. - Register/Log kept of inspections, tests. Modifications & repair	
Construction. Regulation 37	Construction Vehicles & Earth Moving Equipment	Operators/Drivers appointed to: - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive	

Section/ Regulation	Subject	Requirements	Yes/ No
		Written Proof of Competence of above appointee available on Site Record of Daily inspections kept	
Construction. Regulation 38/ General Safety Regulation 13D	*Inspection of Ladders	Competent person appointed in writing to inspect Ladders Ladders inspected at arrival on site and monthly thereafter. Inspections register kept	
Construction. Regulation 39/ General Safety regulation 13B	Ramps	Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept.	

ANNEXURE 2

3 GUIDELINES FOR THE DEVELOPMENT OF A HEALTH & SAFETY PLAN

4.1 Project Background

In terms of the Construction Regulations [Regulation 4 (1) (a)] of the Occupational Health and Safety Act, No 85 of 1993, the Client is required to compile an Occupational Health and Safety specification for each of its projects and the Principle Contractor, appointed by the Client in terms of Regulation 4 (1) (c), is required to prepare an Occupational Health and Safety Plan. This plan has to be prepared in terms of Regulation 5 (1) as well as the Client's Occupational Health & Safety Specification. In terms of Regulation 4 (2), the Client and the Principle Contractor are required to agree on the Occupational Health and Safety Plan before any work may commence.

4.2 Framework for an Occupational Health and Safety Plan

4.2.1 Introduction

The Principal Contractor has to demonstrate to the Client that he has a suitable and sufficiently documented Occupational Health and Safety Plan as well as the necessary competencies, experience and resources to perform the construction work safely. The Principle Contractor could be required to submit the following documentation for perusal and verification by the Client:

Management Structure

Quality Plan

Human Resources Plan

Registered Workplace Skills Plan

- *"Letter of good standing" from the Compensation Commissioner or licensed compensation insurer.*

Proof of induction and other training of employees

- *Example copy minutes of previous Occupational Health and Safety Committee meetings and copies of Incident Investigation Reports*

4.3 Contents of an Occupational Health and Safety Plan

4.3.1 Occupational Health and Safety Management Programme

- Management of Occupational Health and Safety risks
- Occupational Health and Safety structures and appointments
- Programme of Occupational Health and Safety inspections
- Occupational Health and Safety Representatives
- Occupational Health and Safety committee

4.3.2 Communication and Management of the Work

- Management structure and responsibilities
- Occupational Health and Safety goals for the project and arrangements for monitoring and review of Occupational Health and Safety performance.
- **Arrangements for:**
  - Regular liaison between parties on site
  - Consultation with the workforce
  - The exchange of design information between the Client, engineer, supervisors and contractors on site
  - Handling design changes during the project
  - Selection and control of contractors
  - The exchange of Occupational Health and Safety information between all contractors
  - Security
  - Site induction and onsite training
  - Facilities and first-aid
  - The reporting and investigation of accidents and incidents
  - The production and approval of risk assessments and method statements
  - Site OH&S rules
  - Fire and emergency procedures
  - Reporting to the Client i.e. results of Occupational Health and Safety inspections, incident
  - and incident investigations and committee meetings
  - Reporting of incidents to the Department of Labour and Compensation insurer where appropriate

4.3.3 Arrangements for controlling significant site risks

The following are some examples of the arrangements for controlling the most significant site risks:

- **Safety risks**
  - Services, including temporary electrical installations
  - Preventing employees from falling into excavations, from trucks etc.
  - Work with, on or near fragile materials
  - Control of lifting operations

- The maintenance of plant and equipment
- Poor ground conditions
- Traffic routes and segregation of vehicles and pedestrians
- Storage of hazardous materials
- Dealing with existing unstable structures/land
- Accommodating adjacent land use
- Other significant safety risks as and when identified

- **Health risks**
  - Storage and use of hazardous chemical substances
  - Dealing with contaminated land or material
  - Manual handling
  - Reducing noise and vibration
  - Provision of adequate lighting
  - Ventilation considerations
  - Extreme heat and cold temperature considerations
  - Dealing with HIV/Aids and other illnesses
  - Provision of and maintaining ablution and eating facilities
  - Other significant health risks as and when identified

4.3.4 Preparation of an Occupational Health and Safety Operational Reference File/Manual

The following are some of the requirements to be addressed:

- Layout, format and content requirements
- Arrangement for the collection and gathering of information
- Storage and archiving of all the information
- Copy to the Client at completion of project

- **Suggested Contents of an OH&S File/Manual**
  - OH&S Policy
  - Notice of new project
  - Site start-up
  - Security measures
  - Written designations & appointments
  - Arrangements with contractors/mandataries
  - OH&S rules and procedures
  - Induction
  - OH&S training
  - OH&S promotion
  - OH&S representatives
  - OH&S committees
  - Workplace facilities e.g. ablutions, sheltered eating areas etc.
  - Protective equipment
  - Workplace inspections and audits
  - Investigation & reporting of incidents/accidents
  - Mechanical safeguarding
  - Electrical safeguarding
  - Safeguarding against hazardous substances
  - Lifting machinery & equipment
  - Construction vehicles & mobile plant
  - Welding, heating & flame cutting
  - Excavations
  - Protection of the environment affected by construction activities
  - Keeping of records in terms of the OH&S Act (85 of 1993)

ANNEXURE 3

GUIDE TO RISK ASSESSMENT

1. HOW TO DO IT ?

2. Steps to Effective Risk Assessment

Step 1 : Identifying the hazards
Step 2 : Aim to identify major hazards, don't waste time on the minor & detail
Step 3 : Involve as many people as possible in the process especially those at risk
Step 4 : Gather all the information and analyse it
Step 5 : Look at what actually occurs including non-routine operations
Step 6 : Use a systematic approach to ensure all hazards are adequately addressed
Step 7 : Assess the risks arising taking into account the effectiveness of controls
Step 8 : Ensure the process is practical and realistic
Step 9 : Always record the assessment in writing including assumptions and why

3. HOW SERIOUS IS IT?

PROBABILITY

A Common
B Has Happened
C Could Happen
D Not Likely
E Practically impossible

CONSEQUENCES

1 Fatality or permanent disability
2 Major injury
3 Average Lost Time Injury
4 Minor Injury
5 Medical Treatment or less

PROBABILITY

SEQUENCES	A	B	C	D	E
1	1	2	3	4	5
2	2	3	4	5	6
3	3	4	5	6	7
4	4	5	6	7	8
5	5	6	7	8	9

Risk Rating:			• ***ACTION***
	1 – 3 =	Serious	Immediate (within 1 week)
	4 - 5 =	High	Within 1 month
	6 – 7 =	Moderate	> 4 weeks
	8 – 9 =	Acceptable	No action

LIST OF RISK ASSESSMENTS AVAILABLE (as at 2003.07.07)

Access Towers
Acid Washing
Aggregate/Sand Delivery
Angle Grinder
Arc Welding
Armco Barriers - installation
Assem. of elements by boilermaker
BackFilling
Bag Filling
BandSaw
Banksman
Batch Plant
Bench Grinder
Bin Scraper
Block Feeder
Block Machine
BoomScraper
Bricks – Laying of
Brickwork
Bulk Earthworks
Cement Spray Truck
Clearing & Grubbing of Area/Site
Compr. Gas Cylinders-handling
Compressors – Air
Concrete – placing of (1)
Concrete – placing of (2)
Confined Spaces – Working in
Conveyors
Cutting – of Earthworks
David Arm
Deck Panels – placing
Depalletor Operator
Diss. Asembly Rejects
Distribution Boards – Electrical
Drivers – of Vehicles
Dry Tile Deracking
Dumpers - Concrete
Electrical Installation – Maintenance of
Elevated Positions
Erecting – Instal/ Shutters
Excavations (1)
Excavations (2)
Explosive Powered Tools
Finger Car
Fire Fighting Prevention
Fire Prevention & Protection
Formwork
Friction Saw
Front End Loader
Fuel Supply
Gas Cylinders – Handling of
Gas Welding-cutting oper.
Gas Welding-cutting operations
Guillotine
Hand & Spray Painting
Hand ToolsJacking – with Hydraulic Pump
Hanging scaffolding
Hauling
High cut operations
Jacking Hydraulic Pump (1)
Jacking Hydraulic Pump (2)
Kerb Laying
Landscaping
Lathe
Layering of (Road work) Materials
Layering Process
Laying Kerbs
Laying of stormwater drains
Levelling – of materials
Lifting Concr. Beams on to trailers
Loading supervisor
Loading/Unloading - of Trucks
Loffels – placing/laying
Machine operator
Making of steel items
Material delivery
Materials Handling
Mixer operator
Mobile Cranes
Pedestal Drill
Pedestal Grinder
Placing Concrete
Plastering
Portable Electric Drill
Portable Electric Tools
Portable Ladders
PostTensioning
Radial Arm Drill
Refuelling Vehicles/Plant
Reinforcing Steel – placement (1)
Reinforcing Steel – placement (2)
Road Traffic Signs – placement of
Roadworks - Deviations
Roof Truss erection
SandBlasting
Scaffolding
Shuttering – Erection
Shuttering – Stripping
Site Establishment (1)
Site Establishment (2)
SkillSaw
Spray Painting
Stormwater pieps - laying
Structural Steel – Erection
Structural Steel – Laydown
Surveying
Suspended Scaffolds
Termite Proofing

Tile Machine
Tile stacking
Timber Feeder
Tower Cranes
Traffic Accommodation
Traffic Control/Regulation
Trench Excavation
Use of angle grinder
Use of Port. Elec. Tools.
Wet tile racking
Work confined spaces
Work in Elevated Positions
Working Platforms
Workshops

RISK ASSESSMENT: SITE ESTABLISHMENT

TYPE OF WORK PERFORMED: • _____ **DATE COMPLETED:** _____

ASSESSMENT PERFORMED BY: • _____ _____

Step No.	Activity Rules	What can cause injury/damage?	Result of cause (injury/damage)	Preventative Measures (tools, PPE, equipment)	Controls (test, check list)	Weights		
1.	Access to be a main consideration when positioning offices, stores and parking areas on site during planning stage. Possible one way traffic to be introduced	Restricted access to parking and delivery areas to storage areas.	Damage to transport and plant	Proper layout of site by Construction Manager and Site Agent taking into consideration all transport plant and material movements and storage on site.	Site Agent to check layout Drg. To compare with OHS Act requirements and whether they are to Concor's standards.			
2.	Oxygen and acetylene store to be a minimum distance of five metres away from other buildings. It needs to be well ventilated and have a roof to keep direct exposure to the sun.	Fire explosion leaking gas may spread if to close to other buildings.	Damage to property and plant. Health of employees.	See item 1.	See item 1.			

Step No.	Activity Rules	What can cause injury/damage?	Result of cause (injury/damage)	Preventative Measures (tools, PPE, equipment)	Controls (test, check list)	Weights		
3.	Diesel tanks to be a distance of 10 metres away from any building and parking areas. A slab with a bund wall capable of carrying 110% of the tank capacities must be constructed for the tanks to stand in.	Fire may spread to adjacent buildings and plant if is too close.	Burns on all parts of body. Damage to plant and property.	See item 1. Persons in charge of tanks should be inducted regarding all the hazards involved and how to control them	See item 1. Supervisor to monitor on an ongoing basis if rules are complied with			
4.	All cables from distribution board to offices, store and for security to be under-ground. The distribution board is to stand on a firm level base and should be locked at all times.	Damaged cables loose wires exposed.				**Safety**	**Health**	**R/R**
5.	Security fencing minimum height of 1.8 meter around site area together with two double gates.	Theft of property. Access to unauthorised persons.	Loss of property. Injury to persons.	Security guards to be appointed to keep watch.	Supervisor to put system of control in place			
6. **6.1** **6.2** **6.3** **6.4** **6.5**	Services to be available during site establishment. Fire fighting equipment. First aid boxes. First aider. Drinking water. Toilets.	Not having the essential services at hand.	Health of employees. Loss of property through fire.	6.1 to 6.5 are to be included on first order placed for contract. Dry chemical powder ABCDE fire extinguishers to be ordered 4 off for start.	Site Agent to see that these requirements are on site from start of site establishment.			

Step No.	Activity Rules	What can cause injury/damage?	Result of cause (injury/damage)	Preventative Measures (tools, PPE, equipment)	Controls (test, check list)	Weights		
7.	Water tank tower to consist of very well cross braced pipe structure standing on concrete base.	Badly constructed water tower under designed structurally could cause tower to collapse.	Injury to persons. Damage to property.	Supervisor to erect as per design office specifications.				
8.	Safety sign & notice board to be placed close to entrance of main gate	Not informing employees and public what the site rules are.	Injury to persons. Damage to property.	Concor standard notices/ Posters to be displayed. Available from Head Office.	Site manager to check that board has been erected.			
9.	Laydown areas to be sufficient in size. timber poles to be available to stack materials on.	With inadequate space various materials will be stacked on top of each other causing unstable stacks.	Injury to persons loading, unloading materials.	Allow sufficient space for laydown area during planning stage of site layout. Access to be considered important.	Site agent to discuss with Foreman regarding his requirement at planning stage.			
10.	Toilets are to be well ventilated.	No ventilation in toilets may cause germs to propagate.	Possible health problems due to germs.	Extraction fans to be fitted if required.	Supervisor to check if he is satisfied with ventilation.			

