SIYANCUMA LOCAL MUNICIPALITY

PROJECT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

October 2025

PREPARED FOR:

The Municipal Manager
Siyancuma Local Municipality
P.O Box 27
DOUGLAS
8730

Tel. No. (053) 298 1810

PREPARED BY:

Samex Consulting (Pty) Ltd
Cnr Jacobus Smith and Waterworks,
6 Urban Corner, New Park
KIMBERLEY
8301

Tel. No. (053) 285 0222

NAME OF BIDDER: _____

TENDER AMOUNT: _____

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

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SIYANCUMA LOCAL MUNICIPALITY

PROJECT: SIYA –T03/2025/26

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T1.1: TENDER NOTICE AND INVITATION TO TENDER

SIYANCUMA LOCAL MUNICIPALITY

T1.1 BID NOTICE

Tenders are hereby invited from suitably qualified and experienced contractors, registered with the CIDB and holding a contractor grading designation of **6CE or higher**, for the refurbishment of the Griekwastad Wastewater Treatment Works.

Enterprises that meet the criteria stated in the Tender Data **may submit tender offers**. Bids will be evaluated based on Financial Offer and Preference (specific goals), with Quality (functionality) serving as a pre-qualification criterion.

The scope of work includes the equipping, installation, commissioning, and maintenance during the Defects Notification Period of the following sewage management infrastructure:

- Construction and refurbishment of inlet works, including screening and flow measurement.
- Rehabilitation of oxidation ponds and installation of new lining membranes.
- Upgrading of internal access roads and associated stormwater drainage.
- Construction and refurbishment of operational buildings, including the control room, guardhouse, staff facilities and storage units.
- Installation of perimeter fencing and site lighting.
- Provision of a potable water supply for operational use.
- Implementation of environmental compliance measures, including sludge and effluent management.
- Staff training, preparation of as-built documentation, and development of operation and maintenance (O&M) manuals.
- One-year maintenance and performance guarantee for all refurbished infrastructure.

Note: Successful tenderers will be required to subcontract 30% of the work to local contractors, with at least 1% of the budget allocated to local labour.

Tender documentation is collectable in hard copy, from **Wednesday, 29 October 2025,** at the Supply Chain Management Unit, Siyancuma Municipality, Charl Cilliers Street, Douglas, 8730. A receipt for a non-refundable deposit of R1 500-00 payable by EFT or cash in favour of Siyancuma Municipality is required on collection of tender documents. Tender Documents in soft copies can also be obtained from the following address: https://siyancuma.gov.za/ and the E-tenders portal at a non-refundable deposit of R1 500-00 (EFT or cash). Bank recognizable Proof of Payments (in case of EFT payment) or Siyancuma Municipality receipt (for cash payment) attached to the tender on submission will be required as proof of payment of tender deposit. Tenders will not be evaluated if proof of payment of non-refundable deposit is found in tender submissions. Enquiries relating to tender documents collection or any other supply chain matters may be directed to the SCM Manager: Ms. Chantelle Stenekamp/Ms Lilian Selego, Tel No: 053 298 1810 or e-mail - chantal.stenekamp@siyancuma.co.za / lilian@siyancuma.co.za.

A **compulsory Clarification Meeting** with representatives from the Siyancuma Municipality will be held on Wednesday**, 05 November 2025** at the municipal offices of **Siyancuma Municipality in GRIEKWASTAD,** commencing promptly **at 10h00.** Technical enquiries may be directed to, the Technical Director: Mr. Xolile Geco on Tel. No. (053) 298 1810 and e-mails – geco@siyancuma.co.za. / griekwastad@samexconsulting.co.za

The closing date and time for receipt of tenders is **Friday, 21st of November 2025 at 12h00.** Sealed Tenders endorsed on the envelope with the Tenderer's name and the Contract Name and Number **SIYA-T 03/2025/26 – REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS** shall be deposited in the formal **Tender Box situated at the Siyancuma Local Municipality, Charl Cilliers Street, Civic Centre, DOUGLAS,** before closing date and time listed above.

Telephonic, telegraphic, telex, facsimile, e-mailed or late tender offers will not be accepted. Tenders may only be submitted on the tender documentation that has been issued. Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data. The Municipality reserves the right not to accept the only, lowest nor any Tender at all, or to accept the whole or part of any Tender. The Municipality also reserves the right to extend the tender period and/or amend conditions or any part of the tender during the tender period, at its own discretion, by notifying all prospective tenderers of the amendment/s up until 5 (five) days before tender closure.

Tenders will be subjected to a **pre-qualification criterion** whereby tenderers must achieve a minimum score of **60 out of 100 points** for functionality/quality to be eligible for further evaluation.

Pre-Qualification Criteria for Functionality		**Weighting**
a)	Experience of Tenderer	45
b)	Key Personnel	40
c)	Plant	15
Total Points (M_S)		**100**

Eligible tenders will be further evaluated in terms of the **80/20** preference points system, as prescribed in the Preferential Procurement Regulations 2022, pertaining to the Preferential Procurement Policy Framework Act (5 of 2000) and in accordance with the Siyancuma Municipality's Supply Chain Management Policy.

- **Financial Offer** **= 80 points**
- **Specific Goals** **= 20 points**

  - Black – Equity ownership 3 points
  - Women – Equity ownership 5 points

- Disability – Equity ownership 2 points
- Local nature of enterprise 10 points

Invalid or non-submission of the following documents will render the tender disqualified:

- Proof of registration with CIDB.
- Audited Financial Statements
- The Siyancuma Municipality's SCM Targeted Contractor Development Programme Policy.
- Valid Tax Compliance Status (TCS) PIN for Tender, from SARS to be submitted with the tender.
- Proof of registration on Central Supplier Database for Government and must submit the applicable CSD Registration Report not older than 3 months.
- Certificate of good standing for workmen's compensation to be submitted with the tender.
- Municipal account not older than three (3) months and not in arrears for more than ninety (90) days from a municipality where the entity operates, must be submitted. (Valid Lease agreements and sworn statements/affidavits are also accepted).
- Tenderer to submit with his/her tender the company profile, proof of company registration and certified ID copies of owners/directors of the company.
- Only originally certified copies of all documentation shall be accepted, and certification should not be older than three (3) months from the closing date of this tender.
- Failure to complete all tender forms, returnable data sheets and submitting all supplementary information may lead to the tender being deemed non-responsive.
- Tenders are valid for 120 days after the tender closing date.

Issued by: Mr. M Vilakazi
The Municipal Manager
Siyancuma Municipality
P.O. Box 27; **DOUGLAS**; 8730

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

T1.2 TENDER DATA

T1.2.1 Conditions of Tender

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement (January 2009) as published in Government Gazette No 31823, Board Notice 12 of 2009 of 30 January 2009. (See www.cidb.org.za).

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

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

Please note that the word "Client" is used in this document and referred to as "Employer" in the Standard Conditions of Tender document.

T1.2.2 Tender Data

The clause numbers in the Tender Data refer to the corresponding clause numbers in the Conditions of Tender (see Annex. 1).

The additional Conditions of Tender are:

Clause Number	Tender Data
F.1	**General**
F.1.1	The Client is: Siyancuma Local Municipality P.O Box 27 Douglas 8730

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

F.1.2	The Tender documents issued by the Client comprise: **Tender** T1.1 Tender Notice and invitation to tender T1.2 Tender Data T2.1 List of Returnable Documents T2.2 Returnable Documents for tender evaluation purposes T2.3 Returnable Documents to be incorporated into the contract
	Contract **Part 1: Agreements and Contract data** C1.1 Forms of Offer and Acceptance C1.2 Contract Data C1.3 Occupational health and safety specification C1.4 Siyancuma Local Municipality's Health and Safety Specification **Part 2: Pricing Data** C2.1 Pricing Instructions C2.2 Bill of Quantities **Part 3: Scope of Work** C3 Scope of Work **Part 4: Site Information** C4 Site information **Part 5: Additional Relevant Documents** **Part 6: Contract Drawings**
F.1.4	The Employer's Agent is: Contact person **: Mr Boundry Mokhonoana** Company name **: Samex Consulting (Pty) Ltd** Address **: Cnr Jacobus Smith and Waterworks,** **6 Urban Corner, New Park** **Kimberley** **8301** Telephone **: 053 285 0222** Fascimile **: 053 285 0222** E-mail address **:** griekwastad@samexconsulting.co.za
F1.5.2	Replace the existing clause with the following: The Employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers, **save for all tenders being non-responsive**, re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.2.1	**Eligibility criteria and requirements** **CIDB registration and grading:** i) Only tenderers who are registered with the CIDB or have a sub-contractor registered with the CIDB or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 6CE class of construction work, are eligible to submit tenders. 1) Only the following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to submit tenders: contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 6CE class of construction work; and 2) Joint ventures are eligible to submit tenders provided that: i) every member of the joint venture is registered with the CIDB. ii) the lead partner has a contractor grading designation in the 6CE class of construction work; and iii) the combined contractor grading designation calculated in accordance with the CIDB Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 6CE class of construction work. 3) A contract will only be entered into with a Tenderer who has in his employ management and supervisory staff satisfying the requirements of the scope of work for labour-intensive competencies for supervisory and management staff. 4) Information to be submitted with the tender The Tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.
F.2.7	The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender. Tenderers must sign the attendance list in the name of the tendering entity. Addenda will be issued to, and tenders will be received only from those tendering entities appearing on the attendance list.
F.2.8	Replace the contents of the clause with the following: “Request clarification of the tender documents, if necessary, by notifying the Employer’s Official or the Employer’s Agent indicated in the Tender Notice and Invitation to Tender in writing at least seven working days before the closing time stated in the foregoing notice and clause F.2.15.”
F.2.9	Add the following to the clause: “Accept that the submission of a Tender shall be construed as an acknowledgement by the Tenderer that he is satisfied with the insurance cover, the Employer will affect under the contract.”
F.2.10.5	Add the following to the clause: “If no offer is made for an item, a line must be drawn through the space in pen. All prices and details must be legible / readable to ensure the tender will be considered for adjudication.”

F.2.11.	Add the following to the clause: "In the event of a mistake having been made on the price schedule, it shall be crossed out in ink and be accompanied by an initial at each and every price alteration." If correction fluid has been used on any specific item price, such item will not be considered. Corrections in terms of price may not be made by means of correction fluid such as Tippex or similar product. No correction fluid may be used in a Price Schedule where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will not be considered. Siyancuma Local Municipality will reject the bid if corrections are not made in accordance with the above."
F.2.12	If a tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer's Agent (Refers to the original CIDB Clause F2.12 for the additional condition for acceptance of an Alternative tender). Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal. Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, 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 tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.
F.2.13.1	Submit one tender offer only, either as a single tendering entity or as a member in a single joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works.
F.2.13.3	Each tender offer shall be submitted as an original, plus 0 copy.
F.2.13.5	The Employer's address for delivery of tender offers and identification details to be shown on the Tenderer's offer package are: **Location of tender box:** Civic Centre **Physical address:** Siyancuma Local Municipality Charl Cilliers Street Douglas 8730 **Identification details:** Tender reference number, Title of Tender and the closing date and time of the tender, *as well as the Tenderer's name, his Authorised Representative's name, postal address and telephonic contact numbers*.

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

F.2.13.6 & F.3.5	A two-envelope procedure will not be followed.
F.2.15.1	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.
F.2.16	The tender offer validity period is 120 days.
F.2.23	The Tenderer is required to submit with his tender a letter of intent from an approved insurer undertaking to provide the Performance Guarantee to the format included in Part T2.2.22 of this procurement document.
F.2.23	The Tenderer is required to submit with his tender: 1) Valid SARS Compliance status Pin for Tenders issued by the South African Revenue Services. 2) Proof of CSD registration i.e. MA xxxxxxxx number 3) a Certificate of Contractor Registration issued by the CIDB. 4) where the tendered amount inclusive of VAT exceeds R 10 million: i) audited annual financial statement for 3 years, or for the period since establishment if established during the last 3 years, if required by law to prepare annual financial statements for auditing. ii) a certificate certifying that the tenderer has no undisputed commitments for iii) municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days. iv) particulars of any contracts awarded to the tenderer by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract. v) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic. Where a tenderer satisfies CIDB contractor grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.
F.2.24	Add the following new clause: Canvassing and obtaining of additional information by tenderers Accept that no Tenderer shall make any attempt either directly or indirectly to canvass any of the Employers officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon. No Tenderer shall make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders."
F.2.25	Add the following new clause: Prohibitions on awards to persons in service of the state Accept that the Employer is prohibited to award a tender to a person - a) who is in the service of the state; or b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or c) a person who is an advisor or consultant contracted with the municipality or municipal entity. "In the service of the state" means to be - i) a member of: -

	• any municipal council; • any provincial legislature; or • the National Assembly or the National Council of Provinces; ii) a member of the board of directors of any municipal entity; iii) an official of any municipality or municipal entity; iv) an employee of any national or provincial department; v) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999); vi) a member of the accounting authority of any national or provincial public entity; or vii) an employee of Parliament or a provincial legislature." In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in Section T2.2 must be completed.
F.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 R2000 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause F.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. In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 – Returnable Documents must be completed in full and signed."
F.2.27	Add the following new clause: Tax Clearance Certificate In the case of a Joint Venture/Consortium the tax Compliance status Pin must be submitted for each member of the Joint Venture/Consortium."
F.3.1.1	Replace the contents of the clause with the following: "Respond to a request for clarification received up to seven calendar days before the tender closing time stated in the tender data and notify all Tenderers who drew procurement documents"
F.3.4.2	Tenders will be opened in public soon after closing time and recording of received documents but not later than 11:00 at the reception located at Civic Centre, Charl Cilliers Street, Douglas 8730.Tenderers names and total prices, where practical will be, read out.
F.3.11.1 & F.3.11.5	The procedure for the evaluation of responsive tenders is that Tenderer will only be scored on Quality: Although quality does not form part of tender points scoring, quality will be evaluated first (as outlined below) and if the tenderer does not meet the minimum quality criteria he/she will be eliminated, and the tender will not be shortlisted.
F.3.11.3	The quality criteria respect of each of criteria shall be as follows: **Also it is a requirement for this project that the tenderers subcontract a minimum of 30% of the total Contract to local subcontractors in line with regulation Clause 10.7 of SCMP & Reg. 12 of PPPFA Regulations 2017.**