ASSESSMENT: 1 – 10 (HIGH) 11 – 16 (MEDIUM) 17 – 25 (LOW)

RISK ASSESSMENT: EXCAVATIONS (PLANT & MANUAL)

TYPE OF WORK PERFORMED: _____

_____ **DATE COMPLETED:** _____

ASSESSMENT PERFORMED BY:

Step No	Activity Rules	What can cause injury/damage	Result of cause (injury/damage)	Preventative measures (tools, PPE, equipment)	Controls (test, checks)			
	When using a machine to excavate, observe the following:					Safety	Health	Finan.
1	Operator must ensure there are no employees working in this area.	Employees not visible to operate or moving machine.	An injury to all parts of the body and as well as more serious fatal injuries.	Operator must work under close supervision. He must inspect the work area prior to commencing work.	Supervisor to ensure employees are informed and operator works under his supervision.			
2	Machine not to operate while employees are working in same excavations.	Danger of injury of employee by machine.	Bruises, scratches, fractures and fatal.	Supervisor must instruct operator when to commence work.	Supervisor to control and enforce procedure.			
3	All excavated materials must be discharged not closer that 2m from the edge of the excavation. When excavating manually, observe the following. See original	Materials can fall onto employees and the excavation may need extra work.	Injuries to employees and the excavation may need extra work.	Supervisor must instruct operator where to place discharged soil and gravel.	Supervisor to control.			
4	Using a pick and a shovel.	Unsafe use of a pick or a shovel.	Injury to employees.	Induct employees on safe working procedures.	Supervisor and charge hand to control.			
5	Check sides of excavations.	Unstable / loose material causes unsafe condition.	Injury to employees and damage to excavations.	Supervisor to inspect sides on a regular basis.	Supervisor / charge hand to control.			
6	Excavated material to be placed away from side of excavation.	Materials can fall onto employees	Bruises, scratches, fractures and fatal.	Employees to be instructed not to place loose soil on edge of the excavation.	Supervisor to control.			

Step No	Activity Rules	What can cause injury/damage	Result of cause (injury/damage)	Preventative measures (tools, PPE, equipment)	Controls (test, checks)			
		when working inside the excavation.						
7	All excavations deeper than 1,5 m must have an access ladder available for employees to get into and out of the excavation safely.	Employees not able to enter or exit the excavation safely.	In case of an emergency too many employees may be buried as a result of inadequate access. Employees may also strain muscles to get into or out of an excavation without safe and convenient access.	Providing a ladder makes access into and out of the excavation area easy and safe.	Supervisors to ensure employees are given safe and convenient access to excavations.			
8	Sides of excavation to be shored (if necessary) and barricaded immediately.	Sides may collapse. Employees may NOT BE AWARE OF THE EXCAVATION AND FALL INTO IT.	Damage to the excavation. Injury to employees,	Put adequate shoring and strong physical barricades in place immediately.	Supervisor and chargehand to control.			
9	Excavations must be backfilled as soon as possible after excavation.	Excavations could collapse. Employees could trip and fall in. Vehicles and machinery could damage excavations.	Damage to excavations. Injury to employees. Damage to plant and machinery.	Keep area barricaded with a strong physical barricade and backfill as soon as possible.	Supervisor and chargehand to control.			

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GARIEPDAM: REPAIRS AND REFURBISHMENT OF WASTEWATER TREATMENT WORKS AND PUMP STATION

C4 Site Information

C4.1 SITE INFORMATION

C4.1.1 GPS LOCATION AND MAP

The following details provide the key elements of the project area:

GPS coordinates to the project location are as follows:

Latitude	30°35'11.98"S
Longitude	25°29'15.13"E
Elevation (m)	1362 m
Max. Temperature, °C	25.8ºC
Min. Temperature, °C	13.07ºC
Approx. Annual Rainfall (mm)	34.01mm

C4.1.2 Surveys/Beacons

No claims will be entertained in connection with missing pegs or benchmarks. The Contractor shall be solely responsible for the protection of survey pegs after Site Handover.

C4.1.3 Warning on Acquiring of Material

The Contractor is reminded that aggregates for concrete obtained from mining activities will not be allowed. Only material from commercial sources complying with the relevant specifications will be allowed.

C4.1.4 Borrow pit Information

The Contractor will not be allowed to open up borrow pits.

C4.1.5 Access to Site

Access to the construction site will be obtained via existing local roads.

C4.1.6 Accommodation, Water and Electricity

C4.1.6.1 Power Supply and other Services

The Contractor shall make his own arrangements concerning the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts offered for the various items of work for which these services are required.

C4.1.6.2 Contractor's Camp Site

The Contractor shall make his own arrangements for a suitable site for his camp and provide suitable facilities in his own offices for site meetings.

C4.1.6.3 Housing for Contractor’s Employees

No housing is available for the Contractor’s employees, and the Contractor shall make his own arrangements for housing his employees or transporting them to and from the site. The Contractor is in all respects responsible for the housing and transporting of his employees and for the arrangement thereof, and no extension of time due to any delays resulting from this, will be granted.

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C5.1 DRAWINGS

C5.3 BID Drawings

No Drawings provided!

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APPENDICES

DESCRIPTION	COLOUR
Appendix A: Network Refurbishment Specification	White
Appendix B: Building Specifications	White
Appendix C: EPWP Specifications (Issued on Request)	White

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APPENDIX A: NETWORK REFURBISHMENT SPECIFICATIONS

PA NETWORK REFURBISHMENT / CLEANING SPECIFICATION

PA1 CAMERA EQUIPMENT FOR LEAK DETECTION

The following equipment and personnel is required for the proper functioning of inspections for existing sewer systems.

a) iPek Rovver RC90 zoom camera (or similar approved) for sewer lines between 100 mm and 600 mm diameter as well as the determination of grades in the existing lines.

b) The software required is WinCam mobile with MPEG encoder, inclination module and Viewer expert and show and media distribution facilities.

c) Computer with a minimum of 80GB hard drive, DVD writer, Windows XP, Microsoft Access with two external hard drives (250 GB each) as well as a compatible colour printer.

d) A 2kva “Generator” must be supplied.

e) A UPS to stabilise the computer equipment

f) The above items must be installed in a motor vehicle with sufficient space for a person to control the camera equipment and do the necessary recordings in the vehicle.

g) The person who is responsible for the control of the camera must have the necessary experience in sewer systems and be in possession of a National Diploma in Civil Employer’s Agenting as well as being computer literate.

h) The vehicle must also be equipped with a ladder as well as warning signs and sufficient cones for erection while working in restricted areas.

A mass store facility for data must be provided for at an approved data mass storage bank.

PA2 CAMERA INSPECTIONS

The following equipment and personnel is required for the proper functioning of inspections for existing sewer systems.

a) Assistance in operating iPek Push rod camera for sewer lines between 100 mm and 300mm.

b) The vehicle assisting in inspections must also be equipped with a ladder as well as warning signs and sufficient cones for erection while working in restricted areas.

PA3 CLEANING EQUIPMENT

The following cleaning equipment is required to perform the cleaning operations as per the requirements of the Kopanong Local Municipality.

a) One hydro jets delivering 100 litres per minute at 250 bar pressure.
b) Venture pump for hydro jets.

c) Power rodder with steel rods mounted on a trailer.
d) Mini hydro jet delivering 20 litres per minute at 25 bar pressure.
e) A water bowser with a minimum capacity of 2500 litres
f) A 1000 litre tanker with a sewer pump attached.

PA4 MEASUREMENT AND PAYMENT – CAMERA EQUIPMENT

a) Fixed Cost……Lump Sum (specified in bill)

The tender lump sum under item a) shall be in full compensation for providing the equipment, the complete service or installation and the use thereof.

b) Overheads, charges and profit on item a) ……% Specified in the bill

c) Time related……/Month

The tendered rate per month for sub item PSLD3.1 (b) represents full compensation for that part of the contractor's obligations which are mainly a function of construction time. The tendered rate will be paid monthly, pro rate for parts of a month, from the date on which the contractor has received the letter of acceptance, until the end of the period of completion of the works, plus any extension thereof as provided in clause 8.4 of the General Conditions of Contract.

PA5 MEASUREMENT AND PAYMENT – CAMERA INSPECTIONS

a) Camera inspection **Unit: Sum**

The tender rate shall include the setting up of equipment at manholes, assisting the Employer's Agent in pushing the camera into the pipes and cleaning equipment afterwards for the varies diameters of pipe as indicated.

b) Blocking flow in manholes **Unit: Sum**

The tender rate shall include the blocking of manholes with plug stoppers to assist the Employer's Agent in camera inspections for the varies diameters of pipe as indicated.

Diversion of Flow **Unit: hour**

PA6 MEASUREMENT AND PAYMENT – CLEANING EQUIPMENT

a) Fixed Cost **Unit: Sum**

The tender lump sum under item a) shall be in full compensation for providing the equipment, the complete service or installation and the use thereof.

b) Time related **Unit: Month**

The tendered rate per month for sub item PSCE (b) represents full compensation for that part of the contractor's obligations which are mainly a function of construction time. The tendered rate will be paid monthly, pro rate for parts of a months, from the date on which the contractor has received the letter of acceptance in terms of clause 5.3.1 of the General; Conditions of Contract, until the end of the period of completion of the works, plus any extension thereof as provided in clause 5.12 of the General Conditions of Contract.

PA7 MEASUREMENT AND PAYMENT – EMERGENCY CLEANING

a) Using High Pressure Jetting **Unit: hour**

The tendered rate per hour shall make provision for the separate times of work as indicated in the schedule. The rate shall include the utilization of high-pressure jetting equipment to clear, unblock and remove sand, silt, sludge, roots and other foreign objects from sewer pipe lines and manholes. Remove and deposit this material at the official municipal disposal sites.

Response to be within 1 hour of notification and a minimum call out time of 2 hours.

b) Using Drain Rods and Hand Equipment **Unit: hour**

The tendered rate per hour shall make provision for the separate times of work as indicated in the schedule. The rate shall include the utilization of drain rods and hand equipment to clear, unblock and remove sand, silt, sludge, roots and other foreign objects from sewer pipe lines and manholes. Remove and deposit this material at the official municipal disposal sites.

Response to be within 1 hour of notification and a minimum call out time of 2 hours.

PA8 MEASUREMENT AND PAYMENT – NETWORK REFURBISHMENT - PIPEWORK

a) Using High Pressure Jetting **Unit: m**

The tendered rate per m shall make provision for varies pipe diameters as indicated in the schedule. The rate shall include the utilization of high-pressure jetting equipment to clear, unblock and remove sand, silt, sludge, roots and other foreign objects from sewer pipe lines and manholes. Remove and deposit this material at the official municipal disposal sites.

b) Using Drain Rods and Hand Equipment **Unit: m**

The tendered rate per m shall make provision for varies pipe diameters as indicated in the schedule. The rate shall include the utilization of high-pressure jetting equipment to clear, unblock and remove sand, silt, sludge, roots and other foreign objects from sewer pipe lines and manholes. Remove and deposit this material at the official municipal disposal sites.

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C5.2 BUILDING SPECIFICATIONS

PB BUILDING WORK SPECIFICATION

PB 1 SCOPE

This section specifies the general requirements for the construction of buildings.

PB 2 INTERPRETATIONS

PB 2.1 Supporting specifications

(a) Project Specification;
(b) SANS 1200 A or SANS 1200 AA as applicable;
(c) SANS 1200 C;
(d) SANS 1200 D or SANS 1200 DA as applicable;
(e) SANS 1200 G or SANS 1200 GA or SANS 1200 GB as applicable.

PB 2.2 General

Building work shall be carried out in accordance with the National Building Regulations and Building Standards Act, 1977, and these specifications.

References to specifications and codes of practice of the South African Bureau of Standards shall be taken to be references to the latest edition of such specifications and codes of practice as amended. Where possible the SANS mark shall appear on all articles, materials or items where it is required to comply with such SANS specification.

PB 2.3 Commercial products

In all instances where the Contractor handles, stores, uses, applies or fixes commercial products, the work shall be strictly carried out according to the instructions of the manufacturer of such products.

PB 2.4 Samples

The Contractor shall furnish without delay, such samples as called for or may be called for by the Engineer. Materials or workmanship not corresponding with approved samples, may be rejected by the Engineer and shall be removed from the works at the cost of the Contractor.

PB 3 MATERIALS

PB 3.1 Cement

Cement for masonry work comply with the requirements of SANS EN 431 1 and cement for concrete work shall be CEM I Portland cement or CEM III blast-furnace cement complying with the requirements of SANS EN 197 1.

Separate storage facilities shall be provided for the various types of cement.

PB 3.2 Water

Water shall be clean and free from clay, silt, oil, acid, alkali, organic or other matter which would impair the required strength and durability of mortar, plaster or floor screed.

PB 3.3 Lime

Lime shall be hydrated bedding mortar lime complying with the requirements of SANS 523.

PB 3.4 Aggregate

Sand for plaster and mortar shall comply with the requirements of SANS 1090, whereas the aggregates for normal and granolithic floor creeds shall comply with the requirements of BS1199 and BS1201 respectively.

PB 3.5 Burnt clay bricks

Burnt clay bricks shall comply with the requirements of SANS 227 and shall also be equal in all respects to the three samples of each type of brick furnished by the Contractor prior to commencement of the works and as approved by the Engineer.

General purpose (special) bricks shall be used in foundation walls and lintels.

The colour and texture of face bricks shall be as specified in the project specifications. Care shall be taken to avoid damage to arise and faces during transport and handling. Fire bricks shall be of well burnt refractory fire clay, resistant to spalling and cracking and of same size as the ordinary bricks.