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Criteria No.	Criteria	Description	Documentary Evidence	% WEIGHTING	Points allocation	MAXIMUM NUMBER OF POINTS
1	Availability of key Construction Equipment	•TLB/ Excavator •Plate Compactor •Bakkies •Generator •Jack hammer and Saw cutter •Water tankers •Compressors •Pressure test machine •Dewatering equipment •Pipe cutting machine •Concrete mixer •Picks and shovels	Construction equipment owned / hired Owned construction equipment- proof of ownership Hired construction equipment – agreement with principal	10		10
2	Contract Programme for a Typical 8 months water project	•Contractual Requirements. •Commencement Dates •Notification of residents of the project. •Wayleave application •Material procurement •Site Clearance. •Excavations. •Bedding of trenches. •Laying of pipes, installation of valves, water meters and testing. •Shutdown arrangements and tie-ins to the existing network. •Reinstatement of disturbed surfaces.	Programme showing activities, critical path and duration	5		5
3	Experience of the key staff (assigned personnel) in relation to the scope of work	General qualifications – Contract manager/Site Agent mini qualification ND Built Environment, Safety Officer min qualification SAMTRAC/NEBOSH certificate.	Copies of Qualifications	20		20
4		Experience of Key Staff (Personnel with experience on similar projects)	CVs of Contracts Manager, Site Agent/Construction Manager and Safety Officer	20		20
5	Experience with respect to specific aspects of the project / comparable projects	Experience on water pipe laying.	Number of projects successfully completed in the last five years	45		45
6	Contactable References	Tenderer to provide at least 3 signed reference letters from their clients	Template in tender document or same information provided on clients' letterhead			
	Possible score for quality (Ms)			100	**SEE DESCRIPTION BELOW**	100

Quality shall be scored independently by an evaluation team as detailed below. Scores of 0, 30, 60 or 100 shall be allocated to each of the criteria and sub-criteria based on the indicators contained in these schedules. *NOTA BENE: A score of zero shall be allocated where no information is provided for evaluation.*

Each evaluation criteria will be assessed in terms of four indicators – no response, poor, satisfactory, good. Scores of 0, 30, 60 or 100 will be allocated to no response, poor, satisfactory and good, respectively. The scores of each of the evaluators will be average weighted and then totaled to obtain the final score for quality.

A total score higher than or equal to the minimum overall score of 60 must be achieved by the Tenderer to be evaluated further.

Submissions that do not meet the minimum overall score of 60 shall not be considered for further evaluations.

The scoring of the Tenderer's Availability of Key Construction Equipment will be as follows:

Tenderer to indicate the construction equipment owned (proof of ownership as applicable) and that to be hired

No Submission (Score 0)	Failed to address the issue or tenderer did not submit any documentation for evaluation
Poor (score 3.00)	Tenderer does not own any of the required key (major) construction equipment and cannot assure use of hired construction equipment during the contract period.
Satisfactory (score 6.00)	Tenderer does not own all required key (major) construction equipment but can guarantee use of hired key (major) construction equipment during the contract period.
Good (score 10.00)	Tenderer owns all required key (major) construction equipment or can guarantee use of all (primary) required key (major) Construction equipment for duration of the contract period.

The scoring of the Contract Programme shall be as follows:

Tenderer to provide a programme on how the contract will be executed

	Programme
No Submission (Score 0)	The Tenderer did not submit any documentation for evaluation.
Poor (score 1.50)	Activities not listed in sequence and/or The program omits 50% of the activities on the predetermined list. The programme goes beyond by more than one month of the expected Contract timeframe.
Satisfactory (score 3.00)	The programme omits 20% of the activities on the predetermined list. The programme is within the expected Contract timeframe.
Good (score 5.00)	All activities are listed in the predetermined list. The programme is within the expected Contract timeframe.

The scoring of the Experience of Key Personnel will be as follows:

CVs of all key personnel to be furnished

	General qualifications (Weighting will be the same for all personnel)	**Adequacy for the assignment (Weighting will be the same for all personnel)**
No Submission (Score 0)	Failed to address the question/ No submission	Failed to address the question/ No submission
Poor (score 12.00)	Key staff has limited levels of general experience.	Key staff have limited levels of project specific training and experience.
Satisfactory (score 24.00)	Key staffs have reasonable levels of general experience.	Key staffs have reasonable levels of project specific training and experience.
Good (score 40.00)	Key staffs have outstanding levels of general experience.	Key staffs have outstanding levels of project specific training and experience.

Staff Member	**MINIMUM QUALIFICATION REQUIRED**	**MINIMUM EXPERIENCE REQUIRED**
Contract Manager	ND: Built Environment	2-3 Years (Civil Engineering Projects)
Site Agent / Construction Manager	ND: Built Environment	2-3 years of Water or Waste Water related Projects
Safety Officer	SAMTRAC / NEBOSH Certificate	2-3 Years construction safety

NB: Tenderer must have completed at least 2 related projects in the past 5 years with at least 1 at the required CIDB grade. Tenderer must provide written confirmation from their clients in the form of a completion certificates or letters detailing the wok performed, when, performance, quality etc. The information provided must be verifiable and also used for reference purposes.

The scoring of the Tenderer's experience will be as follows:

No Submission (Score 0)	Failed to address the question/ No submission
Poor (score 13.50)	Tenderer has limited experience on related projects.
Satisfactory (score 27.00)	Tenderer has relevant experience to execute the requirements of the project.
Good (score 45.00)	Tenderer has outstanding experience in similar projects.

	Contactable reference Contactable references
F.3.13.1	Add to the existing clause: Tender offers will only be accepted if: a) the tenderer submits a valid SARS tax Compliance status Pin for tenders issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations; b) Proof of CSD registration ie MA xxxxx number c) the tenderer submits a letter of intent from an approved insurer undertaking to provide the Performance Guarantee to the format included in Part T2.2.22 of this procurement document d) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation; e) the tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; f) the tenderer has not: i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect; g) the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer; h) the Employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2003, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. ; and the tenderer: i) has sufficiently substantiated his experience in this type work. ii) has the required and experienced key personnel; and iii) Owns the primary equipment to effectively and efficiently execute the work.
F.3.18	The number of paper copies of the signed contract to be provided by the Employer is one.
F.14	The commitment of the Employer to Government Policy concerning the empowerment of the SMMEs shall be noted and adhered to by the main contractor. It is against this background that, Siyancuma Local Municipality has made provisions under this contract to ensure that the main contractor impart skills to the local SMMEs (to be employed as sub-contractors on this job) within the project area during the project implementation through the Main Contractor's 'Contractor Development programme'. It is the intention of Siyancuma Local Municipality that the minimum targeted participation goal for the local SMMEs is up to 30% of the project value. The onus is upon the main contractor to handle and manage the procurement process of the sub-contractors and these once appointed, should be dealt with in accordance with the provisions of Clause 4.4 of the General Conditions of Contract for Construction Works 2015. Refer to PS3 (Procurement) for further details.
	There are no additional conditions of tender.

ANNEXURE: STANDARD CONDITIONS OF TENDER

As published in Annexure F of the CIDB Standard for Uniformity for construction Procurement, Board Notice 136 Government Gazette No 38960 of 10 July 2015

F.1 General

F.1.1 Actions

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

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

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

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

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

F.1.2 Tender Documents
The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

F.1.3 Interpretation

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

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

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

a) **conflict of interest** means any situation in which:
   i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;
   ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
   iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;
d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;
e**)** **organization** means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body;
f) **functionality** means the measurement according to the predetermined norms of a service or commodity designed to be practical and useful, working or operating, taking into account quality, reliability, viability and durability of a service and technical capacity and ability of a tenderer.

F.1.4 Communication and employer's agent

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

F.1.5 Cancellation and Re-Invitation of Tenders

F1.5.1 An organ of state may, prior to the award of the tender, cancel a tender if-

(a) due to changed circumstances, there is no longer a need for the services, works or goods requested; or

(b) funds are no longer available to cover the total envisaged expenditure; or

(c) no acceptable tenders are received.

F1.5.2 The decision to cancel a tender must be published in the cidb website and in the government Tender Bulletin for the media in which the original tender invitation was advertised.

F.1.6 Procurement procedures

F.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to F.3.13, be concluded with the tenderer who in terms of F.3.11 is the highest ranked or the tenderer scoring the highest

number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

F.1.6.2 Competitive negotiation procedure

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

F.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

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

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

F.1.6.3 Proposal procedure using the two stage-system

F.1.6.3.1 Option 1
Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

F.1.6.3.2 Option 2

F.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.
F.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

F.2 Tenderer's obligations

F.2.1 Eligibility

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

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

F.2.2 Cost of tendering

F2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

F2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

F.2.3 Check documents

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

F.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.

F.2.5 Reference documents

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

F.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.

F.2.7 Clarification meeting

Attend, where required, a 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.

F.2.8 Seek clarification

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

F.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.

F.2.10 Pricing the tender offer

F.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.

F2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

F.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.

F.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.

F.2.11 Alterations to documents

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

F.2.12 Alternative tender offers

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

F.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.

F.2.12.3 An alternative tender offer may only be considered in the event that the main tender offer is the winning tender.

F.2.13 Submitting a tender offer

F.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.
F.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

F.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.

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

F.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.

F.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.

F.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.

F.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.

F.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

F.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

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

F.2.16 Tender offer validity

F.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.

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

F.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer’s agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

F.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of F.2.13 with the packages clearly marked as “SUBSTITUTE”.

F.2.17 Clarification of tender offer after submission
Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: *Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

F.2.18 Provide other material

F.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), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

F.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

F.2.19 Inspections, tests and analysis
Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

F.2.20 Submit securities, bonds and policies
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.

F.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.

F.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.

F.2.23 Certificates

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

F.3 The employer's undertakings

F.3.1 Respond to requests from the tenderer

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

F.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:
a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or

c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

F.3.2 Issue Addenda
If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who drew documents.

F.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.

F.3.4 Opening of tender submissions

F.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.

F.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

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

F.3.5 Two-envelope system

F.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.

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

F.3.6 Non-disclosure

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

F.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.

F.3.8 Test for responsiveness

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

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

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

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

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

F.3.9 Arithmetical errors, omissions and discrepancies

F.3.9.1 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

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

F3.9.2 The employer must correct the arithmetical errors in the following manner:

a) Where there is a discrepancy between the amounts in words and amounts in figures, the amount in words shall govern.
b) 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.
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 item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of the arithmetical error in the manner described above.

F.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.

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

F.3.11.2 Method 1: Price and Specific Goals

In the case of a price and preference:

1) Score tender evaluation points for price
2) Score points for specific goals as defined in the Tender Data
3) Add the points scored for price and specific goals.

F.3.11.3 Method 2: Functionality, Price and Specific Goals

In the case of an evaluation based on functionality, price and specific goals:

1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the Tender Data.
2) No tender must be regarded as acceptable if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.
3) Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference point system prescribed in paragraph 4 below

80/20 Preference Point System

(Applicable for the acquisition of goods, services, or works with a Rand value equal to or above R30,000 and up to R50 million, all applicable taxes included)

4) (a)(i) The following formula must be used to calculate the points for price in respect of tenders(including price quotation) with a rand value equal to, or above R 30 000 and up to Rand value of R 50 000 000 (all applicable taxes included):

$$Ps = 80\left(1 - \frac{Pt - Pmin}{Pmin}\right)$$

Where
Ps = Points scored for comparative price of tender or offer under consideration;
Pt = Comparative price of tender or offer under consideration; and
Pmin = Comparative price of lowest acceptable tender or offer.

(4)(a)(ii) An organ of state may apply the formula in paragraph (i) for price quotations with a value less than R30 000, if and when appropriate:

(4)(b) Subject to subparagraph (4) (c) points must be awarded for achieving specific goals as defined in the Tender Data. These may include, but are not limited to:

Specific Goal	**Points**
Black Equity Ownership	3
Women Equity Ownership	5
Disability Equity Ownership	2
Local Nature of Enterprise	10
Non-compliant Contributor	0

(4)(c) A maximum of 20 points may be allocated in accordance with subparagraph (4)(b)

(4)(d) The points scored for specific goals must be added to the price score calculated in subparagraph (4)(a).

(4)(e) The contract must be awarded to the tenderer who scores the highest total number of points, subject to any other conditions stated in the Tender Data.

The 80/20 preference point system will be applied for this tender, as the estimated contract value is below R50 million. However, should the final contract value exceed this threshold, the 90/10 system may be applied in accordance with the Preferential Procurement Regulations.

90/ 10 Preference Point System

(Applicable for the acquisition of goods, services, or works with a Rand value above R50 million, all applicable taxes included)

(5)(a) The following formula must be used to calculate the points for price in respect of tenders with a Rand value above R50 000 000 (all applicable taxes included):

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

Where
Ps = Points scored for comparative price of tender or offer under consideration;
Pt = Comparative price of tender or offer under consideration; and
Pmin = Comparative price of lowest acceptable tender or offer.

(5)(b) Subject to subparagraph(5)(c), points must be awarded for achieving specific goals as defined in the Tender Data. These may include, but are not limited to, B-BBEE status level, ownership by historically disadvantaged individuals, promotion of local enterprises, or other transformation objectives.

Specific Goal	**Points**
Black Equity Ownership	2
Women Equity Ownership	3
Disability Equity Ownership	1
Local Nature of Enterprise	4
Non-compliant Contributor	0

(5)(c) A maximum of 10 points may be allocated in accordance with subparagraph (5)(b).

(5)(d) The points scored by tender in respect of specific goals contemplated in contemplated in subparagraph (5) (b) must be added to the points scored for price as calculated in accordance with subparagraph (5)(a).

(5)(e) Subject to paragraph 4.3.8 the contract must be awarded to the tender who scores the highest total number of points.

F.3.11.6 Decimal places
Score price, preference and functionality, as relevant, to two decimal places.

F.3.11.7 Scoring Price

Score price of remaining responsive tender offers using the following formula:
NFO = W1 x A

where: NFO is the number of tender evaluation points awarded for price.
W1 is the maximum possible number of tender evaluation points awarded for price as stated in the Tender Data.
A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

Table F.1: Formulae for calculating the value of A

Formula	Comparison aimed at achieving	Option 1[a]	Option 2[a]
1	Highest price or discount	$A = (1+ (\frac{P - P_m}{P_m}))$	$A = P / P_m$
2	Lowest price or percentage commission / fee	$A = (1 - (\frac{P - P_m}{P_m})$	$A = P_m / P$
a P_m is the comparative offer of the most favourable tender offer. P is the comparative offer of tender offer under consideration.			

F.3.11.8 Scoring preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences.

Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the tender data.

F.3.11.9 Scoring functionality
Score each of the criteria and subcriteria for quality in accordance with the provisions of the Tender Data.

Calculate the total number of tender evaluation points for quality using the following formula:

NQ = W2 x *SO / MS*
where: SO is the score for quality allocated to the submission under consideration;
MS is the maximum possible score for quality in respect of a submission; and
W2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data

F.3.12 Insurance provided by the employer

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

F.3.13 Acceptance of tender offer

Accept the tender offer, if in the opinion of the employer, it does not present any risk and only if the tenderer:
a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,

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

F.3.14 Prepare contract documents

F.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:
a) addenda issued during the tender period,
b) inclusion of some of the returnable documents, and
c) other revisions agreed between the employer and the successful tenderer.

F.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

F.3.15 Complete adjudicator's contract

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

F.3.16 Notice to unsuccessful tenderers

F.3.16.1 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.

F.3.16.2 After the successful tenderer has been notified of the employer’s acceptance of the tender, notify other tenderers that their tender offers have not been accepted.

F.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

F.3.18 Provide written reasons for actions taken

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

F3.19 Transparency in the procurement process

F3.19.1 The CIDB prescripts require that tenders must be advertised and be registered on the CIDB
i. Tender system.

F3.19.2 The employer must adopt a transparency model that incorporates the disclosure and accountability as transparency requirements in the procurement process.

F3.19.3 The transparency model must identify the criteria for selection of projects, project information template and the threshold value of the projects to be disclosed in the public domain at various intervals of delivery of infrastructure projects.

F3.19.4 The client must publish the information on a quarterly basis which contains the following information:

- Procurement planning process
- Procurement method and evaluation process
- Contract type
- Contract status
- Number of firms tendering
- Cost estimate
- Contract title
- Contract firm(s)
- Contract price
- Contract scope of work
- Contract start date and duration
- Contract evaluation reports

F3.19.5 The employer must establish a Consultative Forum which will conduct a random audit in the implementation of the transparency requirements in the procurement process.

F3.19.6 Consultative Forum must be an independent structure from the bid committees.

F3.19.7 The information must be published on the employer's website.

F 3.19.8 Records of such disclosed information must be retained for audit purposes.

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

T2.1 LIST OF RETURNABLE DOCUMENTS

The tenderer must complete the following returnable documents:

1. Returnable Schedules required only for tender evaluation purposes

T2.1.1 Record of addenda to tender documents
T2.1.2 Certificate of Authority
T2.1.3 Compulsory Enterprise Questionnaire
T2.1.4 Preferential Procurement
- FORM 2.1.1 Special Conditions (Sub-contracting)
- FORM 2.1.2 Preference Claim Form
- FORM 2.1.3 Non-collusion Form
- FORM 2.1.4 Declaration of any potential conflict or interest
- FORM 2.1.5 Declaration of bidder's past supply chain management practices
- FORM 2.1.6 Declaration for Procurement above R10 Million (VAT Included)
- FORM 2.1.7 Certificate of independent bid determination

T2.1.5 Proposed amendments and qualifications
T2.1.6 Schedule of proposed subcontractors
T2.1.7 Schedule of plant and equipment
T2.1.8 Schedule of the Tenderer's experience
T2.1.9 Certificate of attendance at the clarification meeting
T2.1.10 Schedule of key personnel
T2.1.11 Curriculum vitae of key personnel
T2.1.12 Tenderer's financial standing
T2.1.13 Contractor's health and safety declaration

T2.2 LIST OF RETURNABLE DOCUMENTS

2. Other documents required only for tender evaluation purposes

T2.2.1 Certificate of Contractor Registration issued by the Construction Industry Development Board
T2.2.2 Latest UIF return
T2.2.3 Confirmation of employment equity policy from the Department of Labour
T2.2.4 Form of intent to provide a performance guarantee
T2.2.5 Proof of compliance with COID Act
T2.2.6 Registration certificate / Agreement / Powers of Attorney / I.D. Document

T2.3 LIST OF RETURNABLE SCHEDULES

3. Returnable Schedules that will be incorporated into the contract

T2.3.1 Preliminary programme

T2.3.2 Amendments, qualifications and alternatives

3. Returnable Schedules that will be incorporated into the contract (continued)

T2.3.3 Materials to be used in the contract

T2.3.4 Insurance cover to be effected by the contractor

T2.3.5 Price variation on special materials

T2.4 LIST OF RETURNABLE SCHEDULES

4. Other documents that will be incorporated into the contract

T2.4.1 Site specific occupational health and safety plan

T2.4.2 Quality plan

T2.4.3 Addenda to the tender documents

T2.4.4 Minutes of the pre-tender clarification meeting and site inspection

T2.4.5 Contractor Competency Evaluation

T2.4.6 Hazardous Identification Risk Assessment

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

T2.1 LIST OF RETURNABLE DOCUMENTS

1. Returnable Schedules required only for tender evaluation purposes

T2.1.1 Record of addenda to tender documents
T2.1.2 Certificate of authority
T2.1.3 Compulsory Enterprise Questionnaire
T2.1.4 Preferential Procurement
T2.1.5 Proposed amendments and qualifications
T2.1.6 Schedule of proposed subcontractors
T2.1.7 Schedule of plant and equipment
T2.1.8 Schedule of the Tenderer's experience
T2.1.9 Certificate of attendance at the clarification meeting
T2.1.10 Schedule of key personnel
T2.1.11 Curriculum vitae of key personnel
T2.1.12 Tenderer's financial standing
T2.1.13 Contractor's health and safety declaration

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

T2.1.1 Record of Addenda to Tender Documents

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

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

Attach additional pages if more space is required.

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

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

Tenderer .....

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

T2.1.2 Certificate of Authority

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

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

(I) Certificate For Company

I, ……, chairperson of the Board of Directors of ....., hereby confirm that by resolution of the Board (copy attached) taken on ....., Mr/Ms ....., acting in the capacity of ....., was authorized to sign all documents in connection with the tender for Contract No. SIYANCUMA13781 and any contract resulting from it on behalf of the company.

Chairman: .....

As Witnesses: 1.....

2.....

Date: .....

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

(II) Certificate For Close Corporation

We, the undersigned, being the key members in the business trading as .... hereby authorize Mr/Ms …….. , acting in the capacity of ....., to sign all documents in connection with the tender and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

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

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

(III) Certificate For Partnership

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

.....……., hereby authorize Mr/Ms .....…… ,

acting in the capacity of ……... , to sign all documents in connection

with the tender and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

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

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

(IV) Certificate For Joint Venture

This Returnable Schedule is to be completed by joint ventures.

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

NAME OF FIRM	**ADDRESS**	**DULY AUTHORISED SIGNATORY**
Lead partner		Signature. . . . . Name …….. Designation
		Signature. . . . . Name …….. Designation
		Signature. . . . . Name …….. Designation
		Signature. . . . . Name …….. Designation

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

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

(V) Certificate For Sole Proprietor

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

trading as …….....

Signature of Sole owner: .....

As Witnesses:

1.....

2. .....

Date: .....

T2.1.3 Compulsory Enterprise Questionnaire

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

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

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

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

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

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

Section 5: Particulars of companies and close corporations

Company registration number . . . . . .

Close corporation number . . . . . .

Proof of CSD registration ie MA xxxxxxxxx number……..

SARS Tax Compliance status Pin number . . . . . .

Section 6: Record in the service of the state

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

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

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

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

*insert separate page if necessary

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

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a

partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

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

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

*insert separate page if necessary

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

i) authorizes the Employer to verify the tax compliance status from the South African Revenue Services that my / our tax matters are in order;
ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
iv) 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 ----------

Enterprise name ----------

T2.1.4 Preferential Procurement

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

Form No.	Form Title	Description
FORM 2.1.1	Special Conditions	Sub-contracting and Skills Transfer
FORM 2.1.2	Preference Claim Form	Procedures and adjudication criteria for the information of the Tenderer
FORM 2.1.3	Non – collusion Form	Form to be completed by the Tenderer
FORM 2.1.4	Declaration of any potential Conflict or Interest	Form to be completed by the Tenderer
FORM 2.1.5	Declaration of bidder's past supply chain management practices	Form to be completed by the Tenderer
FORM 2.1.6	Declaration for Procurement above R10 Million (VAT Included)	Form to be completed by the Tenderer
FORM 2.1.7	Certificate of Independent Bid Determination	Form to be completed by the Tenderer

Note:
Failure to complete the forms in full, and failure to have the enterprise declaration affidavit endorsed by a commissioner of oaths will lead to the Tender being considered non-responsive.

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

FORM 2.1.1 SPECIAL CONDITIONS

This tender is subjected to the following subcontracting post award in terms of Siyancuma's SCMP & Reg. 12 of PPPFA Regulations 2017 in addition to any other conditions stipulated and made part of this tender as described hereunder. By signing this document, the tenderer agrees to comply with all conditions hereunder in the event of being successful.

Siyancuma Municipality in line with its Enterprise & Supplier Development programme undertakes to advance a number of designated groups as indicated below, and has accordingly made this tender invitation subject to bidders who are required to subcontract at least 30% of the works as described below.

1. Subcontracting Post award must comply with the following:

- Subcontracted works may exceed 30% of the contract value allocated to an entity provided the subcontractor:
- Has an equal or higher BBBEE status than the main contractor
- Is an EME which has capability and ability to execute work
- Subcontractor to be approved by Siyancuma
- Should not reduce local content as per designated sector (where applicable)

2. The successful tenderer is therefore required to sub-contract to entities as follows:

2.1. An EME which is at least 51% black owned by black people;
2.2. An EME which is at least 51% owned by black people who are youth;
2.3. An EME which is at least 51% owned by black people who are women;
2.4. An EME which is at least 51% owned by black people with disabilities;
2.5. An EME which is at least 51% owned by black people living in rural or underdeveloped areas or townships;
2.6. An EME which is at least 51% owned by black people who are military veterans;

3. In addition subcontractors to be appointed must comply with all requirements listed under section PS3.2 of Project Specifications. Subcontracting can take place as follows:

a) specialist subcontractors; those that undertake specialist services, especially building or engineering services such as electrical, plumbing and heating, ventilating and air-conditioning (HVAC);
b) generalist and specialist trade subcontractors; those that offer general trade services or specialise on specific trades such as painting and brickwork– many of which are general contractors that use subcontracting as a means to get work during periods of tough competition but can and often prefer to work as main contractors; and
c) labour-only subcontractors; i.e. skilled tradesmen that provide labour-only services, while the main contractor provides the materials and supervision.

In labour-only subcontracting the main contractor provides the materials and does most of the supervision and management of the works while trade contractors (a and b above) make their own arrangements regarding materials and are more responsible for their oversight. Overall, the main contractor is still liable for contractual liability and quality of workmanship provided by the subcontractor as per the provision of PS3.2 of Project Specifications.

4. The successful contractor must submit monthly reports to the Project Engineer as follows:

- Name of sub-contractor and BBBEE status
- Area and location of project
- Scope of work issued to the sub-contractor
- Value of the work issued (auditable)
- Assistance provided to the sub-contractor eg acquisition of materials, machinery and tools
- Performance of the sub-contractor
- EPWP & training reports including correct auditable supporting documentation for opportunities created by subcontractors eg labour.
- Skills transfer if any.

5. Upon completion of the project, the contractor is required to provide a final report to SIYANCUMA on skills acquired, description and value of work performed as well as their overall performance.

(The above information will assist the sub-contractor to improve their CIDB grading)

B. Skills transfer

It is an absolute requirement that the successful tenderer empowers the appointed sub-contractor through the transfer of skills. In this regard a skills transfer plan must be submitted prior to commencement of the project.

NB: The appointed service provider who fail to comply during execution of the project will be in breach of the contract and that may result in termination of the contract.

I / we representing the tenderer hereunder agree to the above conditions in the event of being successful.

Name of tenderer :_____

Authorised signatory_____**Date**_____

FORM 2.1.2 (MBD 6.1)

PREFERENCE CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS (January 2017)

1. GENERAL CONDITIONS

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

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

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

1.3 Preference points for this bid shall be awarded for:

(a) Price; and

(b) Specific Goals, as defined in the Tender Data (including but not limited to B-BBEE status level, equity ownership, and local enterprise participation).

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

Criteria	POINTS
PRICE	80
Specific Goals	20
Total points for Price and Specific Goal must not exceed	**100**

1.5 Failure on the part of a bidder to submit a copy of valid and certified B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS), or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or a sworn affidavit confirming annual turnover and level of black ownership in case of an EME and QSE together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contributor are not claimed.