PB 3.6 Concrete masonry units

Pre-cast concrete masonry units shall comply with the requirements of SANS 1215 and shall be solid unless specified otherwise in the project specifications.

PB 3.7 Calcium silicate masonry units

Calcium silicate masonry units shall comply with the requirements of SANS 285.

PB 3.8 Wall ties

Wall ties shall comply with the requirements of SANS 28.

PB 3.9 Air bricks

Air bricks shall be well-burnt terra-cotta air bricks in external faces of walls and 250 mm x 150 mm rectangular gypsum air bricks covered with copper mosquito gauze in internal faces.

PB 3.10 Brick reinforcement

Brick reinforcement shall be hard drawn mild steel comprising two 3,15 mm diameter wires spaced 75 mm apart and 2,8 mm diameter cross wires spaced at not exceeding 300 mm apart welded to main wires.

PB 3.11 Quarry tiles

Quarry tiles shall be of approved quality, even in thickness, truly square, free from cracks, twists and blemishes and uniform in colour and unless otherwise specified, shall be of approved red colour.

PB 3.12 Ceramic tiles

Glazed ceramic tiles for walls shall comply with the requirements of SANS 22 and, unless otherwise specified, shall be white, size 150 mm x 150 mm x 6,5 mm thick.

Ceramic tiles for floors shall comply with the requirements of SANS 1449 and, unless otherwise specified, shall be unglazed, size 240 mm x 115 mm x 20 mm thick and of approved colour.

PB 3.13 Concrete paving slabs

Concrete paving slabs shall be precast units of grade 25 MPa/13 mm concrete and shall be of approved manufacture, at least 50 mm thick and sizes 250 mm x 250 mm minimum and 600 mm x 600 mm maximum.

Concrete slabs shall be even in thickness, truly square, free from cracks, twists and blemishes, with a uniform natural cement colour and surface finished smoothly in the mould and shall also be equal in all respects to the samples furnished by the Contractor prior to commencement of the works and as approved by the Engineer.

PB 3.14 Damp-proof membrane

Damp-proof membrane under floors, unless otherwise specified, shall be of polyethylene sheeting complying with the requirements of SANS 952 as Type C plain surfaces specified therein, 250 microns in dry areas and 375 microns in wet areas.

PB 3.15 Damp-proof course in walls

Horizontal and vertical damp-proof course, unless otherwise specified, shall be of bituminous sheeting complying with the requirements of SANS 248 and as Type FV (Fibre Base) sheeting or as Type GH (Hessian Base) sheeting specified therein, or of polyethylene sheeting complying with the requirements of SANS 952 and as Type A plain surfaces 450 microns or as Type B embossed surfaces 375 microns as described therein.

PB 3.16 Treatment of timber

All timber shall be given a preservative treatment suitable for the duty for which the timber is intended in accordance with SANS code of practice 05, and no untreated timber shall be used. The preservative treatment shall not impair the final finish. The timber shall be impregnated throughout. When surface coating is specified, the compounds applied on the surfaces of the timber shall form an unbroken film.

PB 3.17 Structural timber

Structural timber, unless otherwise specified, shall be of South African softwood (pine) complying with the requirements of SANS 563 or SANS 1245 and, unless otherwise specified or shown on the drawings, shall be of Grade 4 and shall be marked as laid down in the specification.

Roof battens and other structural timbers not less than 50 mm or more than 65 mm in width and not less than 38 mm or more than 50 mm thickness, shall be of South African softwood (pine) complying with the requirements of SANS 653.

All structural timber shall bear the full standardisation mark of the South African Bureau of Standards.

The tolerance by which "actual" dimensions may vary from the "nominal" dimensions specified or stated on drawings of South African sawn structural softwood, shall be as laid down in SANS 563, SANS 653 and SANS 1245 where relevant.

PB 3.18 Structural laminated timber

(a) Stock glued laminated timber of S.A. pine

Stock glued laminated timber of S.A. pine shall comply with the requirements of SANS 1089 and shall be marked as laid down in the specification and shall also bear the standardisation mark of the SANS.

(b) Designed glued laminated timber

Structural glued laminated timber shall comply with the requirements of SANS 876 and shall be marked as laid down in the specification and shall also bear the standardisation mark of the SANS.

The timber shall be of -
(i) softwood or hardwood;
(ii) the density group and grade;
(iii) the exposure category;
(iv) moisture content; and
(v) of Class A or Class B appearance;
as specified and, in services having timbers treated against infestation by insect pests, shall be treated against pests as laid down in the specification for laminated timber.

PB 3.19 Galvanised steel roofing sheets

Galvanised steel roofing sheets shall be of the profile as scheduled or shown on the drawings, of 0,60 mm thick mild steel (before galvanising) and shall be galvanised on both sides to the requirements of SANS 934 for a Class Z250 coating, unless a Class Z600 coating is specified, and shall be passivated.

PB 3.20 Metal ridging for steel covered roofs

Galvanised iron ridging for ridges and hips of steel covered roofs shall be of 0,60 mm thick flat mild steel (before galvanising), galvanised as specified for roofing sheets in clause 3.19.

PB 3.21 Fibre cement roofing sheets

Fibre cement roofing sheets shall be of the profile scheduled or shown on the drawings and shall comply with the requirements of SANS 685. The sheets shall be not less than 6 mm thick.

PB 3.22 Adjustable fibre cement ridging

Adjustable fibre cement ridging for ridges of fibre cement covered roofs, shall be of same manufacture as the roofing sheets, of not less than 6 mm thick material, with

overlapping end joints and shall suit the profile of the roofing sheets. Width of wing shall be not less than 300 mm measured from the centre of roll.

PB 3.23 Fascias and barge boards

Fascias and barge boards shall be, unless otherwise specified, of pressed fibre cement boards of section described in long lengths.

PB 3.24 Fibre cement flashings

Fibre cement flashing for horizontal top edges of roofs butting against vertical wall or other surfaces, shall be of same manufacture as the roofing sheets of not less than 6 mm thick material and with overlapping end joints. The flashings shall suit the profile of the roofing sheets and shall extend not less than 300 mm onto the roof sheeting, shall have plain upstands against the vertical surfaces and shall be flashed over with metal as described.

PB 3.25 Fibre cement gutters

Fibre cement gutters shall be of approved manufacture, of not less than 6 mm thick material and with spigot and socket ends.

Gutter brackets shall be heavy quality galvanised steel or non-ferrous metal brackets as supplied by the manufacturers of the gutters.

PB 3.26 Fibre cement rainwater down pipes

Fibre cement rainwater downpipes shall be of approved manufacture, with spigot and socket ends. The material in circular rainwater downpipes 75 mm diameter shall be not less than 6 mm thick, and in circular pipes over 75 mm diameter and in all sizes of square and rectangular pipes, shall be not less than 8 mm thick.

Holderbats for rainwater downpipes shall be heavy quality galvanised steel or non-ferrous metal holderbats.

PB 3.27 Concrete roofing tiles

Concrete roofing tiles shall comply with the requirements of SANS 542, except that the concrete in the body of the tile need not be coloured where tiles have natural stone granular finish, and shall be of pattern and colour specified.

Unless otherwise specified, the tiles shall have natural stone granular finish.

PB 3.28 Covering to ceilings

(a) Gypsum plasterboard ceilings with plaster finish

Gypsum plasterboard for ceilings shall be 6,4 mm thick gypsum ceiling board, complying with the requirements of SANS 266.

The cover strips shall be galvanised or lacquered wire gauze not less than 60 mm wide. The plaster shall be a retarded semi-hydrate wood-fibre plasterboard bonding gypsum plaster.

(b) Fibre cellulose board ceilings

Fibre cellulose board for ceilings shall comply with the requirements of SANS 803 and, unless otherwise specified, shall be 6 mm thick and of flat (unpressed) type.

PB 3.29 Cove cornices to ceilings

(a) Gypsum plasterboard cornices

Cove gypsum plasterboard cornices to ceilings shall comply with the requirements of SANS 622 and shall be of 82 mm or 120 mm girth as specified.

(b) Timber cornices

Timber cornices to ceilings shall be 32 mm hardwood Scotia's.

PB 3.30 Flat fibre cement sheets

Flat fibre cement sheets other than fibre cellulose boards described in sub clause 3.28(b), shall comply with the requirements of SANS 685.

PB 3.31 Timber for joinery

Softwood for joinery shall comply with the requirements of SANS 1359 and hardwood with the requirements of SANS 1099.
Timber for joinery shall be of clear grade, unless otherwise specified. Counter tops and other tops, where only one face side is visible, shall be of semi-clear grade timber.

PB 3.32 Framed and ledged batten doors

(a) Softwood doors

To be 44 mm thick framed and ledged batten doors complying with the requirements of SANS 545, but the timber shall comply with the requirements of SANS 1359 and shall be of clear grade.

(b) Hardwood doors

To be 44 mm thick framed and ledged batten doors complying with the requirements of SANS 545, but the timber shall comply with the requirements of SANS 1099 and shall be of clear grade. The hardwood shall be solid without any laminations.

PB 3.33 Flush doors

Flush doors shall be solid laminated, chip core or hollow-core as specified and shall comply with the requirements of SANS 545. All glue used in the manufacture of the doors shall comply with the requirements of the above specification.

Unless otherwise specified, face veneers shall be rotary cut, and shall be of timber specified or where doors are to be painted shall be of timber suitable for painting.

Edge-strips to conceal the vertical edges of doors shall be not less than 10 mm thick and of the same timber as face veneers; edge strips to meeting edges of doors in two leaves where edges are to be rebated, shall be not less than 20 mm thick.
Faces of doors shall be machine-sanded to a smooth and even surface.

All gluing together of core strips and gluing on of veneers, edge-strips, etc. shall be done under hydraulic pressure.

The top and bottom edges of doors showing end grain, shall be sealed with lacquer, or other suitable material, before leaving the manufacturer's works, and similarly sealed after doors are fitted into frames if the edges of doors are disturbed during fitting.

PB 3.34 Ironmongery

All ironmongery shall be of best quality and shall be approved by the Engineer, before fixing.

Screws for fixing of articles shall be of similar metal than the articles.

Locks shall comply with the requirements of SANS 4 and shall be supplied with two keys each.

Unless otherwise specified, interior and exterior doors shall be fitted with two and four lever heavy-duty mortice locks respectively, which shall be master-keyed.

No key shall pass a second lock. On no account shall the keys be delivered with the doors or locks to the building site. Failure to observe these instructions may entail the provision of new locks and keys.

PB 3.35 Hot-dip galvanising to steelwork

Where prescribed, all steelwork built in as the work proceeds, shall be hot-dip galvanised after fabrication and before leaving the manufacturer's works, in accordance with SANS 763.

Where they occur, site welds shall be zinc sprayed in order that the zinc coating be even and continuous over all surfaces.

PB 3.36 Pressed steel door frames

Pressed steel door frames shall comply with the requirements of SANS 1129 and shall be constructed of 1,6 mm thick mild steel sheeting, pressed or rolled to the required shapes, properly mitred, welded and reinforced.
Frames shall be of widths required to suit the thickness of walls into which they are built and shall be fitted with suitable tie-bars and braces at bottom, and lugs for building in, three to each jamb of frames without fanlights and four to each jamb of frames with fanlights.

Where fanlights are shown over doors, the frames shall be fitted with transoms of pressed or rolled steel sheet as above and rebate for fanlights and for doors if required.

The rebates in frames and transoms for doors and fanlights shall be of width required to suit the thickness of doors and fanlights.

Frames shall each be fitted in the rebate of one jamb with a pair of approved 100 mm steel butt hinges, and transom to opening fanlights hung at bottom shall each be fitted with a pair of approved 75 mm steel butt hinges, all set flush into recesses in frames and either fixed with countersunk screws or securely welded on.

Frames shall be holed as and where required for screws fixing fanlight openers, keeps of spring catches, etc. Where fanlights are shown to be fixed into frames, the frames shall be holed in the rebates, for screws, securing the fanlights, four to each frame.

Frames shall each be fitted in one jamb, with approved chromium plated or stainless steel (unless otherwise specified) adjustable striking plate keep, boxed in at back of frame with sheet metal box welded on, and not less than two rubber buffers.

All welding shall be cleaned off smooth and flush on exposed faces and frames shall be cleaned and primed as described for steel windows before leaving the manufacturer's works.

PB 3.37 Steel doors, sidelights and fanlights

Steel doors, sidelights and fanlights shall, in the case of stock types, comply with the requirements of SANS 727, and in the case of purpose made types with the constructional and other requirements of the above specification wherever applicable, and shall in addition be equipped with the following:

(a) Suitable weather bars where required to render doors, etc., perfectly watertight;
(b) Suitable lugs, or holes at the same spacing as the standard fixing lugs, for screwing frames to plugs in the concrete, where frames of doors, etc. are to be fixed to concrete columns, beams, etc.,
(c) A primer as described for steel windows, except where hot-dip galvanising is prescribed.

Doors, sidelights and fanlights, unless otherwise shown shall be of "one piece" construction, but were shown to be in two or more "one piece" units, the units shall be coupled together with standard coupling-mullions and/or transoms.

Bottom openings in doors and sidelights shall be fitted with kicking plates of one thickness of 1,6 mm thick mild steel sheet fixed with metal beads.

Frames of outward opening doors shall be fitted at bottom with sills of door framing section (stepped sills) and of inward opening doors with metal ties, welded to frames, for embedding in thresholds (flush sills).

Stock doors, sidelights and fanlights shall be of the types shown on drawings and purpose made doors, sidelights and fanlights shall be constructed to the forms and sizes shown on drawings.

Unless otherwise specified, the doors shall be of not less than 33 mm universal sections and the sidelights and fanlights of standard 25 mm sections.

Fanlights shall be hung and fitted as described for steel windows in clause 3.39.

PB 3.38 Balance type steel door

The balance type steel door shall be of the "back track" type tip-up door, constructed of not less than 0,8 mm thick mild steel sheeting, pressed to form troughed or fluted pattern horizontal panels, each approximately 200 mm wide, all strongly reinforced at back with 1,2 mm thick top hat section mild steel braces and/or stiffeners and provided all round exposed edges with 1,2 mm thick mild steel channels, all properly welded together and with all welding cleaned off smooth and flush.

The door is to be hung on two galvanised flexible steel cables of not less than 5 mm diameter, connected at lower ends to 125 mm diameter steel encased counterweights of such length and mass as will balance the door in the fully open position and connected at upper ends to door unit by passing cables over 140 mm diameter bushed cast aluminium pulleys, securely fixed to 2,50 mm thick mild steel top plates.

The movement of door is to be controlled by means of sintered metal rollers, (nylon rollers are not acceptable) securely fixed at top and centre of outer edges to door unit to operate in horizontal and vertical runner guides respectively. The guides are to be formed of 37 mm x 32 mm x 25 mm mild steel channels and with vertical channels fitted at upper ends with horizontal channels, welded on to form back track for top rollers. Each vertical channel is to be four times bolted to jamb of door opening and each horizontal channel is to be secured in position to internal wall with mild steel angle bracket, twice bolted to wall to form rigid construction.

The counterweights to door to be encased with 2,50 mm thick mild steel cover plates, each the full height of door and securely fixed to wall and channel guide.

Door to be fitted near bottom with cast aluminium lifting handle for operating the door and with chromium plated locking handle, complete with control rods and with striking plate bolted to lintel, over door opening. The locking handle is to be operated from outside and is to be provided with two keys.

Before leaving the manufacturer's works, all metal is to be given a protective priming coat of paint in accordance with the requirements of SANS 909.

PB 3.39 Steel windows

Stock residential and industrial type steel windows shall comply with the requirements of SANS 727 and all other types both stock and purpose made shall comply with the constructional and other requirements of the above specification wherever applicable, and shall in addition be equipped with the following:

(a) Suitable weather bars where required to render the windows perfectly watertight;
(b) Suitable lugs, or holes at the same spacing as the standard fixing lugs, for screwing frames to plugs in the concrete where frames of windows are to be fixed to concrete columns, beams, etc.;
(c) Windows and components, except where specified to be hot-dip galvanised, shall before leaving the manufacturer's works, be cleaned by acid pickling rinsing and drying, as laid down in SANS code of practice 064, or by other approved means, to remove all scale, rust, grease, oil and foreign matter and then primed with red oxide zinc chromate primer complying with the requirements of SANS 909, applied by dipping or by means of spray gun.

Ventilators hung at side to open out in windows above ground floors and not accessible for cleaning from an adjoining opening ventilator in the same window or from verandas, balconies and the like, shall be hung on projecting hinges.
Windows, unless otherwise specified, shall be of "one piece" construction, but were shown to be in two or more "one piece" units, shall be coupled together with standard coupling mullions and/or transoms.

Windows shall be fitted with solid brass handles, stays, catches and other fittings, those to windows constructed of universal sections having polished finish and to all other

windows rumbled finish. The fittings shall be fixed in such a way as to be removable after windows are glazed.

PB 3.40 Resilient floor finishings

Semi-flexible vinyl (vinyl-fibre) floor tiles shall comply with the requirements of SANS 581; flexible vinyl (PVC) floor tiles and sheeting shall comply with the requirements of SANS 786 and thermoplastic (asphaltic) floor tiles shall comply with the requirements of SANS 586. Unless otherwise described, the flooring shall be of marbled pattern and of approved light colour and tiles shall be 230 mm x 230 mm or 250 mm x 250 mm in size.

Vinyl cove skirtings shall be of approved manufacture and colour and unless otherwise stated, 70 mm in height.

PB 3.41 Glass for glazing

Glass for glazing shall comply with the requirements of CKS 55.

Glass not exceeding 0,75 square metre surface area of glass pane, shall be flat drawn clear sheet glass of "QQ" quality (ordinary glazing quality) and of 3 mm thickness.

Glass exceeding 0,75 square metre and up to 1,5 square metres surface area of glass pane, shall be clear float glass of "GG" quality (glazing quality) and of 4 mm thickness. Laminated safety glass for glazing shall be of "SQ" quality (selected glazing quality) and of 6 mm thickness unless otherwise specified. If high impact strength glass is used, whether cut to size or not, the stencil mark is to appear in a prominent place on the glass.

Toughened safety glass for glazing up to 3 square metres shall be, unless otherwise specified, of 4 mm thickness and must be ordered to the correct size as toughened glass cannot be cut, and each piece of glass to be marked in a clear and permanent fashion. (For bigger sizes, manufacturer's instructions are to be followed).

Any pane of glass installed in any door shall, where not made of safety glass, be not more than 1 m2 in area and shall have a nominal thickness of not less than 6 mm.

Obscure glass for glazing, unless otherwise specified, shall be Arctic or other similar approved figured rolled glass, of a nominal thickness of not less than 3 mm for glass panes up to a surface area of 0,75 square metre and not less than 5 mm over 0,75 square metre.

Putty for glazing shall comply with the requirements of SANS 680, of Type I for glazing in wood and of Type II for glazing in steel windows, doors, etc. Putty used for glazing in unpainted hardwoods, shall be tinted to match the colour of the wood.

PB 3.42 Paints

All materials for paint work for which South African Bureau of Standards specifications have been published, shall comply with the requirements of such specifications and shall bear the standardisation mark of the South African Bureau of Standards on the container or packing. Materials for paint work for which no SANS specifications have been published shall be of brand and manufacture approved by the Engineer.

All materials for paint work must be brought on to the site in unopened containers and no adulteration will be allowed.

Undercoats for paint work shall be as supplied by the manufacturer of the paint being used for the finishing coat.

Paints shall be suitable for application on the surfaces on which they are to be applied, and those used externally shall be of exterior quality or suitable for exterior use.

If necessary, paints shall be strained free from skins and similar impurities immediately before application.

The various primers, undercoats, paints and distempers shall comply with the requirements of the specifications quoted hereunder and shall be of the type of grade stated, viz:

(a) **Primers**

(i) For wood:

SANS 678. Type I shall be used on exterior woodwork and Type III on interior woodwork.

(ii) For metal:

Dip or spray application (red oxide zinc chromate). For steel windows, doors, door jambs, and other articles normally dip or spray primed in the manufacturer's works: SANS 909.

Brush application (zinc chromate). For all metal surfaces primed on site and then painted: SANS 679, Type I.

(iii) For structural steel (red lead)

SANS 312, Type II, Grade.

(iv) For galvanised iron

SANS 912.

(v) For galvanised metal surfaces and surfaces of non-ferrous metals

Wash primer (metal etch primer): SANS 723.

(b) **Undercoats**

For all surfaces under HIGH GLOSS, OIL GLOSS, FLAT and EGGSHELL finishing paints: SANS 681, Type II.

(c) **Paints**

(i)	High gloss	:	SANS 630
(ii)	Oil gloss	:	SANS 631
(iii)	Flat and eggshell	:	SANS 515
(iv)	Emulsion paint (interior)	:	SANS 633, Grade I
(v)	Emulsion paint (exterior)	:	SANS 634, Synthetic Polymer Base Type, but pure acrylic resin base for fibre cement surfaces
(vi)	Aluminium paint	:	SANS 682, Grade II
(vii)	Roof paint	:	SANS 683, Type B
(viii)	Structural steel paint	:	SANS 684, Type B

(ix)	Epoxy tar	:	SANS 801 (types as specified)
(x)	Distemper	:	SANS 322
(xi)	Varnish for interior use	:	SANS 887, Type I with eggshell finish.

PB 4 PLANT

PB 4.1 General

The Contractor shall have at his disposal the normal plant necessary for the proper and neat completion and rounding off of all facets of the building work.

PB 5 CONSTRUCTION

PB 5.1 Bricklayer

PB 5.1.1 Cement Mortar

Cement mortar shell, unless otherwise specified, be composed of four parts by volume of sand and one part by volume of cement for normal brickwork, and three parts by volume of sand and one part by volume of cement for reinforced brickwork.
The ingredients for cement mortar shall be measured in proper gauge boxes on a boarded platform and thoroughly mixed. Alternatively mixing may be by means of an approved mechanical batch mixer. Only when the dry ingredients have been thoroughly mixed and a mixture of uniform colour has been obtained may the water be added in sufficient quantity to obtain mortar with the required consistency.

Care shall be taken in mixing cement mortar to remove from the mixing machine or platform any old mortar that has already set, as such mortar must not be incorporated in any new batch.

Cement mortar shall be produced in such quantities as can be used before commencing to set, as no cement mortar that has once commenced to set shall be used in any way.

PB 5.1.2 Brickwork

Brickwork, wherever practicable and not otherwise specified, shall be built in English bond. No false headers shall be used, and none but whole bricks employed, except where legitimately required to form bond.

The brickwork, unless otherwise specified, shall be built in 4:1 cement mortar. Brick arches and brick lintels shall be built in 3:1 cement mortar.
The bricks shall be laid on a solid bed of mortar and all joints thoroughly grouted up solid throughout the whole width of each course.
The brickwork shall be carried up in a uniform manner, no portion being raised more than 1,2 m above an adjacent portion.

The bricks shall be well saturated with water, in the stack or dump, approximately two hours before being used. The tops of walls left off, shall be well wetted before work is recommenced.

All rough and fair cutting and cutting of splays, skew backs, chamfers, etc., shall be properly performed.

All necessary openings for pipes, etc., shall be formed or left and made good after pipes, etc., are fixed in position.

Walls generally shall be taken up two courses above panelled ceilings in the same mortar as the wall below and cut between ties, etc

Where hollow concrete masonry units are used brick-force shall be built into the walls every third course. Mortar for hollow concrete masonry units shall consist of one part cement, two parts lime and nine parts sand by volume. All cavities below floor level shall be filled with Grade 15 MPa/19 mm concrete.

PB 5.1.3 Mortar Joints

Mortar joints to brickwork generally shall be 10 mm in thickness.

The joints in brickwork receiving plaster, tiling or similar finishing's, shall be raked out whilst the mortar is soft to form key for the plaster or mortar backing. The depth of the raking out will depend on the condition of the bricks; the rougher the bricks on face the shallower the raking out and the smoother the bricks the deeper the raking out.

The joints in brickwork shall be flushed off where walls are to be bagged, in readiness for the bagging.

PB 5.1.4 Brickwork in Thicknesses

Walls built in two or three thicknesses shall be tied together with and including metal ties of sufficient length to allow not less than 75 mm of each end to be built into brickwork and shall be spaced not more than 1 m apart to every third course and staggered.

PB 5.1.5 Brickwork in Linings

Linings to concrete shall be tied with and including 4 mm diameter galvanised crimped wire ties of necessary length to allow 75 mm to be bedded into concrete and 75 mm of the other end to be built into brickwork and evenly spaced 1 m apart to every third course and staggered.

PB 5.1.6 Half Brick Thick Walls

Half brick thick walls shall be built in 4:1 cement mortar and reinforced with 75 mm wide brick reinforcement, one row to every eighth course in height, and built 100 mm into main connecting walls. The reinforcement shall be lapped 150 mm at end joints, where these are necessary, and 75 mm at angles.

PB 5.1.7 Cavity Walls

Cavity walls, unless otherwise specified, shall be built with two half brick thicknesses of brickwork in stretcher bond with 50 mm cavity between, and the two thicknesses tied together with 200 mm long metal wall ties of the butterfly type, spaced at not more than 1 m centres alternately to every third course of brickwork.

Unless otherwise specified, the brickwork shall be built in 4:1 cement mortar.
The cavities shall be carried up from one course of brickwork below damp course level up to two courses below wall plate level, unless otherwise shown or specified. The

brickwork above cavities shall be built solid, and where 270 mm thick shall be cut and well bonded where possible. Cavities in foundation walls of cavity walls shall be filled with Grade 15 MPa/19 mm up to 150 mm below the damp-proof course level.

The cavities shall be kept free of all rubbish, mortar droppings and projecting mortar.

The tops of walls shall be covered with planks or sacking during wet weather to prevent rain from entering the cavities.

The cavities shall not be ventilated.

At door, windows and other openings, the cavities shall be stopped 110 mm back from jambs of openings with the inner thickness of brickwork returned and stopped against the outer thickness and not bonded to same. A 110 mm wide strip of damp-proof sheeting as described for damp-proof course in clause 3.15 shall be built in between the two thicknesses in the joint formed by the return and the outer thickness. The damp-proof strip shall be lapped at least 50 mm on to the sheeting between the two thicknesses of sills and between the two thicknesses of lintels.

Sills to windows shall be divided into external and internal thicknesses with strips of damp-proof sheeting as above, built in line with the damp-proof sheeting in jambs and extending 100 mm beyond the jambs of openings.

The lintels shall be provided with damp-proof sheeting as described under lintels.

Unless otherwise specified, cavities shall be stopped one course below and one course above and 110 mm from sides of openings for air bricks and the like.