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

2. DEFINITIONS

“accounting officer”	in relation to a municipal entity, an official of the entity referred to in section 93 of the Act and includes a Chief Executive Officer or the Managing Director or his delegate or person acting as such
“all applicable taxes”	includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;
“authorizer”	the Manager in the Cluster responsible for approving a Procurement Requisition;

B-BBEE status level of contributor"	means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act
"Broad-Based Black Economic Empowerment Act"	means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003) as amended by Act No 46 of 2013;
"BBBEE"	means Broad-Based Black Economic Empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
B-BBEE status level of contributor"	means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act
"bid"	means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals; a bid is essentially a written offer that is made for the acquisition of goods, services, or assets in response to an invitation to bid;
"bidder"	any person submitting a bid or a price quotation in response to an invitation to bid;
"bid adjudication committee"	the Committee constituted in terms of the Municipal Supply Chain Management Regulations, Regulations 26 and 29, for the purpose of adjudicating bids and to make awards and recommendations to the Accounting Officer for procurement of goods and/or services by SIYANCUMA as per the Delegations of Authority;
"bid evaluation"	the process of opening, examining, and evaluating bids to determine the bidders' responsibility, responsiveness, and other factors associated with selection of a bid for contract award;
"bid evaluation committee"	the Committee constituted in terms of the Municipal Supply Chain Management Regulations, Regulations 26 and 28, for the purpose of evaluation of bids and make recommendations to the Bid Adjudication Committee for procurement of goods and/or services by SIYANCUMA;
"bid specification committee"	the Committee constituted in terms of the Municipal Supply Chain Management Regulations, Regulations 26 and 27, for the purpose of compiling the specifications for the procurement of goods and/ or services by SIYANCUMA; the approval of specifications; evaluation criteria, special conditions and advertisement;
"black designated groups"	a) Black people who are youth as defined in the National Youth Commission Act of 1996, including enterprises that are more than 50% owned and controlled by black youth who are South African citizens b) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; including any enterprise that is more than

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

	50% owned and controlled by such people with disabilities c) Black women , including enterprises that are either an EME or Start-up that is more than 50% owned and controlled by black female South African citizens d) Black people living in rural and any under developed areas e) Unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution f) Any broad based ownership scheme or co-operative in which black participants enjoy a right to economic interest that is more than 50% of the total exercisable voting rights
"black people"	a generic term which means Africans, Coloureds, Indians as well as Chinese; in terms of the BBBEE Act, includes only natural persons who are citizens of the Republic of South Africa (RSA) by birth or descent; or are citizens of the RSA by naturalization: a) occurring before the commencement date of the Constitution of the RSA Act No. 108 of 1996; or b) occurring after the commencement date of the Constitution of the RSA Act No. 108 of 1996 but who, without the Apartheid policy would have qualified for naturalization before then.
"black owned enterprise"	Means a juristic person having shareholding or similar members interest that is black controlled, in which black participants who are South African citizens enjoy a right to economic interest that is more than 50% of the total exercisable voting rights
"black youth enterprise (BYE)"	An enterprise having shareholding or similar members' interest that is controlled by black youth, in which the youth participants who are South African citizens not older than 35 years of age and enjoy a right to economic interest that is more than 50% of the total exercisable voting rights. The enterprise may fall within any category type of EME, QSE or Generic
"black woman owned enterprise (BWOE)"	An enterprises with shareholding or similar members' interest that is controlled by black females, the participants who are South African citizens enjoy a right to economic interest that is more than 30% of the total exercisable voting rights. The enterprise may fall within any category type of EME, QSE or Generic
"broad-based black economic empowerment"	the economic empowerment of all black people including women, workers, youth, people with disabilities and people living in rural areas through diverse but integrated socio-economic strategies that include, but are not limited to: a) increase the number of black people that manage, own

	and control enterprises and productive assets; b) facilitate ownership and management of enterprises and productive assets by communities, workers, cooperatives and other collective enterprises; c) human resource and skills development; d) achieving equitable representation in all occupational categories and levels in the workforce; and e) preferential procurement; and f) investment in enterprises that are owned and managed by black people in terms of the BBBEE Act No. 53 of 2003 (BBBEEA)
"BBBEE Procurement Recognition Level"	a percentage determined from the scorecard that determines how much an entity can claim as BBBEE spend on purchases of goods/services/assets made;
"BBBEE Status"	an outcome of the BBBEE evaluation of the company expressed in terms of levels from one (1) to eight (8);
"Bid rigging"	a scheme in which competitors conspire and join to artificially increase the prices of goods and/or services offered in bids. It may also include carving up the potential business between the conspirators
"board of directors"	The directors of the Company appointed in terms of section 93E of the Municipal Systems Act, acting as a Board, or as a sub-committee of the Board to jointly oversee the activities of an entity;
"calendar day"	24-hour period including Saturday, Sunday as well as public holidays;
"comparative price"	means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;
" cancellation of a bid"	involves a termination of a bid as outlined in the policy;
"consortium or joint venture"	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;
"financial director"	The finance executive who reports to the chief executive officer and to the board of directors, and additionally sits on the board
"CIDB"	Construction Industry Development Board Act No.38 of 2000;
"closed tender"	a bidding process in which a select group of tenderers are invited to submit bids;
"co-bidding"	the practice whereby a bidder separately combines with one or more other bidders on a particular bid and can lead to uncompetitive practices;
"collusion"	an agreement between rival businesses that attempts to disrupt the market's equilibrium, which involves people cooperating or working together when they should be

	competing against each other.
"contract"	an agreement that results from the acceptance of a bid by an organ of state
"competitive bid"	a bid in terms of a competitive bidding process, including, but not limited to bids, quotations and auction;
"competitive bidding process"	transparent procurement method in which bids from competing contractors, suppliers, or vendors are invited by openly advertising the scope, specifications, and terms and conditions of the proposed contract as well as the criteria by which the bids will be evaluated.
"consortium"	short-term arrangement in which several firms (from the same or different industry sectors) pool their financial and human resources to undertake a project that benefits all members of the group;
"contractor"	an independent entity or person that agrees to furnish certain number or quantity of goods, material, equipment, personnel, and/or services that meet or exceed stated requirements or specifications, at a mutually agreed upon price and within a specified timeframe;
"co-operative"	An independent association of persons, the membership of which is voluntary; who join forces to meet their economic and culture needs and aspirations through a jointly owned and democratically controlled enterprise, organized and operated on co-operative principles
"designated sector"	A sector, sub-sector or industry that has been designated by the DTI in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods that meet the stipulated minimum threshold for local production content.
"deviation"	a departure from the official procurement processes as laid down in the SCM policy and MFMA regulations;
"disability owned enterprise (DOE)"	An enterprise with shareholding or similar members' interest that is controlled by disabled person/s, the participants who are South African citizens enjoy a right to economic interest that is more than 30% of the total exercisable voting rights. The enterprise may fall within any category type of EME, QSE or Generic
"disqualification"	a process in which a bidder is excluded from the evaluation process as they failed to meet the requirements as described in Annexure A;
"emergency"	sudden, unexpected, or impending situation that may cause injury, loss of life, damage to the property, and/or interference with the normal activities of a person or firm and which, therefore, requires immediate attention and remedial action and where the adherence to normal procurement procedures is not appropriate
"empowering supplier"	a BBBEE compliant entity which fully complies with all regulatory requirements of the country and meets at least three, if it is a Generic Enterprise or one if it is a Qualifying Small Enterprise. An Exempted Micro Enterprise and Startups will automatically be recognized as Empowering Supplier
"enterprise development"	a process aimed at contributing to the development, sustainability and financial and operational independence of benefiting entities which include Exempted Micro Enterprises and/or Qualifying Small

	Enterprises which are at least 50% black owned;
"executive manager"	An official responsible for the executive management of a department and reporting directly to the Managing Director;
"exempted micro enterprise" (EME)	means an Exempted Micro Enterprise as defines by Codes of Good Practice issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003) and whose annual turnover is less than R10 million in terms of the BBBEEA;
Firm price	" means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;
"formal written price quotation"	a written price quotation formally requested in terms of SIYANCUMA's Request for Quotation process for goods and services above R 2 000.00 including VAT;
"fronting"	a deliberate circumvention or attempted circumvention of the B-BBEE Act and the Codes, it commonly involves reliance on data or claims of compliance based on misrepresentations of facts, whether made by the party claiming compliance or by any other person;
"fruitless and wasteful expenditure"	expenditure that was made in vain and would have been avoided had reasonable care been exercised;
"functionality"	the measurement according to predetermined norms, as set out in the tender document, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;
"general manager"	a manager responsible for the general management of a department and reporting to an Executive Manager or Managing Director or any other designated officer;
"generic enterprise"	an entity with a turnover above R50 million in terms of the BBBEE Act;
"imported content"	That portion of the bid price represented by the cost of parts or materials which have been or are still to be imported (whether by the suppliers or the suppliers subcontractors or any other third party) the costs of which are inclusive of the costs abroad, plus freight and other importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry excluding value added tax
"in the service of the state"	a member of- (a) any municipal council; (b) any provincial legislature; or (c) the National Assembly or the National Council of Provinces;

	(d) a member of the board of directors of any municipal entity; an official of any municipality or municipal entity; (e) 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); (f) a member of the accounting authority of any national or provincial public entity; or (g) an employee of Parliament or a provincial legislature.
"initiator"	an authorized SIYANCUMA official responsible for commencing a procurement process for tender and non-tender purposes;
"irregular expenditure"	expenditure that is not in accordance with the requirements of the Supply Chain Management policy and the MFMA and other applicable Acts (Municipal System Act; Public Office Bearers Act) and not condoned in terms of those Acts but excludes expenditure by a municipality which falls within the definition of "unauthorized expenditure"
"joint venture"	is an association of persons formed between two or more parties to undertake an economic activity together; the purpose thereof is to combine expertise, equity, property, capital, efforts, skills and knowledge in an activity for the execution of a contract.
"listing criteria"	conditions established by the Company from time to time for evaluation of the suitability of prospective suppliers for inclusion in the List of Accredited Prospective Suppliers;
"list of accredited prospective suppliers"	a list of prospective suppliers, accredited in terms of the Company's Listing Criteria, categorized per commodity and per type of service.
"local content"	That portion of the bid or tender price that is not included in the imported content, provided that local manufacturing takes place and is calculated in accordance with the local formula SATS 1286 in designated sectors required to meet the stipulated minimum thresholds set by the DTI.
"long term contract"	a contract with a duration period exceeding one year;
"management"	relation to an enterprise or business an activity inclusive of control and performed on a daily basis by any person who is a principal executive officer of an enterprise by whatever name that person may be designated and whether or not that person is a director;
"managing director"	the managing director of SIYANCUMA appointed from time to time by the Board in terms of the Articles of Association to serve in this capacity;
"multiple awards"	award of separate (partial) contracts to two or more bidders for the same item/contract/service, where the award of a single contract would not be beneficial or advantageous to SIYANCUMA;

“multiple bid”	a situation where a tenderer submits more than one bid for the same tender/ transaction;
“municipal entity”	in terms of Section 1 of the Municipal Systems Act a municipal entity is company, co-operative, trust, fund or any other corporate entity established in terms of any applicable national or provincial legislation and which operates under the ownership control of one or more municipalities; and includes, in the case of a company under such ownership control, any subsidiary of that company;
“municipal supply chain management regulations (“MSCMR)”	the Local Government: Municipal Finance Management Act No 56 of 2003 Municipal Supply Chain Management Regulations published in the Government Gazette Notice 868 on 30 May 2005;
“non-financial omission”	an omission in a bid which relates to any other matter except for price;
“non-firm “ price	means all prices other than “firm” prices;
“non-responsive bidder”	a potential bidder who does not meet the requirements of a responsive bidder;
“ownership”	having all customary characteristics of ownership, including the right of disposition, and sharing all the risks and profits commensurate with the degree of ownership interests as demonstrated by an examination of the substance, rather than the form, of ownership arrangements;
“organ of state”	in terms of Preferential Procurement Policy Framework Act 5 of 2000 a) a national or provincial department as defined in the Public Finance Management Act No.1 of 1999 (PFMA); b) a municipality as contemplated in the Constitution; c) Parliament; d) A provincial legislature; and e) A constitutional institution listed in Schedule 1 of the PFMA f) any other institution or category of institutions included in the definition of ‘‘organ of state’’ in section 239 of the Constitution and recognized by the Minister by notice in the Government Gazette;
“payment”	Payment shall be made within 30 days of receipt of the supplier statement, provided the statement is correct and received before the end of the month, including any tax invoice for which payment is required and reflected on the statement referred to herein which was also received by no later than the end of the month
“people with disabilities”	In term of the Employment Equity Act No. 55 of 1998, people with disabilities are people who have a long-term or recurring physical or mental impairment which substantially limits their prospects of entry into, or advancement in, employment;
“person”	a natural or juristic/ legal person;
“PPPFA”	the Preferential Procurement Policy Framework Act, 2000, to give effect to section 217(3) of the Constitution by providing a framework for the implementation of the

	procurement policy contemplated in section 217(2) of the Constitution; and to provide for matters connected therewith.
"preferential procurement"	The preferential procurement element of the BBBEE scorecard measures that extent to which a company or person purchases its qualifying goods or supplies from BBBEE compliant suppliers as evidenced by the BBBEE scorecard rating of the supplier
"pre-qualification of bidders"	screening of potential contractors, suppliers, or vendors (on the basis of factors such as experience, managerial ability, technical know-how, reputation, work history, etc.) for the purpose of developing a list of qualified bidders;
"pre-qualification for preferential procurement"	The qualification of bidders with the intent and purpose of advancing certain designated groups
"Price"	The Rand or monetary value of the bidders offer to provide the good or service which includes all applicable taxes less all unconditional discounts.
"prime contractor"	a contractor who undertakes a substantial portion of the scope of works;
"proof of B-BBEE status level of contributor"	Means: (a) the B-BBEE status level certificate issued by an authorized body or person (b) a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice or (c) any other requirement prescribed in terms of the Broad – Based Black Economic Empowerment Act
"quotation (written)"	a written offer by means of facsimile, e-mail, letter or any other written form, in response to a written request;
"Qualifying Small Enterprise"	means a Qualifying Small Enterprise as defines by Codes of Good Practice issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003) and whose annual turnover is between R10 million and R50 million in terms of the Act;
"Rand value"	means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;
"ratification"	Confirmation or condonation of an action or occurrence which was not pre-approved and may not have been authorized by the Accounting Officer or Board of Directors who then subsequently adopts the act/s of the official/employee upon recommendation by the BEC and BAC or any officially recognized authority or committee in the organization
"responsive or acceptable bid	a bid that meets the following requirements: a) complies in all respects with the specification and conditions of the bid, b) all the prescribed bid forms have been completed and signed to enable evaluation thereof; c) the bidder complies with all requirements as prescribed