PB 5.1.8 Reinforced Brick Lintels

Reinforced brick lintels shall be built with sound machine made bricks, in 3:1 cement mortar, with all vertical and horizontal joints filled solid with mortar throughout the required number of courses and to a distance of at least 330 mm on either side of the clear opening.
The number of courses in lintels over the various size openings shall be as specified in table hereunder, and reinforcing steel wires or rods shall be built into the first horizontal joint over the bottom course as laid down therein, viz.:

LINTEL SPAN	NUMBER OF COURSES	REINFORCEMENT
Not exceeding 1 m	4	One row of 75 mm wide brick reinforcement for each half brick width soffit.
Over 1 m to 1,5 m	6	One row of 75 mm wide brick reinforcement for each half brick width soffit.
Over 1,5 m to 2,1 m	7	Three 6,3 mm diameter mild steel rods for each half brick width of soffit.

The reinforcing wires and rods shall be of length at least equal to the width of the clear opening plus 330 mm at each end. The reinforcement shall be evenly spaced in the brick joints, with the outer wires or rods having at least 20 mm cover from face of brickwork.

Brick lintels in 270 mm thick cavity walls shall be built in two half brick thicknesses in stretcher bond, with inner face of outer thickness for a depth of three courses above

soffit, covered with sheeting as for damp-proof course, the full length of lintels, and space between the two thicknesses for the depth of the sheeting filled in solid with Grade 15 MPa/19 mm concrete. Where cavities continue above lintels, the sheeting shall be taken up and turned on to top of first course of brickwork to inner thickness of wall, above the concrete filling in lintels.

The lintels, except were built over pressed steel door frames and the like, shall be supported on temporary formwork left in position for at least fourteen (14) days.

PB 5.1.9 Pre-cast concrete Lintels

Pre-cast concrete lintels shall be built in overall openings. The lintels shall be the full width of the wall and shall have its ends neatly cut with a cutting disc. Building-in and propping shall be specified by the supplier and brick force- extending at least 350mm to the outside of the opening – shall be built into each of the first five mortar beds above the opening.

PB 5.1.10 Beam Filling

Beam filling, unless otherwise specified, shall be half brick thick, built in similar mortar as used in the walls below, cut in between roof timbers and carried hard up to underside of roof covering, and flushed up in mortar.

PB 5.1.11 Bagged Finish to Brickwork

Bagged finish to brickwork, if done whilst the mortar in joints is still soft, shall be formed by rubbing over the wall surfaces with wet rough sacking, until all joints and crevices are filled up and an even surface is obtained. Mortar, as used for building the brickwork, shall be added as may be necessary.

If bagging to walls is done after the mortar in joints has set the wall surfaces shall be rubbed over with wet rough sacking as above, but cement grout shall be added as necessary to fill up the joints and crevices and to obtain an even surface.

PB 5.1.12 Building In brick Work

Ends of timbers, hold-fasts, cramps, gratings, air bricks, dowels, etc., shall be built-in in cement mortar.

Door and window frames and the like shall be set up in positions for building in and securely strutted to prevent distortion whilst the brickwork, lintels, etc., are being built.

Pressed steel door frames shall be grouted in solid at back with cement mortar as the work proceeds.

Wood slips, fixing bricks, hoop iron, roof ties, etc., shall be built in as the work proceeds.

Ventilators shall be built into openings formed in the walls, in 3:1 cement mortar, and grouted in solid with similar mortar and wall finishes made good if disturbed.

Wood frames to doors, windows, etc., shall be set up in position for building in as described and built in as the work proceeds with cramps to jambs of 1,6 mm thick galvanised hoop iron, 32 mm wide, with ends turned 50 mm up against stiles of frames and each twice screwed to frame, and built 450 mm into wall with end turned up into brickwork joint. Cramps shall be built in approximately 0,3 m up from bottom and approximately 0,3 m down from head of frames and intermediately at not exceeding

0,85 m apart. No frame shall have less than two cramps to each jamb irrespective of height.
Cramps to frames in 270 mm thick cavity walls shall be cranked as necessary and built into inner and outer thicknesses of walls alternately.

The stiles of wood door frames, and similar frames not having sills framed in, shall be doweled to concrete, brick, stone and similar thresholds with 10 mm diameter mild steel dowels 75 mm long, one to each stile.

PB 5.1.13 Securing of Roofs

Roof trusses shall be fixed at each support to walls with ties of 1,2 mm thick galvanised hoop iron, 30 mm wide, built 750 mm deep into brickwork or embedded 300 mm deep into concrete or wrapped around bottom layer of reinforcing in a reinforced concrete beam and, unless otherwise specified, wrapped over truss and fixed with four galvanised nails, 60 mm long and taken up to and lapped round the nearest purlin and well spiked thereto.

PB 5.1.14 Bedding and Pointing

All door, window and similar frames shall be bedded and pointed in 3:1 cement mortar.
All wall plates shall be set true and level and bedded in 4:1 cement mortar.
Steel door and window frames shall be carefully pointed all round and made perfectly watertight.

Where steel door and window frames are specified to be pointed with mastic compound, they shall be pointed all round externally with an approved waterproof compound, of such composition that it will not stain surrounding surfaces, and that it will adhere tenaciously, remain plastic without sagging or running, be capable of accommodating any normal movement of the joint sealed, and will receive paint without "bleeding". The pointing material shall be forced into the joints, which shall have been previously prepared to receive same, by means of a pressure gun, or by other suitable method, all in accordance with the manufacturer's instructions.

PB 5.1.15 Faced Brickwork

Faced brickwork shall be built fair and the joints shall be square recessed to a depth of approximately 6 mm, formed with a square jointing tool well pressed into the joints as the work proceeds.

The Contractor shall construct a test section of 10 m2 which shall be approved by the Engineer, before continuing with faced brickwork.

Face bricks shall be sorted by the brick manufacturer at his yard or by the Contractor on the site, to ensure that proper mixing of the bricks within the colour range of each type of facing brick being used is obtained; sudden changes in the general colour of face work in any one type of facing brick will not be acceptable.

Sand in mortar for all faced brickwork shall all be from one source.

Faced brickwork shall be kept perfectly clean and rubbing down of the brickwork shall not be allowed. Scaffold boards shall be turned back during rain to avoid splashing. Soiled brickwork shall be cleaned at the Contractor's expense, and the cleaning method shall be approved by the Engineer.

PB 5.1.16 Fibre Cement Sills

Sills shall be in single lengths cut between reveals, fitted with fixing lugs and solidly bedded in 3:1 cement mortar with a slight projection beyond the finished wall face below.

Internal sills shall be level. External sills shall be set sloping on cut brickwork or on fine concrete filling under.

PB 5.1.17 Laying of Quarry Tiles

Joints to paving shall be continuous in both directions.

Tiles shall be solidly bedded and jointed in 3:1 cement mortar with joints, unless otherwise specified, 6 mm wide and slightly pointed with a round jointing tool. Tiles shall be well soaked in water before fixing and thoroughly cleaned off after fixing.

Tiles in sills, copings, etc., shall be set with slight projection over finished wall face, and where full tiles do not fit into the length, two cut tiles shall be used, symmetrically placed as directed.

PB 5.1.18 Installation of Electrical Service

The Contractor shall embed in the concrete and/or brickwork, as the work proceeds, all conduits, boxes, etc., which will be fixed in position by the electricians, and must cut all necessary chases and holes in walls for conduits and form recesses in walls for distribution boards, all in the positions directed, notwithstanding whether the installation of the electrical service is carried out by the Contractor or under a separate contract. Alternatively, distribution boards may be built into walls as the work proceeds, providing prior approval is obtained from the Engineer.
The Contractor shall afford every facility and shall render reasonable assistance to the electricians in carrying out their work, and shall make good where necessary, in all trades, after installation has been completed.

PB 5.1.19 Installation of Mechanical Equipment

Where the installation of mechanical equipment is carried out under a separate contract the Contractor shall arrange for the building in of special fittings, leaving holes and openings or forming chases in floors, walls, etc., for pipes, cables etc., and for the building in of pipes, sleeves, pipe clips, bolts, etc., as required or directed.

All cutting of holes through finished floors, walls, etc., after the concrete or mortar has set, must be avoided as far as possible, and the Contractor must give ample notice to the Engineer who will ascertain the exact positions where pipe sleeves, pipes, pipe clips, etc., are to be built in.

PB 5.1.20 Protect and Clean Down Brickwork, Etc.

Angles of face brickwork, reveals, steps, etc., liable to damage shall be covered up and protected during the progress of the remaining work, and any damage done shall be made good at the Contractor's expense and to the satisfaction of the Engineer.

Face brickwork and brick and tile sills, copings, etc., shall be cleaned down as the work proceeds, and surfaces liable to be soiled by mortar or plaster splashes during the progress of the remaining work shall be covered with paper, pasted on, or by other

approved means. At completion of the works the coverings shall be removed and the surfaces again cleaned down to the satisfaction of the Engineer.

Any detergent or other materials used in the cleaning down of face brickwork, etc., shall be of such nature that will not harm adjoining paint and other finishing's in any way.

All tile and other paving shall be thoroughly cleaned off after laying to remove all traces of mortar and other substances, covered up and protected from damage during the progress of the works, and again cleaned off at completion.

PB 5.2 Tiler

PB 5.2.1 Laying of Glazed Ceramic Wall Tiles

The tiles shall be fixed direct to walls in 3:1 cement mortar with horizontal and vertical joints continuous, and shall have all joints rubbed in solid with neat white cement grout. Tiles shall be well soaked in water before fixing and thoroughly cleaned off after fixing.

Unless otherwise specified, the wall tiling shall project approximately 4 mm beyond face of adjoining plaster with all exposed edges finished with glazed rounded edge tiles.

Tiling shall be returned into reveals of openings and on to windowsills, and shall be butted at internal angles and provided with glazed rounded edged tiles to external angles, unless otherwise specified.

All necessary cutting to tiles shall be properly performed.

Walls shall be well wetted before tiling is commenced.

PB 5.2.2 Laying of Ceramic Floor Tiles

Ceramic tiles shall be bedded to a true and even surface on 3:1 cement mortar and with joints not exceeding 2 mm wide.
After the tiles have been allowed to set for a period of not less than twenty-four hours the joints shall be grouted in to with approved epoxy compound, or acid proof cement mortar.

PB 5.3 Plasterer and paver

PB 5.3.1 Cement Plaster

Cement plaster for one coat work on walls shall be composed of four parts of sand and one part of cement for internal work, and five parts of sand and one part of cement for external work, all by volume, and mixed as described for cement mortar in clause 5.1.1.

Cement plaster on concrete surfaces shall be composed of three parts by volume of sand and one part by volume of cement.

PB 5.3.2 Forming Key to Concrete for Plaster Finish

All surfaces of concrete receiving plaster, or similar finishing's, shall be well wetted and wire brushed immediately after the formwork is removed and slushed over with 2:1 cement grout to form key for the finish, to the approval of the Engineer. The slushing to be allowed to set hard before the finish is applied.

Other methods may be used if approved by the Engineer.

Particular care shall be taken in forming the key for plaster where steel shuttering is used, and if considered necessary the surface of the concrete shall be hacked.

PB 5.3.3 Thickness of Plaster

Plaster on walls shall be not less than 12 mm or more than 20 mm in thickness, and plaster on concrete ceilings and beams shall be not less than 9 mm or more than 16 mm in thickness, unless otherwise specified.

PB 5.3.4 Application of Plaster

Walls shall be well wetted before plastering is commenced.
The surfaces of internal plaster shall be steel trowelled to a smooth, even and true finish. External plaster shall be finished to a true and even surface with a wood float. All plaster surfaces shall be free from blemish.

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

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

NB - See clause 5.3.2 for forming key for plaster on concrete.

PB 5.3.5 Normal Screeds to Floors

Concrete sub-floors finished with wood mosaic, vinyl sheeting and tiles, and similar finishing's, shall be screeded with 3:1 cement mortar, of thickness required, but in no case less than 12 mm, and steel trowelled to a true and smooth surface suitable to receive finishing's.

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

The screeding shall be laid in good time to allow of it being perfectly dry when the finishing's are laid.

No traffic shall pass over, nor shall any building operations take place on the screeding without proper covering first being provided.

PB 5.3.6 Granolithic Screeds

Granolithic screeds shall be composed of two parts by volume of cement and three parts by volume of aggregate with sufficient water added to obtain a consistency as dry as may be practicable. The screed shall be rendered with a wood float and struck off with a steel trowel after set has commenced.

Granolithic screeds to floors, treads of steps, thresholds, and similar horizontal surfaces unless otherwise specified, shall be not less than 25 mm thick. Granolithic screeds to stair risers, sides of kerbs, and other vertical surfaces, shall, unless otherwise specified, be not less than 20 mm thick. Exposed salient angles of granolithic screeds shall be neatly rounded to approximately 20 mm radius, unless otherwise specified.

The granolithic screeds shall be laid before the concrete sub-floor has matured otherwise the exposed surface of concrete shall be thoroughly cleaned with a wire brush, and a coat of neat cement grout applied immediately before the granolithic screed is laid.

The granolithic screeds shall be laid in panels not exceeding 9 m2 in area, and joined to lines of panels and lined into smaller squares as directed with sunk V-joints. The joints between the panels shall coincide with joints in the concrete sub-floor where possible.

Where granolithic screed is to be tinted it shall be laid in two layers, a lower layer laid to within 6 mm of the finished level, and an upper layer into which the requisite quantity of approved colouring pigment shall have been mixed. No dusting on of colouring material will be allowed.

All granolithic work shall be done by experienced workmen, and shall be protected from injury caused by rain or other extreme weather for twelve hours after being laid, and against too rapid drying whilst hardening, by being covered with wet sacks, or other suitable material, and shall be protected from injury and discolouration during the progress of the remaining work

Edges of granolithic floors butting against different floor finishing's, and edges of margins, etc. shall be true and sharp, and shall be protected by fixing temporary wood strips, which shall remain, in position until the commencement of the laying of the adjoining flooring material.

PB 5.3.7 Reedings to Steps, Etc.

The treads of granolithic finished steps and upper surfaces of granolithic finished external thresholds shall be rendered non-slip by reeding same near front edges for a width of 100 mm stopped 100 mm from ends.

PB 5.3.8 Power Floated Finish

Power floated finish to floors etc., unless otherwise specified, shall be floated mechanically to smooth and even surfaces before the concrete has set. Small surfaces and inaccessible places to be floated by hand in a similar way. Under no circumstances is cement mortar to be added while floating the concrete.

PB 5.3.9 Laying of Concrete Paving Slabs and Paving Bricks

Concrete paving slabs and paving bricks shall be bedded and jointed on a layer of 30 mm clean dry river sand. Joints shall be 6 mm wide, continuous in both directions, filled solidly with 3:1 cement mortar and slightly pointed with a round jointing tool. Lengths in excess of 10 metres shall be provided with expansion joints.

PB 5.4 Waterproofing

PB 5.4.1 Damp-Proof Course in Walls

The damp-proof course shall be the full thickness of walls above foundations and shall be laid without longitudinal joints. At end joints, angles and intermediate junctions the sheeting shall be lapped 150 mm.

Where so specified all laps in the damp-proof course shall be sealed over the whole area of laps, to an approved method. Care shall be taken not to tear or otherwise damage the sheeting.

PB 6.4.1 Damp-Proof Membrane

The damp-proof membrane under floors, etc., shall be laid in the widest practical widths to minimise joints and shall be turned up, dressed to load bearing walls and if applicable lapped with the damp-proof course in the walls. All joints shall be sealed with pressure sensitive tape applied over the leading edge of the joint.

PB 7.4.1 Expansion Joints

Expansion joints shall be at least 10 mm wide and filled in with approved bitumen impregnated soft board or closed cell expanded polyethylene strip. Expansion joints shall be sealed with a two-component poly-sulphide joint sealer, 12 mm deep, according to instructions of the manufacturers.

PB 8.4.1 Carpenter and joiner

PB 9.4.1 Protection of Timber on Site

Timber stored on site shall be properly stacked when received, and adequately protected against extremes of weather and exposure to the sun, until required for use.

PB 10.4.1 Wrought Faces

Exposed woodwork, unless otherwise specified, shall be wrought to a smooth surface, and properly sand-prepared to remove all machine or other tool marks.

For each wrought face on structural timber, an allowance will be made off the "nominal" dimensions specified or stated on the drawings, as follows:

(a) 2,5 mm for "nominal" dimensions up to and including 76 mm;
(b) 3,5 mm for "nominal" dimensions over 76 mm.

For each wrought face on joinery timber, an allowance will be made off the "nominal" dimensions specified or stated on the drawings, as follows:

(a) 3 mm for "nominal" dimensions up to and including 76 mm;
(b) 5 mm for "nominal" dimensions over 76 mm.

The above will be the nett allowances permitted off the "nominal" dimensions specified or stated on the drawings and will not be additional to the tolerances specified for sawn timbers.

All exposed angles of wrought woodwork, unless otherwise specified, shall be arris rounded. The term "arris rounded" denotes that the angles shall be rounded off to approximately 3 mm radius.

Angles of wrought woodwork specified to be angle rounded shall be rounded off to 6 mm radius, unless otherwise shown on the drawings, and shall include, in framed joinery, for housed and mitred joints.

PB 11.4.1 Lengths of Timbers and Methods of Jointing

Plates, purlins, battens, laths, slats, etc., shall be in single lengths, but where this is not possible the end joints will be formed as described below. The jointing of plates, battens, etc. at junctions and angles shall also be formed as stated hereunder, viz:

(a) Wall plates shall be halved at joints and well spiked together, and also at junctions and angles;
(b) Purlins shall be splayed or spliced at joints and, unless otherwise specified, using timber side plates of the same dimensions as purlins, not less than 600 mm long and four times bolted with M10 mild steel bolts, with two washers each. Adjacent purlins shall not be splayed or spliced in the same bay or on the same rafter;
(c) Sawn battens, laths, slats, etc., shall be butt jointed at heading joints and angles, and wrought battens, laths, slats, etc., shall be splayed at heading joints and mitred at angles, all over points of support and where adjacent, shall not be jointed on the same rafter.

PB 5.5.4 Joints in Roof Trusses

(a) The number of connecting devices to be used at each intersection between two members at any heel joint or any splice in a truss shall be determined from the following table:

SPAN m	3 (90 x mm) NAILS PLUS M10 BOLTS AS SPECIFIED BELOW	M16 BOLTS ONLY	50 mm TOOTHED RING CONNECTIONS
3	2	2	1
4	3	2	1
5	3	2	2
6	4	3	2
7	5	3	2
8	5	3	2
9	6	4	3
10	6	4	3

(b) In the case of any joint other than a heel joint or splice, one M10 bolt plus three 90 x 4 mm nails shall be used.

PB 5.5.5 Prefabricated Roof Trusses

Prefabricated timber roof trusses shall be constructed of South African pine as described in clause 3.17 to the designs shown on the detail drawings. The timber shall be of cross-sectional dimensions shown, cut to correct lengths with ends square or cut to the required angle, and shall be assembled in truss fabricating jigs with the truss having the proper camber, and tightly clamped together and joints secured with approved connector plates of galvanised steel sheet, pressed into the timber simultaneously on both sides of the truss with hydraulic press capable of exerting such pressure as will ensure complete penetration of the teeth into the timber. The connector plates shall be of such size as will ensure that the joints so made will adequately withstand the forces exerted on the joints, and to have at least two coats Epoxy Tar finish for coastal areas.

PB 5.5.6 Valleys in Roofs

Valleys in roofs covered with galvanised steel or fibre roofing sheets or with roofing tiles shall each be formed with two 228 mm x 25 mm sawn boards, spiked down to roof timbers, and purlins fixed along outer edges where in galvanised steel and fibre sheet covered roofs and battens along outer edges where in tile covered roofs.

PB 5.5.7 Purlins

Unless otherwise specified, purlins shall be 50 mm x 76 mm and shall be securely nailed to roof timbers at not exceeding 1,14 m centres, ranging perfectly straight and square to the roof with but joints at heading joints and angles and in the case of wrought purlins splayed joints at heading joints and mitred joints at angles.

PB 5.5.8 Brandering to Ceilings

The brandering shall be 38 mm x 38 mm, securely spiked up to the supporting timbers with 88 mm wire nails at 380 mm centre-to-centre. Cross brandering shall be cut in between the longitudinal brandering and securely skew nailed to same with 75 mm wire nails at joints in ceilings and at edges where required for fixing of cornices.

PB 5.5.9 Steel Roofing Sheets

The sheets shall be secured to wood purlins with approved galvanised iron roofing screws each provided with a plastic or asphalt felt washer and a galvanised steel cup washer over the plastic or felt washer and secured to steel purlins with M6 galvanised hook bolts, provided with similar washers under nut.

Screws and bolts at ends of sheets and at end laps shall be spaced at not exceeding two corrugations apart wherever possible, but in no case more than three corrugations apart, and at intermediate purlins at not more than four corrugations apart; screws or bolts shall, in all cases, be provided in the outermost corrugations of the upper sheets.

All necessary cutting to sheets shall be properly performed. Cut edges at sides of valleys, and elsewhere exposed, shall be perfectly straight.
At exposed verges of roofs, the iron shall be finished with neatly formed rolls.

The sheets shall have side laps of not less than one and a half corrugations. The minimum roof slopes and sheet end laps shall be, unless otherwise specified, as prescribed in Table 2 of Schedule 2 of Part L of the National Building Regulations and Building Standards Act, 1977.

PB 5.5.10 Metal Ridging for Steel Covered Roofs

The ridging shall be 450 mm girth with roll top and bent down edges, and shall be lapped 225 mm at end joints, cut and properly lapped and fitted at intersections of ridges, hips and valleys, and close beaten into corrugations of roofing iron. Roll shall be closed at feet of hips and at end of ridging.

Ridging shall be fixed with screws to wood purlins and hook bolts to steel purlins, with washers under heads and nuts, respectively, all as described for fixing roofing sheets, and spaced at not exceeding 300 mm centres.

PB 5.5.11 Fibre Cement Roofing Sheets

The sheets shall be mitre-cut at corners as necessary and laid with smooth surface on top, and shall be secured to wood purlins with 7 mm diameter galvanised drive screws not less than 114 mm long, and to steel purlins with M8 galvanised hook bolts, each provided with a plastic or asphalt felt washer and a galvanised steel cupped washer over the plastic or felt washer.

Screw and bolt holes in sheets shall be drilled (not punched), and shall be 0,2 mm larger than the diameter of screws and bolts.

The fixing screws, and nuts on fixing bolts, shall not be tightened more than is necessary for the holding down of the sheets and for the proper seating of the washer over the corrugations, so as to allow for slight movement between the sheets and the supporting structure. On no account
shall sheets be deflected at the intermediate purlins in an attempt to make the sheets bear on such purlins.

The side laps of sheets shall be sheltered from the prevailing wind by laying the sheets from left to right, or from right to left, depending on the direction of the prevailing wind, the sheets being laid in the opposite direction to that of the wind.

All necessary cutting to sheets shall be properly performed. Cut edges at sides of valleys, and elsewhere where exposed, shall be perfectly straight.

The minimum roof slopes and sheet end laps shall be, unless otherwise specified, as prescribed in Table 1 of Schedule 2 of Part L of the National Building Regulations and Building Standards Act, 1977.

The manufacturer's instructions regarding laying and fixing of sheets, including side laps, mitring of corners and spacing of screws or bolts, shall be followed in all cases.

One month after fixing, the roof covering shall be thoroughly examined, any defects made good and loose screws or bolts tightened.

Roof boards shall be used by all workmen for safety and to avoid damage to the sheeting.

PB 5.5.12 Adjustable Fibre Cement Ridging

The ridging shall be secured to wood purlins with screws and to steel purlins with hook bolts, passed through the roofing sheets, and provided with plastic or felt and steel washers, all as described for fixing fibre cement roofing sheets.

The manufacturer's instructions regarding laying and fixing of the ridging, including spacing of screws or bolts, shall be followed in all cases.

PB 5.5.13 Fascia and Barge Boards

Fascia and barge boards of pressed fibre cement boards shall be butt jointed with 75 mm wide x 3 mm thick galvanised steel plates four times bolted with M6 galvanised bolts over joints.

PB 5.5.14 Fibre Cement Flashings

Fibre cement flashings shall be secured to wood purlins with screws and to steel purlins with hook bolts, passed through the roofing sheets, and provided with plastic or felt and

galvanised steel cupped washers, all as described for fixing fibre cement roofing sheets.

The manufacturer's instructions regarding fixing of the flashings, including spacing of screws or bolts shall be strictly adhered to.

PB 5.5.15 Fibre Cement Gutters

Fibre cement gutters shall be bedded in approved bituminous mastic compound and secured with M6 galvanised gutter bolts with heads of bolts on inside of gutters and each bolt provided with asphaltic felt and galvanised steel washer under head and nut, all in accordance with the manufacturer's instructions. The inside surfaces of sockets and the outside surfaces of spigot ends shall be coated with a thin solution of bitumen to enable the compound to adhere fast when applied, and surfaces of washers in contact with each other and with gutters hall be coated with bitumen. After tightening the bolts, all surplus compounds from the joints shall be removed, and the joints externally finished with neatly trowelled fillets of 2:1 cement mortar.

The spigot ends of gutters shall be lapped on to the socket ends in the direction of the flow wherever possible.
The gutters shall be fixed with proper falls on gutter brackets of the fascia type where fixed to fascia boards and of the purlin type were fixed to purlins. Brackets shall be securely screwed to the roof timbers, at not exceeding 1 m centres, and with extra brackets at angles and outlets.

Gutters shall be provided with all necessary angles, stopped ends, outlet nozzles, etc., jointed to gutters as described above.

PB 5.5.16 Fibre Cement Rainwater Down Pipes

Fibre cement rainwater downpipes shall be jointed with tarred hemp rope gasket caulked into each joint, and the joint filled with a suitable bitumen compound and finished off with neatly trowelled fillet of 2:1 cement mortar.

The pipes shall be fixed to walls with holderbats, bolted around pipes immediately below the socket, and with tails builds into walls in 3:1 cement mortar.
Rainwater downpipes shall be provided with all necessary swan necks, branch pieces, plinth bends, radius bends, shoes, etc., jointed to pipes as described above.

PB 5.5.17 Concrete Roofing Tiles

Tiling shall be "straight or broken bond", and vertical joints between tiles and bottom edge of each course of tiles shall range perfectly straight. Unless otherwise specified, interlocking tiles shall be laid to a lap of at least 100 mm and plain tiles to a lap of at least 62 mm.

Half tiles in the case of interlocking tiles, and tile and a half in the case of plain tiles, shall be provided as required at abutments and at verges of roofs. Plain tile roofs shall be provided with double course at eaves.