	by the CSD d) the bidder has the necessary capacity and ability to execute the contract;
"responsive bidders"	a prospective bidders that submits a bid that meets the following requirements: e) complies in all respects with the specification and conditions of the bid, including a reasonable price; f) the bidder completed and signed all the prescribed bid forms to enable evaluation thereof; g) the bidder submitted the required original tax clearance certificate and other clearance/registration forms as prescribed by various acts or in the bid documentation; h) the bidder has the necessary capacity and ability to execute the contract;
"restricted bidder"	a bidder / supplier listed in the Register of Tender Defaulters or listed in the Register of Restricted Bidders maintained by National Treasury or SIYANCUMA as a person prohibited from doing business with the public sector;
"rural area"	Means : a) a sparsely populated area in which people farm or depend on natural resources including villages and small towns that are dispersed through the area, or b) an area including a large settlement which depends on migratory labour and remittances and government social grants for survival, and may have traditional land tenure
"SATS 1286:2011"	A SABS document issued as a South African technical specification because there is a need for clarity and ability to measure and validate the local content of goods, works and services in order to implement a procurement system that takes the local content into account
"senior manager"	managers responsible for the day to day management activities within a departments and reports directly to executive manager or general manager;
" service provider"	any person that offers a service, skills or expertise; including a supplier of goods;
"shorter payment period"	settlement of accounts with beneficiary entities (i.e. EME) over a shorter period of time of up to 15 days.
"single or sole provider"	only provider of goods or services due to its specialized; singular/ unique characteristics or performance capability;
"small business organization"	any entity, whether or not incorporated or registered under any law, which consists mainly of persons carrying on small business concerns in any economic sector, or which has been established for the purposes of promoting the interests of or representing small business concerns, and

	includes any federation consisting wholly or partly of such association, and also any branch of such organization; as defined in the National Small Business Act, Act No.102 of 1996;
"special conditions of contract"	provisions of a contract that is peculiar to the project under consideration and do not fall under the general conditions. Whenever there is conflict, the provisions of the special conditions shall prevail over those in the general conditions
Start-up Enterprise (SUE):	a recently formed or incorporated entity that has been in operation for no more than 1 year. A Start-up entity does not include any newly constituted enterprises which are merely a continuation of a pre-existing enterprise. A Start-up must be measured as an EME for the first year following their formation or incorporation, regardless of the expected total revenue of the Start-up enterprise
"Standard for Infrastructure Procurement and delivery management"	The guideline document (first edition) as issued and published by National Treasury during October 2015 for infrastructure procurement and which is incorporated and made part of the Supply Chain Policy of Siyancuma Local Municipality
"sub-contracting"	in terms of the PPPFA, the prime contractor's assigning or leasing or making out to work, or employing , another person to support such prime contractor in the execution of part of a project in terms of the contract; The CIDB also provides for sub-contracting as follows: • specialist subcontractors; those that undertake specialist services, especially building or engineering services such as electrical, plumbing and heating, ventilating and air-conditioning (HVAC); • generalist and specialist trade subcontractors; those that offer general trade services or specialise on • specific trades such as painting and brickwork– many of which are general contractors that use subcontracting as a means to get work during periods of tough competition but can and often prefer to work as main contractors; and • labour-only subcontractors; i.e. skilled tradesmen that provide labour-only services, while the main contractor provides the materials and supervision. • In labour-only subcontracting the main contractor provides the materials and does most of the supervision and management of the works while trade contractors make their own arrangements regarding materials and are more responsible for their oversight
"supplier"	any person that supplies relatively common, off the shelf, or standard goods or services;
"tender"	a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works, goods, through price quotations, advertised competitive tendering processes or proposal
'the act"	Local Government: Municipal Finance Management Act no. 56 of 2003 published in the Government Gazette Notice

	176 on 13 February 2004;
"total cost of ownership" (TCO)	total cost of ownership is the consideration of all components of an offer to arrive at a single cost which includes inter alia, servicing, maintenance, wear and tear, consumables, support, amongst other, etc.
"total revenue"	Means total income of an entity from its' operations as determined under South African Generally Accepted Accounting Practice
"township"	Means an urban living area that any time from late 19th century until 27 April 1994, was reserved for black people, including areas developed for historically disadvantaged individuals post 27 April 1994
"treasury"	Has the meaning assigned to it in section 1 of the Public Finance Management Act, 1999 (Act No.1 of 1999)
"trust"	means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person;
"trustee"	means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.
"total revenue"	bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the Government Gazette on 9 February 2007;
"trust"	means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and
"trustee"	means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.
"unauthorized expenditure"	any expenditure incurred otherwise than in accordance with section 15 or 11(3) of the Act and includes- a) expenditure incurred for which no prior authority and approval was sought; b) overspending of the total amount appropriated in the municipality's approved budget; c) overspending of the total amount appropriated for a vote in the approved budget; d) expenditure from a vote unrelated to the department or functional area covered by the vote; e) expenditure of money appropriated for a specific purpose otherwise than for that specific purpose;
"variation order"	an order generated for requirements in excess of initial ordered quantities identified through a further need. Such additional requirements may arise through unforeseen circumstances, urgency or emergency and where the adherence to normal procurement procedures will hinder progress or will not be advantageous or where the invitation of competitive prices is not recommended or is not practical.

"voting member"	a permanent member of any of the Bid Committees duly appointed in writing for a specified period and has a right to vote;
"withdrawal of a bid"	a removal of a bid as a result of a deficiency/error noted in the bid document or procurement process;
"working day"	a day (excluding Saturdays, Sundays and public holidays) in which business transactions can take place/or work can be done, normally eight hours from 08h00 to 17h00.

3. ADJUDICATION USING A POINT SYSTEM

3.1 The bidder obtaining the highest number of total points will be awarded the contract.

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

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

3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for specific goals.

3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for specific goals, the successful bid must be the one scoring the highest score for functionality.

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

4. POINTS AWARDED FOR PRICE

4.1 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**

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

Where

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

5. POINTS AWARDED FOR SPECIFIC GOALS

5.1 In terms of Regulation 6(2) and 7(2) of the Preferential Procurement Regulations, 2022, preference points must be awarded to a bidder for achieving specific goals as defined in the Tender Data. The following table outlines the allocation of points:

Specific Goal (e.g. B-BBEE Status Level)	**Number of Points (based on 80/20)**	**Number of Points (based on 90/10)**
Level 1	20	10
Level 2	18	9
Level 3	14	6
Level 4	12	5
Level 5	8	4
Level 6	6	3

Level 7	4	2
Level 8	2	1
Non-compliant contributor	0	0

5.2 A bidder who qualifies as an EME in terms of the B-BBEE Act must submit a sworn affidavit confirming Annual Total Revenue and Level of Black Ownership.

5.3 A Bidder other than EME or QSE must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level of contributor as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.

5.6 Tertiary Institutions and Public Entities will be required to submit their B-BBEE status level certificates (valid and certified copy) in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

5.8 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. BID DECLARATION

6.1 Bidders who claim points in respect of B-BBEE Status Level of Contributor must complete the following:

B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 5.1

6.2 B-BBEE Status Level of Contributor: = …… (maximum of 10 or 20 points)

(Points claimed in respect of paragraph 6.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or a sworn affidavit.

7. SUB-CONTRACTING

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

(***Tick applicable box***)

YES		NO	

7.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted.....……..%

ii) The name of the sub-contractor……

iii) Description of work to be sub-contracted
……
……
……
……

iv) The B-BBEE status level of the sub-contractor.....……

v) Whether the sub-contractor is an EME.

(Tick applicable box)

YES		NO	

(Certified copy of their valid Scorecard to be submitted with bid)

8. DECLARATION WITH REGARD TO COMPANY/FIRM/ BIDDER

8.1 Name of company/firm/bidder:……

8.2 VAT registration number:……

8.3 Company registration number:……

8.4 Valid Tax Compliance Status Pin for Tenders……

8.5 Proof of CSD Registration - indicate MA ----------(Number)

8.6 Postal address ……

8.7 Physical address……

8.8 Contact person ……telephone number……

8.9 Facsimile number ……..Cell number……

8.10 Email address……website address:……

8.11 Was your company registered under another name previously? If yes, provide company registration details……

……

.....

.....

……

8.12 TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

***NB: In the case of the bidder being a Partnership / Joint Venture / Consortium, this form must be completed in respect of each member of the Joint Venture / Consortium or Partnership and included in the tender submission**

The Consortium, Partnership or Joint Venture must indicate each member's contribution to the project as well as the percentage of such contribution by completion and submission of the appropriate Consortium, Partnership or Joint Venture agreement with the tender.

Failure to comply with the above requirements will result in the elimination of the tender.

8.13 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

……
……
……
……
……

COMPANY CLASSIFICATION

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

[*TICK APPLICABLE BOX*]

9. OWNERSHIP STRUCTURE OF ENTERPRISE

List below all the proprietors/partners/shareholders/ members of your enterprise:

Attach your own list if the space provided below is inadequate:

Initials & Surname	RSA ID number	Citizenship	Race (A/Ch/Co/I/W)1	Ownership Effective Date	Gender M/F	Disabled Yes/No	% Owned

1 **A/Ch/Co/I/W**: means African, Chinese, Coloured, Indian or White

10. MUNICIPAL INFORMATION

Municipality where business is situated: ……

Is the property owned ? yes / no ……

*If yes, Stand / Erf Number ……and Registered municipal Account Number: ……

**Is the property leased? Yes / No

Stand / Erf Number:……

Nota Bena

*Copy of latest up to date municipal account (not older than 90 days) or where the account is in arrears, confirmation of suitable arrangements have been made with the respective municipality must be submitted with the bid.

**Alternatively, if the premises are leased, then a copy of a valid lease agreement must be submitted.

10.1 Total number of years the company/firm has been in business:…….

10.2 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any

other remedy it may have –

(a) disqualify the person from the bidding process;

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

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

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

(e) forward the matter for criminal prosecution.

WITNESSES (Name and signature) 1. …… 2. ……	Name of authorized signatory: …… SIGNATURE(S) OF BIDDERS(S) DATE: …… ADDRESS …… …… ……

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

FORM 2.1.3 Non-collusion Form

I, the undersigned

_____

In my capacity as _____
(insert Sole Owner, Partner, President, Secretary or other title)

of_____
(insert name of the Company).

acknowledges that on behalf of the above mentioned Company, I submit to Siyancuma Local Municipality[SIYANCUMA], a tender and that all statements of fact in such tender are both true and correct.

That such tender was not made in the interest of or on behalf of any undisclosed Person, Partnership, Company, Association, Organization or Corporation.

That such tender is genuine and not collusive or a sham.

That I have not directly or indirectly by agreement, communication or reference with anyone, attempted to induce action prejudicial to the interest of SIYANCUMA, or any other Bidder or anyone interested in the proposed contract.

That prior to the opening and reading of bids,

a. I did not, directly or indirectly, induce or solicit anyone else to submit a false or sham tender
b. I did not, directly or indirectly, collude, conspire, connive or agree with anyone else that the said bidder or any one else would submit a false or sham tender, or that anyone should refrain from tendering or withdraw his tender
c. I did not, in any manner, directly or indirectly, seek by agreement, communication, or conference with anyone to raise or fix my tender price or anyone else, or to raise or fix any overhead, profit or cost element of his tendered price of that of anyone else.
d. I did not directly or indirectly, submit this tender price or any breakdown, thereof, or the contents thereof, or divulge information or data relative thereto, to any Corporation, Partnership, Company, Association, Organization, Tender Depository, or to any member or agent thereof, or to any individual group of individuals, except to the Parent Company holding a controlling interest (above 50%) in my business.

Dated at _____ **on this** ____ **day of** _____

_____
Signed on behalf of the tenderer

FORM 2.1.4 DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state[1].

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

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

3.1 Full Name of bidder or his or her representative:……..

3.2 Identity Number: ……..

3.3 Position occupied in the Company (director, trustee, hareholder[2]):……..

3.4 Company Registration Number: ……

3.5 SARS Tax Compliance status Pin for tenders ……

3.6 Proof of CSD registration ie MA ……..number……

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

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

3.8.1 If yes, furnish particulars.

……

……

[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.

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

3.9.1 If yes, furnish particulars……..

……

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

3.10.1 If yes, furnish particulars.

……
……

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

3.11.1 If yes, furnish particulars

……
……

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

3.12.1 If yes, furnish particulars.

……
……

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

3.13.1 If yes, furnish particulars.

……
……

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

3.14.1 If yes, furnish particulars:

……
……

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

Full Name	**Identity Number**	**State Employee Number**

……..
……..
Signature

Date

……
……
Capacity **Name of Bidder**

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1 The bid of any bidder may be disregarded if that bidder, or any of its directors have-

a. abused the institution's supply chain management system;
b. committed fraud or any other improper conduct in relation to such system; or
c. failed to perform on any previous contract.

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

Item	Question	Yes	No
4.1	**Is the bidder or any of its directors listed on the National Treasury's database as companies or persons prohibited from doing business with the public sector?** (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied).	Yes □	No □
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? ess this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445.	Yes □	No □
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes □	No □
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes □	No □
4.4.1	If so, furnish particulars:		

CERTIFICATION

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

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

……..	**……..**
Signature	**Date**
……	**……..**
Position	**Name of Bidder**

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

FORM 2.1.6

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (VAT INCLUDED)

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

1. Are you by law required to prepare annual financial statements for auditing? **YES / NO**

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

……

……

If the bidder is not required by law to prepare annual financial statements for auditing, they shall be required to furnish their Annual Financial Statements -

i. for the past three years, or
ii. since their establishment if established during the past three years

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

YES / NO

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

2.2 If yes, provide particulars.

……

……

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

3.1 If yes, furnish particulars

……

……

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

4.1 If yes, furnish particulars

……..

……..

CERTIFICATION

I, THE UNDERSIGNED (NAME) ……

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

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

FALSE.

…….. ……..
Signature Date

…… ……
Position Name of Bidder

NB: Failure to complete, sign and provide the required supporting documentation will result in elimination of the tender

FORM 2.1.7 CERTIFICATE OF INDEPENDENT BID DETERMINATION
MBD 9

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

MBD 9
CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____
(Bid Number and Description) in response to the invitation for the bid made by:

_____
(Name of Municipality / Municipal Entity) do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of _____that:
(Name of Bidder)

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

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

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

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

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

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

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

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

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

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

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

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

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

…… …… ……
Signature Date

…… …… ……
Position Name of Bidder

NB: Failure to complete and sign this form will result in the elimination of the tender

T2.1.5 Proposed Amendments and Qualifications

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

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

Page	Clause or item	Proposal

Signed ---------- Date ----------

Name ---------- Position ----------

Tenderer ----------

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

T2.1.6 Schedule of Proposed Subcontractors

We notify you that it is our intention to employ the following Subcontractors for work in this contract.

If we are awarded a contract we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

We confirm that all Subcontractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

	Name and address of proposed Subcontractor	**Nature and extent of work**	**Previous experience with Subcontractor.**

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

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

Tenderer .....

T2.1.7 Schedule of Plant and Equipment

The following are lists of major items of relevant equipment that I / we presently own or lease and will have available for this contract or will acquire or hire for this contract if my / our tender is accepted.

(a) Details of major equipment that is owned by and immediately available for this contract.

Quantity	**Description, size, capacity, etc.**

Attach additional pages if more space is required.

(b) Details of major equipment that will be hired, or acquired for this contract if my / our tender is acceptable.

Quantity	**Description, size, capacity, etc.**

Attach additional pages if more space is required.

Signed ---------- Date ----------

Name ---------- Position ----------

Tenderer ----------

T2.1.8 Schedule of the Tenderer's Experience

EMPLOYER: CONTACT PERSON AND TELEPHONE NUMBER	CONSULTING ENGINEER: CONTACT PERSON AND TELEPHONE NUMBER	NATURE OF WORK	VALUE OF WORK (inclusive of VAT)	DATE COMPLETED OR EXPECTED TO BE COMPLETED

Signed ---------- Date ----------

Name ---------- Position ----------

Tenderer ----------

CONTACTABLE REFERENCE

To Siyancuma Local Municipality

I, the undersigned being duly authorized to do so, hereby furnish a reference to Siyancuma Local Municipality relative to tender …… for ……

Name of tenderer:_____

Description of goods / service provided_____

Duration / time when the above was provided_____

Approximate value of the goods/ service provided_____

Was their performance satisfactory ? Yes / No*

Was the quality / specifications complied with Yes / No*

If No, please furnish details……

……

……

Will you recommend this supplier to anyone without reservations: Yes / No

Rate this supplier out of a possible score of 5 with 5 being excellent and 1 being unacceptable.

Name of authorised person:_____Signature:_____

Telephone: _____email_____date_____

Completed on behalf (name of business)

_____

Official stamp

NB: This document must be completed in full by the referee and included in the tender submission. Alternatively, the client's letterhead may be used for this purpose provided it complies with all the above requirements.. A separate form must be completed for each reference as required in the evaluation criteria. Failure to adhere to this requirement will result in such tender being prejudiced.
Information provided will be verified and if found to be false or misrepresented, punitive measures will be instituted against the respective party including blacklisting and restriction from participating in any future government tender.

T2.1.9 Certificate of Attendance at Clarification Meeting

This is to certify that *(tenderer)*…….....……

of *(address)*.....……..

..... was represented by the person(s) named below at the compulsory meeting held for all tenderers at *(location)……..*

..... on *(date)*..... starting at *(time)* ……..

I / We acknowledge that the purpose of the meeting was to acquaint myself / ourselves with the Site of the Works and its surroundings and / or matters incidental to doing the work specified in the Tender Documents in order for me / us to take account of everything necessary when compiling our rates and prices included in the tender. I / We also acknowledge that I / we have examined the Site Data made available by the Employer (including borehole cores and related information).

Particulars of person(s) attending the meeting:

Name: .....……. Signature: .....….....

Capacity: .....

Name: .....……. Signature: .....….....

Capacity: .....

Attendance of the above person(s) at the meeting is confirmed by the Employer's representative, namely:

Name: .....……..... Signature: .....

Capacity: .....……..... Date and Time: .....

T2.1.10 Key Personnel

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

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

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

SIGNATURE:.....…… DATE: …….....

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

T2.1.11 Curriculum Vitae of Key Personnel (PLEASE NOTE THAT IF SEPARATE CVS ARE ATTACHED, USE THE FORMAT PROVIDED BELOW)
Curriculum Vitae of Key Personnel (Contract Manager)

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

Name:	**Date of birth:**
Profession:	**Nationality:**
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	**Years with firm:**

Employment Record:

Company	Period	Capacity

Experience Record Pertinent to Required service: (Please list the projects, value and year)

Project Name	Value	Year

Certification:

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

.....…… …….....
Signature of person named in the schedule *Date*

Curriculum Vitae of Key Personnel (Site Agent)

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

Name:	**Date of birth:**
Profession:	**Nationality:**
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	**Years with firm:**

Employment Record:

Company	Period	Capacity

Experience Record Pertinent to Required service: (Please list the projects, value and year)

Project Name	Value	Year

Certification:

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

..... …….....
Signature of person named in the schedule *Date*

Curriculum Vitae of Key Personnel (Safety Officer 1)

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

Name:	**Date of birth:**
Profession:	**Nationality:**
Qualifications:	
Professional Registration Number:	
Name of Employer (firm):	
Current position:	**Years with firm:**

Employment Record:

Company	Period	Capacity

Experience Record Pertinent to Required service:

Project Name	Value	Year

Certification:

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

..... …….....
Signature of person named in the schedule *Date*

T2.1.12 Tenderer's Financial Standing

In terms of Clause F2.18.1 of 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 banker, to the effect that he will be able to successfully complete 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 tender, he shall state the reasons as to why he is unable to do so, and in addition provide the following details of his 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 : ..... Facsimile number: .....….....

Name of contact person (*at bank):* .....….....

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

I / We agree, if required, to furnish a copy of the latest audited set of financial statements together with my / our Director's and Auditors' 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: .....…….... DATE: …….....…..
(of person authorized to sign on behalf of the Tenderer)

T2.1.13 Contractor's Health and Safety Declaration

In terms of Clause 4(4) of the OHSA 1993 Construction Regulations 2003 (referred to as "the Regulations" hereafter), a Contractor may only be appointed to perform construction work if the Employer is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the Occupational Health and Safety Act No 85 of 1993 and the OHSA 1993 Construction Regulations 2003.

To that effect a person duly authorized by the tenderer must complete and sign the declaration hereafter in detail.

Declaration by Tenderer

1. I, the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and the OHSA 1993 Construction Regulations 2003.
2. I hereby declare that my company has the competence and the necessary resources to safely carry out the construction work under this contract in compliance with the Construction Regulations and the Employer's Health and Safety Specifications.
3. I hereby confirm that adequate provision has been made in my tendered rates and prices in the Bill of Quantities to cover the cost of all resources, actions, training and all health and safety measures envisaged in the OHSA 1993 Construction Regulations 2003, including the cost of the specific items listed in the tables hereafter.

(Tables to be completed by Tenderer)

TABLE 1: COST OF SAFETY PERSONNEL

PERSONNEL	COSTS AS ALLOWED IN TENDER	NOMINATED PERSON/S
Construction Supervisor		
Construction Safety Officer		
Health and Safety Representatives		
Health and Safety Committee		

TABLE 2: COST OF SAFETY EQUIPMENT

EQUIPMENT	STATE YES or NO	COST ALLOWED FOR IN TENDER
Hard hats		
Safety boots		
Harnesses		
Gas detectors		
Add items as per risk assessment:		

4. I hereby undertake, if my tender is accepted, to provide, before commencement of the works under the contract, a suitable and sufficiently documented Health and Safety Plan in accordance with Regulation 5(1) of the Construction Regulations, which plan shall be subject to approval by the Employer.

5. I confirm that copies of my company's approved Health and Safety Plan, the Employer's Safety Specifications as well as the OHSA 1993 Construction Regulations 2003 will be provided on site and will at all times be available for inspection by the Contractor's personnel, the Employer's personnel, the Engineer and his Agents, visitors, and officials and inspectors of the Department of Labour.

6. I hereby confirm that I will be liable for any penalties that may be applied by the Employer in terms of the said Regulations (Regulation 30) for failure on the Contractor's part to comply with the provisions of the Act and the Regulations.

7. I agree that my failure to complete and execute this declaration to the satisfaction of the Employer will mean that I am unable to comply with the requirements of the OHSA 1993 Construction Regulations 2003, and accept that my tender will be prejudiced and may be rejected at the discretion of the Employer.

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

T2.2 LIST OF RETURNABLE DOCUMENTS

2. Other documents required only for tender evaluation purposes

T2.2.1 Certificate of Contractor Registration issued by the Construction Industry Development Board

T2.2.2 Latest UIF return

T2.2.3 Confirmation of employment equity policy from the Department of Labour

T2.2.4 Form of intent to provide a performance guarantee

T2.2.5 Proof of compliance with COID Act

T2.2.6 Registration certificate / Agreement / Powers of Attorney / I.D. Document

T2.2.1 Contractor's Certificate of Registration With CIDB

The Tenderer shall attach hereto the Contractor's Certificate of Registration with CIDB. Failure to submit the certificate with the tender document will lead to the conclusion that the Tenderer is not registered with the CIDB and therefore not eligible to tender.

Tenderers who have made application to CIDB for registration and are capable of being so registered prior to the evaluation of submissions must attach a notification from CIDB that their application is being considered.

T2.2.2 Latest UIF Return

The Tenderer must attach hereto a copy of the latest Unemployment Insurance Fund return. A separate Return is required for each member of the Joint Venture (If Applicable).

T2.2.3 Confirmation Of Employment Equity Policy From The Department Of Labour

The Tenderer must attach hereto a copy of the confirmation from the department of labour that their Employment Equity Policy has been submitted.

T2.2.4 Form of Intent to Provide a Performance Guarantee

The Tenderer must attach hereto a letter from the bank or institution with whom he has made the necessary arrangements, to the effect that the said bank or institution will be prepared to provide the required performance guarantee when asked to do so.

T2.2.5 Proof of Compliance With COID Act

The Tenderer must attach hereto proof of compliance with the relevant requirements of the compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993).

T2.2.6 Registration Certificate / Agreement / Powers of Attorney /ID Document (if Applicable)

Important note to Tenderer: Registration Certificates for Companies, Close Corporation and Partnerships, or Agreements and Powers of Attorney for Joint Ventures, or ID Document for Sole Proprietor, all as referred to in the foregoing forms and in T2.1 must be inserted here.

T2.3 LIST OF RETURNABLE SCHEDULES

3. Returnable Schedules that will be incorporated into the contract

T2.3.1 Preliminary programme
T2.3.2 Amendments, qualifications and alternatives
T2.3.3 Materials to be used in the contract
T2.3.4 Insurance cover to be effected by the contractor
T2.3.5 Price variation on special materials

T2.3.1 Preliminary Programme

The Tenderer shall detail below or attach a preliminary programme reflecting the proposed sequence and tempo of execution of the various activities comprising the work for this Contract. The programme shall be in accordance with the information supplied in the Contract, requirements of the Project Specifications and with all other aspects of the Tender.

PROGRAMME														
ACTIVITY	**WEEKS / MONTHS**													

[Note: The programme must be based on the completion time as specified in the Contract Data. No other completion time that may be indicated on this programme will be regarded as an alternative offer, unless it is listed in Table (b) of the Form hereafter and supported by a detailed statement to that effect, all as specified in the Tender Data]

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

T2.3.2 Amendments, Qualifications and Alternatives

(This is not an invitation for amendments, deviations or alternatives *but should the Tenderer desire to make any departures from the provisions of this contract he shall set out his proposals clearly hereunder. The Employer will not consider any amendment, alternative offers or discounts unless forms (a), (b) and (c) have been completed to the satisfaction of the Employer).*

I / We herewith propose the amendments, alternatives and discounts as set out in the tables below:

(a) AMENDMENTS

PAGE, CLAUSE OR ITEM NO	PROPOSED AMENDMENT

Notes: (1) Amendments to the General and Special Conditions of Contract are not acceptable.
(2) The Tenderer must give full details of all the financial implications of the amendments and qualifications in a covering letter attached to his tender.

(b) ALTERNATIVES

PROPOSED ALTERNATIVE	DESCRIPTION OF ALTERNATIVE

Notes: (1) Individual alternative items that do not justify an alternative tender, and an alternative offer for time for completion should be listed here.
(2)...In the case of a major alternative to any part of the work, a separate Bill of Quantities, programme, etc, and a detailed statement setting out the salient features of the proposed alternatives must accompany the tender.
(3) Alternative tenders involving technical modifications to the design of the works and methods of construction shall be treated separately from the main tender offer.

(c) DISCOUNTS

ITEM ON WHICH DISCOUNT IS OFFERED	DESCRIPTION OF DISCOUNT OFFERED

Note: The Tenderer must give full details of the discounts offered in a covering letter attached to his tender, failing which, the offer will be prejudiced.

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

T2.3.3 Materials to be used in the Contract

I / We propose to use the following materials in the Works:

1.

_____

_____

_____
Joint Supplier/Manufacturer
_____

_____

_____

2.

_____

_____

_____

_____

_____
Joint Supplier/Manufacturer
_____

_____

_____

3. Other
_____

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

T2.3.4 Insurance Cover to be Effected by the Contractor

The Contractor and his subcontractors shall, in terms of the Contract Data, effect the insurances detailed in clause 35.1 of the Contract Specific Data (C1.2). The prescribed documents (or other satisfactory proof of cover) in respect of these insurances shall be attached hereto and shall include but not be limited to :

a) Insurance of Constructional Plant;
b) Insurance under provisions of the COID Act;
c) Common Law Liability Insurance for an amount not less than that stated in the Project Information Schedule;
d) Motor Vehicle Liability Insurance; and
e) Any additional insurances deemed necessary for items not insured in terms of the insurance effected by the Employer.

Should the Contractor, within the prescribed period, not submit the required documents, the Engineer will be entitled to withhold payment certificates in terms of the contract until the Contractor has complied with these requirements.

T2.3.5 Price Variation on Special Materials

The following Special Materials are subject to price variation, in accordance with Clause 46.3 of the Conditions of Contract, as detailed below:

ITEM	DESCRIPTION

SIGNATURE: .....…….....… DATE: …….....
(of person authorized to sign on behalf of

T2.4 LIST OF RETURNABLE SCHEDULES

4. Other documents that will be incorporated into the contract

T2.4.1 Site specific occupational health and safety plan
T2.4.2 Quality plan
T2.4.3 Addenda to the tender documents
T2.4.4 Minutes of the pre-tender clarification meeting and site inspection
T2.4.5 Contractor Competency Evaluation
T2.4.6 Hazardous Identification Risk Assessment

T2.4.1 Site Specific Occupational Health and Safety Plan

The Tenderer shall attach to this page the Contractor's Site Specific Health and Safety Plan as required in terms of Regulation 5 of the Occupational Health and Safety Act 1993 Construction Regulations 2003 and referred to in the Contractor's health and safety declaration (see earlier) and PS7 of the Project Specifications.