Unless otherwise specified, each tile in every third course in the case of interlocking tiles, and in every fifth course in the case of plain tiles; all tiles in eaves courses and ridge courses; end tiles in every course at each side of hips and valleys; all tiles adjoining bonnet hip tiles in plain tile roofs; half tiles, full tiles and tile and a half at verges, and all tiles to open eaves and open overhanging verges, shall be fixed to the

battens with galvanised nails of such length as will penetrate the battens to a depth of at least 25 mm.

Tiling shall be carefully cut and dressed at hips and valleys and, where necessary at abutments, etc. Mitred portions of tiles at hips and valleys shall be holed and properly secured.
Hip and ridge tiles for interlocking tile roofs shall be socketed V-type, shall match general tiling, and shall be bedded solid in 3:1 cement mortar with strip of approved bituminous sheeting laid under the mortar bedding, of such width as will give a lap of at least 25 mm on to the roof tiling at each side, and lapped not less than 75 mm at end joints. Socketed joints of hip and ridge tiles shall be bedded in mortar as above and pointed with neatly recessed joints, and hip iron of 25 mm x 4,5 mm mild steel 300 mm long, suitably bent, twice holed and securely nailed to hip rafter, shall be provided at foot of each hip. The mortar bedding shall be trowelled smooth at open ends of ridges. Ridge tiles for plain tile roofs shall be as above but half-round and but jointed and neatly pointed in tinted 3:1 cement mortar, and hip tiles shall be round pattern bonnet type, to course and bond in with general tiling, and with each tile bedded and neatly pointed in mortar as above and nailed to hip rafter with galvanised nail.

Hip and ridge tiles shall be neatly cut and fitted together at junctions between ridges and hips or valleys, and shall be bedded solid and neatly pointed in tinted 3:1 cement mortar with approved bituminous sheeting under the mortar bedding, cut to shape required and with lap of 25 mm on to the roof tiling.

PB 5.5.18 Covering to Ceilings

(a) Gypsum plasterboard ceilings with plaster finish

The ceiling boards shall be in 900 mm or 1 200 m widths, with board at ends of ceilings of widths required to suit length of ceilings. Ceiling board shall be in single lengths to the width of ceilings wherever possible.

The boarding shall be nailed to the brandering, with GREY surface to underside, with 2 mm diameter galvanised or cadmium plated clout headed nails, 38 mm long, spaced at not more than 100 mm apart at edges of boards and 150 mm apart along the intermediate brandering.
The joints between boards shall be loose butt joints and covered with wire gauze strips nailed through the boarding to the brandering at 400 mm centres with 38 mm galvanised clout headed nails.

The bonding plaster shall be applied in two layers by the trowel-float-method to a total thickness of not less than 6 mm, and well pressed into the wire scrim over the joints between the ceiling boards, and finished smooth, even and true.

(b) Fibre cellulose board ceilings

The ceiling boards shall be in the same widths, and fixed as specified for gypsum plasterboard ceilings in paragraph (a).

The joints between the boards shall be covered with 25 mm half-round wood cover beads fixed with 38 mm long nails spaced at not exceeding 300 mm.

PB 5.5.19 Cove Cornices to Ceilings

(a) Gypsum plasterboard cornices

Cove gypsum plasterboard cornices shall be nailed through the ceiling boards to the brandering and to wall plugs, at not exceeding 200 mm centres, with 2 mm diameter galvanised or cadmium plated clout headed nails, 38 mm long, or fixed to walls with hardened steel nails driven into the brickwork.

Cornices shall be scribed at internal angles and mitred at external angles and shall be in long lengths with splayed heading joints where necessary.

(b) Timber cornices

Scotia shall be fixed to walls with hardened steel nails driven into the brickwork.

PB 5.5.20 Trapdoors in Ceilings

Openings for trapdoors in ceilings shall be formed with 38 mm x 38 mm brandering all around each opening, spiked together and to bottom edge of the supporting timbers. Size of opening, unless otherwise specified, shall be 650 mm x 650 mm.

Trapdoor shall be formed with skeleton frame of 50 mm x 38 mm brandering, covered on underside with boarding as for ceiling, and hung on a pair of 75 mm steel butts and fitted on underside near closing edge with 100 mm brass bow handle. Soffit of trapdoor shall be flush with soffit of ceiling when closed, and trapdoor shall flap back on to top of the brandering, between tie beams or ceiling joists when open.

When trapdoor is closed it shall rest on 50 mm x 19 mm fillets, fixed on soffit of ceiling all around opening, mitred at angles and securely screwed up to the trimmers. Fillets shall project 12 mm into the opening to carry the trapdoor.

Trapdoors larger than 650 mm x 650 mm shall each be provided with 38 mm x 38 mm brandering across centre, spiked to the skeleton frame.

PB 5.5.21 Ceiling Insulation

Ceilings shall be insulated, where so specified, with approved resin bonded or stitched fibre glass or mineral wool insulation blanket 38 mm thick, cut to size and laid over brandering between ceiling joists and tie beams, etc.

Where insulation is to be in two thicknesses a total thickness of 76 mm is required and the joints shall be staggered.

PB 5.5.22 Framed Joinery

Where the word "Framed" is used it is to include for all mortice and tenon joints, dove¬tail joints, grooves, stop grooves, rebates, stop rebates, housings, notching, etc., including housing ends of shelves, divisions, etc.

PB 5.5.23 Joinery

Joinery work shall be put in hand immediately after the order has been given to commence work, or after the receipt of detail, where such are to be supplied, and shall not be wedged or glued up until just before fixing in the building.

No framed joinery for services situated inland shall be manufactured in the humid coastal belt, and no framed joinery for the services situated in the coastal belt shall be manufactured inland. This applies to both purpose made and stock joinery.

All exposed softwood timber in joinery which is not to be painted shall be free from large, loose or dead knots, knot holes, checks, splints, wane or other defects, and in joinery which is to be painted shall be free from all defects other than those which can be filled or otherwise made good in such a way as will not impair the paint finish. All exposed hardwood joinery timber shall be free from all knots, knot holes, checks, splints or other defects and, unless otherwise specified, shall also be free of sapwood.
Purpose made joinery shall be manufactured strictly in accordance with detail drawings.

Stock joinery shall be of approved quality. Joinery shall not be primed until it has been inspected and approved.
Skirting, rails and the like shall be in long lengths. Heading joints where necessary shall be splayed. Counter tops, table tops, drainers, and the like, shall be formed with wide boards, jointed with grooved, cross-tongued and glued joints or with grooved rebated and glued joints of approved type; cross-tongues shall be stopped 25 mm back from ends where ends are exposed to view. The boards shall be in single lengths to top, etc., but where this is not possible the heading joints shall be staggered and jointed as above.
Skirting, rails, angle moulds and beadings of all kinds, shall be close fitted, mitred or scribed at angles, and securely fixed; skirtings, rails and the like shall be fixed with hardened steel or other suitable nails driven into the brickwork or shall be nailed to wall plugs spaced at not more than 700 mm apart. Glazing beads and the like shall be mitred at angles and, unless otherwise specified, shall be fixed with panel pins.

PB 5.6 Metalwork

PB 5.6.1 Manufactured Steelwork Generally

Welding is to be done electrically in the most up to date manner by skilled workmen and cleaned off on completion.
All welds are to be welded with welding rods of the same chemical composition as the tubes, rods, bars, etc., to be welded and all external welds are to be filed clean and smooth.

Welding to be continuous fillet welding to all exposed edges unless otherwise described
No scaffolding shall be allowed to rest on or fixed to steel windows, doors, frames, etc., in any way.

PB 5.7 Resilient floor finishings

PB 5.7.1 Laying and Fixing

Vinyl sheeting and tiles and such like floor finishing's shall be laid in strict accordance with the manufacturer's instructions, on a perfectly dry and clean screeded surface, using an adhesive supplied or recommended by the manufacturer of the flooring material, and rolled with a suitable roller to ensure complete adhesion of the material. The flooring shall be cut where required and neatly fitted against adjoining floors, thresholds, etc. Vinyl skirtings shall be close fitted to floors and walls, butted at end joints, neatly mitred at internal angles and dressed round external angles, and fixed with adhesive as for flooring.
Unless otherwise described, sheet flooring shall be in standard widths with cut sheets at sides of floors as necessary.

PB 5.8 Glazier

PB 5.8.1 Fixing of Glass

Glass fixed with glazing beads in unpainted hardwood doors shall be bedded on strips of rubber, velvet, leather, or felt turned over on to both sides of glass in the rebates to form a soft packing between the glass and the woodwork. In all other cases the glass shall be well bedded in back putty in the rebates.

Glass rebates, other than in unpainted hardwood doors, shall be primed before glazing.

Glass panes exceeding 0,5 m2 in surface area and fixed with putty only in wood doors, sashes and the like shall be secured in addition with glazing sprigs, and in steel windows and doors with glazing pegs or clips inserted in holes in the steel framing.

Glass panes shall have adequate clearance between the edges of glass and the rebates.

Putty shall be carefully trimmed and cleaned off with front putty worked to within 3 mm of the sight lines.

PB 5.9 Painter

PB 5.9.1 Preparatory Work

(a) General

All floors must be swept clean and walls dusted down, and surfaces not being painted such as face brickwork, sills, floors and stained woodwork covered up and protected against spotting, before any painting is commenced.

No sweeping or dusting shall be done whilst painting is in progress or whilst paint is still wet.

(b) On woodwork

Woodwork being painted shall be well brushed down, knots treated with knotting, and all surfaces primed, stopped with hard stopping and rubbed down to an even surface ready to receive the paint.

Woodwork being oiled or stained shall have all plaster stains, pencil marks and other surface discolouration and blemishes carefully removed, and stopped with tinted stopping and well rubbed down.

(c) On metalwork

All metal surfaces being painted, except steel structures shall be cleaned of all rust, scale and dirt by scraping or by means of steel wire brushes; also, all oil and grease shall be removed and a perfectly clean surface obtained. If necessary, the surface shall be decreased immediately before applying the priming coat, by the use of a suitable grease-removing solvent; any salt deposits on the metal surfaces as may occur in industrial and marine atmospheres shall be removed by the use of a suitable detergent and the surface then thoroughly rinsed and allowed to dry.

New galvanised metal surfaces and surfaces of all non-ferrous metals, which are to be painted, shall be cleaned down as above and given one coat of wash primer (metal etch primer).

Protective coatings on new galvanised metal surfaces, applied by the manufacturers to prevent storage stain and white rust, shall be completely removed by the use of a suitable cleaning agent and the surfaces thoroughly rinsed and allowed to dry, before the surfaces are primed or painted.

After cleaning off rust on metalwork those portions so affected shall be treated with an approved rust inhibitor.

(d) On plaster

All plastered wall, ceiling and such like surfaces being painted or distempered shall be filled where necessary with suitable stopping or patching plaster and the whole rubbed down ready to receive the finishing.

(e) On ceilings

Boarded ceilings, cover strips and cornices being painted or distempered, shall be filled where necessary with suitable stopping and all nail heads in ceilings, cover strips and cornices being distempered shall be primed with flat paint.

(f) On block work

All block work shall be cleaned down to remove all loose and dusty matter, prior to being heated with finishing.

PB 5.9.2 Surfaces to Be Dry

All plastered wall, ceiling and similar surfaces shall be perfectly dry and in a fit state to receive the finishing, before the work is put in hand.

PB 5.9.3 Priming

Wood, metal and other surfaces normally primed before being painted shall be prepared and primed as before described in readiness to receive the specified paint system.

Backs of wood door and similar frames and surfaces of other new or re-fixed joinery in contact with brickwork, etc., and built in as the work proceeds, shall be primed before building in whether the articles are to be painted or not, to prevent moisture seeping into the wood from the mortar bedding.

Wood surfaces shall be knotted, primed and stopped before being coated with emulsion paint or distemper.
Tongued and grooved and rebated edges of boards in batten doors, and other suchlike inaccessible parts of joinery shall, before the joinery is assembled, be primed or where the joinery is to receive a finish other than paint, be given one coat of such other finishing material.

Priming to external structural timbers shall be applied before the timbers are fixed in position and shall include all wrought surfaces, such as backs of fascia and barge boards.

PB 5.9.4 Application of Paint

All coats of paint shall be thoroughly dry before subsequent coats are applied and rubbed down where necessary.

All work shall be finished to colour approved by the Engineer. The tints of undercoats shall approximate those of the finishing colour and in order to indicate the number of coats applied and to avoid misses when applying a succeeding coat, a slight difference shall be made in tint of each coat.

Priming on wood surfaces shall be by brush application. Priming on surfaces other than wood shall be by brush application or if in the opinion of the Engineer, the primer and the surfaces are considered suitable for roller application, the primer may be so applied. Priming applied by brush application shall be well brushed in to obtain maximum penetration.

Undercoat and finishing coats may be applied by brush or roller.

The use of spray gun on site for application of paint will not be permitted, except in the case of cellulose and other special cases where spraying is the accepted method of application; in cases where spraying is permitted all surrounding surfaces shall be properly masked.

The finishing coat on woodwork and metalwork, unless otherwise specified, shall be of high gloss paint. All materials shall be used in strict accordance with the manufacturer's instructions.

PB 5.10 Protection and cleaning of works

The Contractor shall provide all necessary dust sheets, covers, etc., and shall exercise all necessary care to prevent marking surfaces of walls, floors, ceilings, glass, electrical fittings, etc., and shall keep all parts of the works perfectly clean and free at all times from spotting, accumulation of rubbish, debris or dirt arising from the operations. Any surface disfigured or otherwise damaged shall be completely renovated or replaced as necessary, to the Engineer's approval, by the Contractor at his own expense.