T2.4.2 Quality Plan

The Tenderer shall attach to this page the Contractor's Quality Plan covering the following items as a minimum:

a) Pipe laying, i.e. vertical and horizontal alignment;

b) Bedding material control;

c) Concrete works control;

d) Earthworks

e) Placing Liners

f) Backfilling material control; and

g) Surfaces reinstatements.

h) Health and Safety incorporation to the above item.

T2.4.3 Addenda to the Tender Documents

Copies of all Addenda to the tender documents which have been issued by the Employer will be inserted here by the Employer.

Addendum No.	Description

T2.4.5 Contractor Competency Evaluation Form

Complete the “SHE CONTRACTOR’S COMPETENCY EVALUATION FORM” included in Volume Two, OHS Specifications and Environmental Management Plan.

T2.4.4 Minutes of the Pre-Tender Clarification Meeting and Site Inspection

Copies of the minutes of the pre-tender clarification meeting and site inspection will be inserted here by the Employer.

T2.4.6 Hazardous Identification Risk Assessment

Complete the “HAZARDS IDENTIFICATION RISK ASSESSMENT” form included in Volume Two, OHS Specifications and Environmental Management Plan.

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

CONTRACT

PART 1 (OF 4) AGREEMENT AND CONTRACT DATA

TABLE OF CONTENTS

PAGE (S)

C1.1 FORM OF OFFER (AGREEMENT)

C1.1.1 FORM OF OFFER

THE TENDERER IS TO COMPLETE AND SIGN THE FORM OF OFFER

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

SIYA –T03/ 2025/26: REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS CIDB GRADE 6CE OR HIGHER

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 RATES ARE FIRM

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 and signature of witness _____ **Date** _____

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

C1.1.2 FORM OF ACCEPTANCE

THE EMPLOYER IS TO COMPLETE AND SIGN THE FORM OF ACCEPTANCE

By signing this part of the Form of Offer and Acceptance, **the Employer** identified below accepts the 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 Agreement 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 **twenty (28) days** after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the employer's agent (whose details are given in the Contact Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data at, or just after, the date of this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

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

FOR EMPLOYER OFFICIAL USE ONLY

Signature(s) _____ _____

Name(s) _____ _____

Capacity _____ _____

For the Employer ***Siyancuma Local Municipality, Civic Centre, Charl Cilliers Street, Douglas 8730***

(Name and address of organisation)

Name and signature of witness _____ **Date** _____

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

C1.1.3 SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender;
2. A 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; and
4. Any change or addition to the tender documents arising from the above arrangements and recorded here shall also be incorporated into the final draft of the Contract.

1 **Subject** _____

Details _____

2 **Subject** _____

Details _____

3 **Subject** _____

Details _____

4 **Subject** _____

Details _____

5 **Subject** _____

Details _____

6 **Subject** _____

Details _____

7 **Subject** _____

Details _____

8 **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 the process of offer and acceptance.

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

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 and signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the Tenderer:
Signature(s)

	_____	_____
Name(s)	_____	_____
Capacity	_____	_____
	_____	
	(Name and address of organisation)	
Name and signature of witness	_____	**Date** _____

For the Employer:
Signature(s)

	_____	_____
Name(s)	_____	_____
Capacity	_____	_____
	Siyancuma Local Municipality, Civic Centre, Charl Cilliers Street, Douglas 8730	
	(Name and address of organisation)	
Name and signature of witness	_____	**Date** _____

C1.2 CONTRACT DATA

C1.2.1 PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works Third Edition (2015), published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, is applicable to this Contract and is obtainable from ww.saice.org.za.

CONTRACT SPECIFIC DATA

The following contract specific data are applicable to this Contract:

GCC Clause	Information
1.1.1.13	The Defects Liability Period is 52 weeks from the date of the Certificate of Completion.
1.1.1.14	The Work shall be completed within 156 weeks. (Note the Contract is valid for three years on an As and When Basis)
1. 1.1.15	The name of the Employer is Siyancuma Local Municipality Contact person is: Mr Xolile Geco
1.1.1.16	The name of the Employer's Agent is Mr. Boundry Mokhonoana
1..1.1.26	The Pricing Strategy is Re-measurement Contract.
1.2.1.2	The address of the Employer is: Physical: Charl Cilliers Street, Douglas, 8730 Postal: P.O. Box 27, Douglas, 8730 Tel: 053 298 1810 Email: geco@siyancuma.gov.za
1.2.1.2	The address of the Employer's Agent is: Physical: Cnr Jacobus Smith and Waterworks, 6 Urban Corner, New Park Kimberley 8301 Postal: Cnr Jacobus Smith and Waterworks, 6 Urban Corner, New Park Kimberley 8301 Tel: 053 285 0222 Email:griekwastad@samexconsulting.co.za
5.1.1 and 5.8.1	The non-working days are Saturdays and Sundays Special non-working days are: 1. All Public Holidays in terms of the Public Holidays Act as amended. 2. The year-end break commences on 16 December and ending on the first working Monday of January of the succeeding year.
5.3.1	The documentation required before commencement with Works execution are: • Approved Health and Safety File (Clause 4.3) • Initial programme (Clause 5.6) • Guarantee from Bank or Insurance Company (Clause 6.2) • Insurance of Construction Machinery Plant (Clause 8.6) • Insurance of Motor Vehicle Liability (Clause 8.6) • Commissioner of COID (Clause 8.6)

GCC Clause	Information
	• Signed Notification to the Department of Labour • Construction Permit were applicable
5.3.2	The time to submit the Contract documentation required before commencement of the Works is 28 days.
5.13.1	The penalty for failing to complete the Works is R4, 000.00 per day.
5.16.3	The latent defects period is 10years.
6.2.1	The liability of the guarantee shall be 10% of the tendered sum
6.8.2	The effect of changes in prices or law on the amounts due shall be adjusted on the following basis: a) No price adjustment over the first 12-month period of the Contract. b) On the 12-month anniversary date of the signing of the agreement the rates shall be adjusted by twelve-month year on year CPI index (as published in the monthly bulletin PO141.1 of statistics South Africa) ruling on the 12-month anniversary date of the signing of the Agreement and fixed at this value for the following 12-month period. Subsequent 12-month periods shall be dealt with on a similar basis.
6.8.3	Price adjustments for variations in the costs of special materials are **NOT** allowed.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%. Proof of ownership and indemnity is required.
6.10.3	The percentage retention on the amounts due to the Contractor is 10%.
6.10.3	The limit of retention money is 10% of the contract price
6.10.6	A Retention Money Guarantee is not permitted.
8.6 8.6.1	Delete Clause 8.6.1 and replace it with the following: Notwithstanding anything elsewhere contained in the Contract and without limiting the obligations, liabilities or responsibilities of the Contractor in any way whatsoever (including but not limited to any requirement for the provision by the Contractor of any other insurances) the Employer shall effect and maintain as appropriate the following insurances in the joint names of Employer and Contractor which are subject to the terms limits exceptions and conditions of the Policy :
8.6.1.1	**Contract Works Insurance** – which will provide cover against accidental and Physical loss of or damage to the Works, Temporary Works and Materials intended for incorporation in the Works from whatsoever cause arising other than causes set out in Clause 8.3.1, and for a sum insured which shall, unless otherwise specified in the Contract, be the aggregate of:
8.6.1.1.1	The Contract Price,
8.6.1.1.2	a sum to cover the value (specified at the time of delivery to the Contractor) of materials supplied by the Employer for incorporation in the Works and not included in the Contract Price is NIL
8.6.1.1.3	a sum to cover professional fees, not included in the Contract Price, payable in respect of the repair or reinstatement of damage to the Works is NIL.
8.6.1.2	Following the introduction of legislation affecting the articles of the **South African Special Risks Insurance Association (SASRIA)**, insurance cover for loss or damage to the Works caused by any event defined as a risk in terms of the insurance offered by SASRIA, will be provided under a certificate issued by SASRIA.
8.6.1.3	**Public Liability Insurance** which will provide indemnity against legal liability in the event of accidental death of or injury to third party persons and/or loss or damage to third party property

GCC Clause	Information
	arising directly from the execution of the Contract and occurring during the period of Insurance with a limit of indemnity of R5million in respect of all claims arising from any one occurrence or series of occurrences consequent on or attributable to one source or original cause..
8.6.1.4	Full details of the Contract Works and Public Liability insurances effected by the Employer may be obtained upon request from the Employer and the Contractor/Subcontractors are deemed to be aware of the terms, exclusions and conditions of these insurances.
8.6.1.5	The Employer shall pay the premium in connection with the insurances effected by the Employer in 8.6.1.1, 8.6.1.2 and 8.6.1.3 above.
8.6.2	The Employer/Contractor/Sub-contractors and/or any other party who obtains indemnity under the policies effected under 8.6.1.1, 8.6.1.2 and 8.6.1.3 above shall become liable for the deductibles (first amount payable) which are applicable in respect of each and every occurrence or series of occurrences attributable to one source or cause giving rise to loss or damage or indemnifiable liability.
8.6.3	In the event of an occurrence which is likely to give rise to a claim under the insurance effected by the Employer, the following procedure shall be adhered to:
8.6.3.1	In addition to any statutory requirements and/or other requirements contained in the Conditions of Contract, the Contractor shall immediately notify the Employer's Insurance Brokers, giving the circumstances, nature and an estimate of the loss or damage.
8.6.3.2	The Contractor shall, when required, complete a claims advice form, available from the Employer's Insurance Brokers, to whom the form shall be returned without delay.
8.6.3.3	The Contractor shall afford all access to the representatives of the Insurers for the purpose of the assessment of any loss or damage.
8.6.3.4	Negotiations on the settlement of claims shall be conducted by the Contractor/Sub-Contractor with the Insurers through the Employer's Insurance Brokers.
8.6.4	Any amount which becomes payable to the Contractor or any of his Sub-Contractors as a result of claim under the Contract Works Insurance shall if required by the Employer be paid net of the deductible to the Employer who shall pay the Contractor from the proceeds of such payment upon rectification repair or reinstatement of the loss or damage but this provision shall not in any way affect the Contractor's obligations liabilities or responsibilities in terms of the Contract.
8.6.1.1	Add the following clause below 8.6.1.1 above: The Contractor shall insure all Constructional Machinery and Plant (including tools, offices and other temporary structures and content) and other items, other than those intended for incorporation into the works, owned, leased or hired brought on to the Site against all risks of physical loss or damage for the period such Plant shall be on the Site to the full value thereof. In respect of Plant brought on to the Site by or on behalf of Sub-Contractors the Contractor shall be deemed to have complied with the provisions of this Sub-Clause by ensuring that such Sub-Contractors have similarly insured such Plant and Machinery. Such insurance shall be effected with a registered Insurer approved by the Employer (which approval shall not be unreasonably withheld) and the Contractor shall, when required, submit to the Employer's Insurance Brokers, the policy or policies of insurance and receipts for payment of the current premiums.
8.6.6	The Contractor and the Sub-contractors shall effect and maintain at their cost insurance under the provision of the Compensation for Occupational Injuries and Diseases Act (COID), 1993 (Act No. 130 of 1993).
8.6.7	The Contractor and the Sub-Contractors shall effect and maintain at their own cost motor vehicle liability insurance with at least indemnification for "balance of third party" risks, including passenger liability with a limit of indemnity of not less than R2,5million.
Add the following Clause 8.6.8	The Contractor and the Sub-Contractors shall effect and maintain at their own cost any additional insurance, which they deem necessary to cover damage or loss or injury not insured in terms of the insurance effected by the Employer. Such insurance shall be effected with an Insurer and in terms approved by the Employer (which approval shall not be unreasonably withheld) and the Contractor shall, when required, submit to the Employer's Insurance Brokers the policy or policies of insurance and the receipts for payment of the current premiums. If the Contract entails manufacture and or assembly of the Works or part thereof on a site other than

GCC Clause	Information
	the Contract site, the Contractor must satisfy the Employer that all materials and equipment intended for incorporation into the Works are adequately insured during manufacture and assembly. If the Employer has an insurable interest in such works during manufacture or assembly, such interest shall be recorded by way of endorsement on the policies concerned. The Contractor shall furnish the appropriate insurance policies to the Employer within 28 days from the Commencement of Contract Date.
Add the following Clause 8.6.9	Submission of the Tender will be construed by the Employer as acceptance by the Contractor that he is satisfied with the insurance effected by the Employer supplemented by any additional insurance which he shall specify in the manner provided for in the Schedule of Rates.
Add the following Clause 8.6.10	The Contractor shall give all notices and observe all conditions and requirements imposed by any and all relevant insurance policies which shall be read as being part of the General Conditions of Contract and which shall be binding on the Contractor.
Add the following Clause 8.6.11	In addition to any statutory obligations, or other requirements contained in the Conditions of Contract, the Contractor shall report in writing to both the Employer's Agent and the Employer's Insurance Brokers every accident within 48 hours of its occurrence, whether such accident is in respect of damage to persons or property. The report shall contain full details of the accident. The Employer's Agent and/or the Employer's Insurers shall have the right to make all and any enquiries either on the Site or elsewhere as to the cause and results of any such accident and the Contractor shall give the Employer's Agent and/or the Employer's Insurers full facilities for carrying out such enquiries.
Add the following Clause 8.6.12	Negotiations on the settlement of claims under the insurance effected by the Employer shall be conducted by the Contractor/Sub-Contractor with the Insurers through the Employer's Insurance Brokers.
Add the following Clause 8.6.13	Any claims against the insurance effected by the Employer shall be subject to the Contractor being responsible for the payment of the amount stated in the Policy as being the Deductible (First Amount Payable) as defined in the Policy.
Add the following Clause 8.6.14	The Employer shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employ of the Contractor or any Sub-Contractor save and except an accident or injury resulting from any act or default of the Employer, its agents or servants and the Contractor shall be deemed to have indemnified and shall keep indemnified the Employer against all such damages and compensation (save and except as aforesaid) and against all claims, demands, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.
Add the following Clause 8.6.15	The Contractor shall insure in the joint names of the Employer, the Contractor and all Sub-Contractors (whether selected or otherwise) for an amount of R2million per occurrence against the liability stated in Sub-Clause 8.6.6 with a registered Insurer approved by the Employer (which approval shall not be unreasonably withheld) and shall continue such insurance during the whole of the time that any persons are employed by him on the Works and shall submit to the Employer's Agent such policy of insurance and the receipt of payment of the current premium. Provided always that in respect of any persons employed by any Sub-Contractor, the Contractor's obligation to insure as aforesaid under this Sub-Clause shall be satisfied if the Sub-Contractor shall have insured against the liability in respect of such persons in such manner that the Employer is indemnified under the policy of insurance but the Contractor shall require such Sub-Contractor to produce to the Employer's Agent such policy and the receipt for payment of the current premium.
Add the following Clause 8.6.16	If the Contractor shall fail to effect and keep in force the insurances referred to in this Clause or for any other insurance which he may be required to effect in terms of the Contract, then and in any such case the Employer may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the