The Contractor shall test all doors, fanlights and windows and all other fittings for proper operation and effect the required rectification prior to the handing over of the building.

The premises shall be left clean and fit for occupation at the completion of the work.

PB.5.11 Plumbing and drainage supplementary preambles

PB.5.11.1 "Polycop" polypropylene pipes

Polypropylene pipes 54mm diameter and under shall be seamless copper coloured class 16 pipes with "Fast-fuse" heat welded thermoplastic or brass compression fittings as designed for use with copper pipes as stated

Pipes shall be firmly fixed to walls etc. with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer’s instructions

All pipes' diameters are nominal external

PB.5.11.2 "Polyink" polypropylene pipes

Polypropylene pipes 63mm diameter and over shall be class 12 pipes jointed with cast iron "Supaclamp" running joints.

Fusion welded bends, once or twice mitred as necessary, and tees shall be factory manufactured.
Fusion welded bends and tees shall include jointing to pipes with PVC rubber ring double Z joint couplers.

Branch tees shall include flanged and bolted joints to "Polycop" branch pipes in addition and for brass compression male iron to copper straight couplers.

Reducers shall be including jointing to pipes with PVC rubber ring Z joint couplers and reducers shall be of sufficient overall length to accommodate same.

All pipes shall be jointed and fixed strictly in accordance with the manufacturer's instructions.

All pipe diameters are nominal external.

PB.5.11.3 uPVC pipes and fittings

Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings.

Soil, waste and vent pipes and fittings shall be solvent weld jointed uPVC pressure pipes and fittings.
Pipes for water supply shall be of the class stated.

Pipes of 40mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings.

Pipes of 50mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints.

PB.5.11.4 Copper pipes

Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), class 2 (half-hard) and class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall be "Cobra Watertech" type. Capillary solder fittings shall comply with ISO2016. Only compression fittings shall be used in walls and ground.

All soldered joints shall be wiped and brass unions shall be used for jointing lead to steel.

PB.5.11.5 Reducing fittings

Where fittings have reducing ends or branches, they are described as "reducing". In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc. will be entertained.

PB.5.11.6 Wire gratings

Descriptions of gutter outlets etc. shall be deemed to include wire balloon gratings.

PB.5.11.7 Exposed concrete surfaces

Exposed surfaces of concrete storm-water channels, cover slabs, inspection eye markers slabs, gully tops, cleaning eye tops, catch pits, inspection chambers, etc. shall be finished smooth with plaster.

PB.5.11.8 Excavations

No claim for rock excavation will be entertained unless the contractor has timeously notified the principal agent thereof prior to backfilling.

"Soft rock" and "Hard rock" shall be as defined in "Earthworks"

PB.5.11.9 Laying, backfilling, bedding, etc. of pipes

Pipes shall be laid and bedding and trenches shall be carefully back filled in accordance with manufacturers' instruction.

Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L: medium-pressure pipelines LD: Sewers LE: Storm-water drainage pipe trenches etc. shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB: Earthworks (Pipe trenches) Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB: Bedding (Pipes). Unless otherwise described bedding of rigid pipes shall be class B bedding.

PB.5.11.10 Stainless steel basins, sinks, wash troughs, urinals, etc.

Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable.

PB.5.11.11 Waste unions

Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and clamps fixed to fittings.

PB 6 TOLERANCES

PB 6.1 Basis of measurement

PB 6.1.1 General

Permissible deviations will apply in the case of linear dimensions, position, and level. The Contractor shall construct each of the various parts of the works within the limits of the applicable permissible deviations set out in clause 6.2 unless some other degree of accuracy is required in terms of the project specification or is shown on the drawings.

PB 6.1.2 Methods of Measurement of Deviations

Certain deviations will be measured as set out below:

(a) Any deviation from flatness of a plane surface, will be measured as the maximum deviation of the surface from any straight line of length 3 m joining two points on the surface, determined by means of a straight edge the ends of which are supported on identical blocks of suitable thickness placed one over each of the points.
(b) Any abrupt change in a continuous surface, including a local depression or peak in a floor or wall, will be measured as specified in (a) above.
(c) Out-of-squareness of a corner or an opening or an element such as a column will be measured by taking the longer of two adjacent sides as the base line, and determining any departure from the perpendicular of the side at either end of this base line.

PB 6.2 Permissible deviations

The permissible deviations for elements or components shall be as follows:

(a) Position on plan of any edge or surface measured from the nearest grid line or agreed centre line ± 25 mm
(b) Linear (other than cross-section) dimensions ± 30 mm
(c) Cross-section dimensions -10 + 20 mm
(d) Level (deviation from designed level with reference to the nearest transferred datum (TD) of the upper or lower surface, as may be specified, of any slab or other element or component) ± 10 mm
(e) Out-of-squareness of a corner or an opening or an element such as a column (See clause 6.1.2(c)) for short side of length:
    (i) up to and including 0,5 m ..... ± 5 mm
    (ii) over 0,5 m up to and including 2 m ..... ± 15 mm
    (iii) over 2 m up to and including 4 m ..... ± 20 mm
(f) Exposed surface (including floor slabs and paving):
    (i) Flatness of plane surface ..... ± 5 m
    (ii) Abrupt changes in a continuous surface ..... ± 5 mm
(g) Exposed surface to be plastered or receive normal or granolithic screeds:
    (i) Flatness of plane surface ..... ± 10 mm
    (ii) Abrupt changes in a continuous surface ..... ± 5 mm
    (iii) Surface of plaster and normal or granolithic screeds …… ± 5 mm

PB 7 TESTS

PB 7.1 GENERAL

The Engineer shall have free access to the works for taking samples and carrying out tests. The Contractor shall render any assistance necessary. If so required, the Contractor shall provide storage and protection of such samples on site.

PB 8 MEASUREMENT AND PAYMENT

PB 8.1 GENERAL

PB 8.1.1 All items in this section will be measured by number, square metre or linear metre completed and the tendered rates shall include full compensation for the supply, delivery, handling and installation of all materials, the provision of all necessary labour and supervision, transport, plant, equipment and incidentals necessary to complete, protect and maintain the works as specified or as shown on the drawings.

PB 8.1.2 Where a lump sum is required for a complete structure, the tendered rate shall include all items and contingencies, as specified in this section or as shown on the drawings.

PB 8.2 Scheduled items

PB 8.2 **Scheduled items**

PB 8.2.1 **Brickwork..... Unit: m^2**

Brickwork will be measured on the centre line of the walls. Areas occupied in walls by windows and doors will be excluded from the areas measured, and corners and intersections common to more than one brick wall will be measured once only.

The rate shall cover the cost of brickwork complete as specified, including test sections where specified, pointing, providing brick lintels, brick reinforcement and ties, etc., the building in of conduits, beams, pipe sleeves, doors and windows, the raking out of joints and the filling of cavities in cavity walls and walls constructed of hollow concrete masonry units, below floor level and elsewhere where specified.

The test section for faced brickwork as specified in clause 5.1.14 shall only be paid for if approved by the Engineer and, if rejected, shall be removed at the Contractor's expense.

PB 8.2.2 **Air Bricks**

(a) External air bricks ..... Unit: No

(b) Internal air bricks ..... Unit: No

The rate shall cover the cost of providing and building in the air bricks as specified.

PB 8.2.3 **Bagged Finish to Brickwork ..... Unit: m^2**

The rate shall cover the cost of providing rough sacking, additional cement grout as required and finishing the bagging as specified.

PB 8.2.4 **Window Sills**

(a) External (describe) ..... Unit: m

(b) Internal (describe) ..... Unit: m

The rate shall cover the cost of providing and building in face bricks, fibre cement sheets or any other material prescribed, as well as all accessories specified.

PB 8.2.5 **Tiling ..... Unit: m^2**

The rate shall cover the cost of providing all material and the laying and grouting of tiles, complete as specified.

PB 8.2.6 **Plaster Work ..... Unit: m^2**

The rate shall cover the cost of the construction of the plaster work, including the supply of all materials, mixing, applying, finishing, forming reveals, joints, etc., complete as specified.

PB 8.2.7 **Floor Screeds**

(a) Normal screeds ..... Unit: m^2

(b) Granolithic screeds ..... Unit: m^2

The rate shall cover the cost of the construction of the floor screeds, including the supply of all materials, mixing, laying, finishing, the forming of nosing's, reedings, skirtings, etc. and, where the concrete sub-floor has matured, of the brushing and applying a cement grout, complete as specified.

PB 8.2.8 **Paving ..... Unit: m^2**

The rate shall cover the cost of providing paving slabs or bricks, sand bedding and joint filling and expansion joint material and of constructing the paving.

PB 8.2.9 **Waterproofing**

(a) Damp-proof course in walls ..... Unit: m

(b) Damp-proof membrane under floors ..... Unit: m^2

The unit shall be the net length or area of waterproofing installed. The length or area of overlaps shall not be measured for payment.

The rate shall cover the cost of providing and laying all material as specified, including the sealing of all laps and joints, complete as specified.

PB 8.2.10 **Expansion Joints ..... … Unit: m**

The rate shall cover the cost of providing and installing all filling and sealing material and of the forming of expansion joints, complete as specified.

PB 8.2.11 **Structural Timber**

(a) Wall plates (indicate size) ..... Unit: m

(b) Beams (indicate size) ..... Unit: m

(c) Joists (indicate size) ..... Unit: m

(d) Rafters (indicate size) ..... Unit: m

(e) Purlins (indicate size) ..... Unit: m

(f) Brandering (indicate size) ..... Unit: m

(g) Roof trusses complete (indicate drawing number) ..... Unit: No

(h) Roof complete (indicate drawing number)..... Unit: Sum

The rate shall cover the cost of the supply of all materials, manufacture, cutting, waste, laps, joints and fixing of the timber as indicated, including nails, bolts, nuts, washers, hoop irons, ties and other fixtures required, complete as specified.

PB 8.2.12 **Roof Covering ..... Unit: m^2**

The rate shall cover the cost of providing and fixing all roof covering material as prescribed, including all flashings, soakers, valleys, ridge coverings, roofing screws and all other fixtures required to complete the work, as specified.

PB 8.2.13 **Fascia And Barge Boards ..... Unit: m**

The rate shall cover the cost of providing and fixing of all material, fixtures, screws, bolts, nuts, washers and other accessories required to complete the work, as specified.

PB 8.2.14 **Gutters and Rainwater Down pipes**

(a) Gutters ..... Unit: m

(b) Rainwater downpipes ..... Unit: No

The rate shall cover the cost of supply and building in of all material including angles, stopped ends, outlet nozzles, gutters, gutter brackets, etc. for gutters and swan necks, branch pieces, plinth bends, radius bends, shoes, brackets, etc. for rainwater downpipes, including all bolts and sealants, complete as specified.

PB 8.2.15 **Ceilings**

(a) Ceilings ..... Unit: m^2

(b) Cornices to ceilings ..... Unit: m

The rate shall cover the cost of supply and installation of all material including cover strips to joints, nails, trapdoors and gypsum plaster where prescribed, complete as specified.

PB 8.2.16 **Ceiling Insulation ..... Unit: m^2**

The rate shall cover the cost of supply and installation of all material, as specified.

PB 8.2.17 **Joinery**

(a) Doors (type and size indicated) ..... Unit: No

(b) Skirtings (size indicated) ..... Unit: m

(c) Other items (describe or indicate drawing number) ..... Unit: No or m

The rate shall cover the cost of the supply of all material, manufacture, cutting, waste, fixing and installation of the joinery items, complete as specified.

The rate for doors shall also cover the cost of the door frames and all accessories, such as hinges, hooks, bolts, locks, latches, etc., and of damp-proof course on both sides and above door frames in cavity walls, as specified.

PB 8.2.18 **Metalwork ..... Unit: No**

The rate shall cover the cost of supplying all material, manufacture, applying priming coat of paint or galvanising, as specified, delivery and building in of units, including burglar proofing where specified, locks, catches, glazing, etc., and of damp-proof course under all windows and on both sides and above frames in cavity walls, as specified.

PB 8.2.19 **Resilient Floor Finishing**

(a) Vinyl-fibre, PVC, or thermoplastic floor tiles (specify) ..... Unit: m^2

(b) Vinyl cove skirting ..... Unit: m

The rate shall cover the cost of supplying all material and adhesives required and the laying of the floor finishing's.

PB 8.2.20 **Painting..... Unit: No or m or m^2 or Sum**

Only the surface covered by the final finishing coat shall be measured.
The rate shall cover the cost of surface preparation, supplying and applying all the coats of paint, repairing any damaged surfaces, and all materials necessary for completing the work.

PB 8.2.21 **Electrical Installation ..... Unit: Sum**

The rate shall cover the cost of supplying and building in of all equipment such as switchboards, conduits, wires, cables, sockets, light fittings, etc., cutting recesses, chases and holes in walls as required and repairing any damaged surfaces after installation, including testing of the installation.

PB 8.2.22 **Miscellaneous ..... Unit: No, Sum or m**

The rate shall cover the cost of all workshop detail drawings, where prescribed, material, plant, tools and labour to complete the scheduled items complete, as detailed, including corrosion protection and/or painting, as specified, and building in.

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DRAWINGS

NO DRAWINGS PROVIDED

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C4 – SITE INFOMATION

END OF THE BID DOCUMENT