GCC Clause	Information
	amount so paid by the Employer as aforesaid from any monies due or which may become due to the Contractor or recover the same as a debt due from the Contractor.
Add the following Clause 8.6.17	The Contractor shall ensure that all proposed and appointed sub-contractors are fully aware of the contents of Clause 8.6.1, 8.6.2 and any applicable insurances.
10.5.3	The adjudication board shall consist of one member.
10.7.1	The determination of disputes shall be by arbitration

C1.2.1.1 Variations to General Conditions of Contract
Add the following Table:

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

	5.1.1.2 The day on which the time-span commences shall be excluded from the calculation of the time-span concerned."
5.3.3	**Time to instruct commencement of the Works** Delete Clause 5.3.3 and replace with the following: The Contractor shall commence with carrying out the Works upon written instruction from the Employer's Agent to commence with the Works.
5.7.1	**Rate of progress** *ON PAGE 25, IN THE TOP PARAGRAPH, FOR THE SENTENCE COMMENCING WITH* "Such steps shall…" *REPLACE THE SENTENCE* "Such steps shall be approved by the Employer's Agent, which approval shall not be unreasonably withheld." *WITH* "Such steps shall be subject to the approval of the Employer's Agent, which approval shall not be unreasonably withheld."
6.5.1.3	**Basis of payment for dayworks** *ON PAGE 40, IN THE LAST LINE OF THE SUB-CLAUSE, REPLACE THE PHRASE* "ruling plant hire rates*"* *WITH* "ruling construction equipment hire rates*"*
6..10.4	**Delivery, dissatisfaction with and payment of payment certificates** Delete Clause 6.10.4 and replace with the following: Payment shall be made upon: • After the payment certificate has been approved by Employer's Agent, the Contractor must issue an Original Tax Invoice compliant with SARS requirements for Valid Tax Invoice. The date of the Original Tax Invoice must be the date the Employer's Agent approved the Payment Certificate. The certificate will then be ready for handing in to the Employer latest by the 25th of every month. • Payment will be made end of the following month. Payment shall be subject to the Contractor submitting an Original Tax Invoice compliant with SARS requirements for Valid Tax Invoice to the Employer for the amount due. Any dissatisfaction in respect of such payment certificate shall be dealt with in terms of Clause 10.2.
6.10.5	**Payment of Retention Money** Delete Clause 6.10.5 and replace with the following: When defects liability is specified, one half of the retention money shall be paid after the Employer's Agent has issued a Certificate of Completion in terms of Clause 5.14.4 as follows: • The Contractor will provide a statement for release of 5% retention to the Employer's Agent before or on the 20th of every month. • After the payment certificate has been approved by Employer's Agent, the Contractor must issue an Original Tax Invoice compliant with SARS requirements for Valid Tax Invoice. The date of the Original Tax Invoice must be the date the Employer's Agent approved the Payment Certificate. The certificate will then be ready for handing in to the Employer latest by the 25th of every month. • Payment will be made end of the following month.

	The other half of the retention money shall be paid after the Employer's Agent has issued Final Approval Certificate at the end of the Defects Liability Period, which may be extended in term of Clauses 5.14.4 or 7.8.1, if necessary, as follows: • The Contractor will provide a statement for release of 5% retention to the Employer's Agent before or on the 20th of every month. • After the payment certificate has been approved by Employer's Agent, the Contractor must issue an Original Tax Invoice compliant with SARS requirements for Valid Tax Invoice. The date of the Original Tax Invoice must be the date the Employer's Agent approved the Payment Certificate. The certificate will then be ready for handing in to the Employer latest by the 25th of every month. • Payment will be made end of the following month. Payment shall be subject to the Contractor submitting an Original Tax Invoice compliant with SARS requirements for Valid Tax Invoice to the Employer for the amount due.
6.11	Delete Clause 6.11. General items will not be adjusted should there be a decrease or increase of scope.
7.8.2.1	**Cost of making good of defects** Amend Clause 7.8.2.1 as follows: In the first line, correct the spelling of 'therefore'.
8.3.1.12	**Excepted risks** Amend Clause 8.3.1.12 as follows: In the second line, delete the words 'Employer or any of their' and substitute with 'or any of its'.
8.4.1.1	Add to the end of Clause 8.4.1.1 the following text: "hereby indemnifies the Employer against any liability in respect of damage or physical loss of property of any person or injury or death of any person due to non-compliance with the Occupational Health and Safety Act (Act 85 of 1993), "

C1.2.1.2 Additions to General Conditions of Contract
Add the following Table:

1.1	**Definitions** Add the following at the end of Sub-Clause 1.1.1:
1.1.1.34	"Client", as used in the Occupational Health and Safety Act and its Construction Regulations, means Employer.
1.1.1.35	"Principal Contractor", as used in the Occupational Health and Safety Act - Construction Regulations, means Contractor.
C1.2.1.2.1	**Penalties** In addition to GCC 2015 clause 5.13, during the Contract Period should the Contractor: a) Penalties irreversible The Contractor shall note that all penalties once imposed shall be non-recoverable or

	reversible, even if the default is remedied.
C1.1.1.2.2	**Source of instructions** The Contractor shall neither seek nor accept instructions from any authority external to the Employer's Agent or their authorized representatives in connection with the performance of his services under this Contract.
C1.2.1.2.3	**Officials not to benefit** The Contractor warrants that no official of the Employer has been or shall be admitted by the Contractor to any direct or indirect benefit arising from this Contract or the award thereof. The Contractor agrees that breach of this provision is a breach of the Contract.
C1.2.1.2.4	**Prevention of corruption** The Employer shall be entitled to cancel the Contract and to recover from the Contractor the amount of any loss resulting from such cancellation, if the Contractor has offered or given any person any gift or consideration of any kind as an inducement or reward for doing or intending to do any action in relation to the obtaining or the execution of the Contract or any other contract with the Employer or for showing or intending to show favor or disfavor to any person in relation to the Contract or any other contract with the Employer, if the like acts shall have been done by any persons employed by him or acting on his behalf whether with or without the knowledge of the Contractor in relation to this or any other Contract with the Employer.
C1.2.1.2.5	**Confidential nature of documents** All maps, drawings, photographs, mosaics, plans, reports, recommendations, estimates, documents and all other data compiled by or received by the Contractor under the Contract shall be the property of the Employer, shall be treated as confidential and shall be delivered only to the Employer's Agent or his duly authorized representative on completion of the Works; their contents shall not be made known by the Contractor to any person other than the personnel of the Contractor performing services under this Contract without the prior written consent of the Employer.
C1.2.1.2.6	**Returns of labour, plant, equipment and material** The Contractor shall provide a return in detail in the form and at such intervals as the Employer's Agent or his duly authorized representative may prescribe showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such information respecting constructional plant, equipment and material as the Employer's Agent or his duly authorized representative may require.
C1.2.1.2.7	**Date falling on public holiday or weekend** Where under the terms of the Contract any act is to be done or any period is to expire upon a certain day and that day or that period fall on a day of rest or recognized holiday or weekend, the Contract shall have effect as if the act were to be done or the period to expire upon the working day following such day.
C1.2.1.2.8	**Ambiguities and inconsistencies** The Employer or the Contractor shall notify the other as soon as either becomes aware of an ambiguity or inconsistency in or between the documents, which are part of this Contract. Governed by the spirit and intention of the Contract, the Employer's Agent shall give a binding instruction resolving the ambiguity or inconsistency.
C1.2.1.2.9	**False claims by the Contractor** a) Failure, by the Contractor, to demonstrate or present any feature declared during the procurement stage shall constitute grounds for Contract termination or the market related equivalent price discount, if no market related value is available, the Employer shall give a final ruling on the amount. This shall be at the discretion of the Employer based on the implication of such omission. Should the Contractor refuse to accept the Employer's price, the Contract shall be terminated. b) Any false claims by the Contractor or his staff (with or without his knowledge), based on Works to be performed or completed per site stage shall constitute grounds for Contract termination and result in blacklisting on the Employer's database. The Contractor shall note that any of the above shall constitute non-performance on the part of the Contractor, further resulting in him forfeiting his full Contract Guarantee.

C1.2.2 PART 2: DATA PROVIDED BY THE CONTRACTOR

GCC Clause	Information
Clause 1.1.1.9	The name of the Contractor is …… ……..
Clause 1.2.1.2	The address of the Contractor is: Physical ……. ……. ……. ……. ……. ……. ……. Postal ……. ……. ……. ……. ……. ……. Tel: …… Fax: …… Email: …….. ……..
Clause 6.8.3	The variation in cost of special materials is Type Unit Rate ***NOT APPLICABLE***

C1.3 FORMS AND SECURITIES

FORMS FOR COMPLETION BY THE CONTRACTOR

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

a) Form of Guarantee

b) Blasting Indemnity

c) Agreement in terms of the Occupational Health and Safety Act

d) Occupational Health And Safety Indemnity Undertaking

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

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

C1.3.1 FORM OF GUARANTEE

TO BE PRINTED ON THE OFFICIAL LETTERHEAD 0F THE GUARANTOR.

PERFORMANCE GUARANTEE

WHEREAS Siyancuma Local Municipaility (hereinafter referred to as "the Employer" or "beneficiary") entered into a Contract with

_____

(hereinafter called "the Contractor")

on the _____ day of _____ 20____ for the construction of

_____

at _____

AND WHEREAS it is provided by such Contract that the Contractor shall provide the Employer with security by way of a guarantee for the due and faithful fulfilment of such Contract by the Contractor;

AND WHEREAS _____

has/have at the request of the Contractor, agreed to such guarantee;

NOW THEREFORE WE, _____

Do hereby guarantee and bind ourselves jointly and severally as Guarantor and Co-principal Debtors to the Employer under renunciation of the benefits of division and excussion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions:

1. The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorised and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Completion Date of the Works under the said Contract, and that its rights under this guarantee shall in no way be

prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alteration of the Completion Date which the Employer may make, give, concede or agree to under the said Contract.

2. This guarantee shall be limited to the payment of a sum of money.

3. The Employer shall be entitled, without reference to us, to release any guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.

4. This guarantee shall remain in force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.

5. Our total liability hereunder shall not exceed the sum of _____

_____

_____

_____ (R_____)

6. The guarantor reserves the right to withdraw from this guarantee by depositing the Guaranteed Sum with the beneficiary, whereupon the Guarantor's liability hereunder shall cease.

7. We hereby choose our address for the serving of all notices for all purposes arising here from as

_____

IN WITNESS WHEREOF this guarantee has been executed by us at _____

on this _____ day of _____ 20____

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

As witnesses

1. _____

_____

Signature

2. _____

Duly authorised to sign on behalf of _____

Address _____

_____

C1.3.2 BLASTING INDEMNITY

Given by _____

*Company Registration No. _____

Address _____

a *Company incorporated with limited liability according to the company laws of the Republic of South Africa, *Partnership, *Close Corporation, *Public Company (hereinafter called the Contractor), represented herein by _____ in his capacity as the Contractor's

_____ duly authorised hereto by a resolution of the Contractor dated

_____ a certified copy of which resolution is attached to this Indemnity.

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

_____

and the Company requires this Indemnity from the Contractor

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

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

_____ day of _____ 20____ in the presence of the subscribing witnesses.

Contractor	***Witness 1***	***Witness 2***	***Employer***	***Witness 1***	***Witness 2***

As witnesses

1. _____

_____

Signature

2. _____

Duly authorised to sign on behalf of _____

Address _____

_____

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

CONTRACT
PART 2 (OF 4): PRICING DATA

C2.1 Pricing Instructions

C2.2 Bill of Quantities

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

C2.1: PRICING INSTRUCTIONS

C2.1.1 **REAMBLE TO THE BILL OF QUANTITIES**

C2.1.1.1 The method of measurement published by the South African Bureau of Standards in Clause 8 of the Standardised Specifications for Civil Engineering Construction is applicable, subject to the variations and amendments contained in the section "Applicable SANS 1200 standardised specifications".

C2.1.1.2 Descriptions in the Schedule/Bill of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each Standardised Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Schedule/Bill, the requirements of the Standardised or Scope of Work, as applicable, shall prevail.

C2.1.1.3 The clauses in a specification in which further information regarding the schedule/bill item can be obtained appear under "Reference clause" in the Schedule. The reference clauses indicated are not necessarily the only sources of information in respect of schedule items. Further information and set specifications may be found elsewhere in the contract documents. Standardised Specifications are identified by the letter or letters which follow SANS in the SANS 1200 series of specifications, e.g. G for SANS 1200 G.

C2.1.1.4 Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

C2.1.1.5 The prices and rates to be inserted in the Schedule/Bill of Quantities are to be the 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.

C2.1.1.6 A price or rate is to be entered against each item in the Schedule/Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Schedule.

C2.1.1.7 All prices or rates inserted in the Bill of Quantities shall be EXCLUDING VAT.

C2.1.1.8 The following wording shall apply:

1. Those parts of the contract to be constructed using labour-intensive methods have been marked in the bill of quantities with the letters LI in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour-intensive specification in the Scope of Works.

2. Payment for items which are designated to be constructed labour-intensively (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.

The following payment items should be included in the bill of quantities:

Item	Description	Unit	Quantity	Rate	Amount
	Training allowance paid to targeted labour iro formal training	Person days	(insert quantity)	(insert specified day rate)	
	Extra over for the administration of payment of training allowances to targeted labour	Person days	(as above)		
	Transport and accommodation of workers for training where it is not possible to undertake the training in close proximity to the site. (Provisional sum)	Sum	(insert provisional sum)		

C2.1.1.9 The units of measurement described in the Schedule/Bill of Quantities are metric units. Abbreviations used in the Schedule/Bill of Quantities are as follows :

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1 000 kg)
m^2	=	square metre	No.	=	number
m^2.pass	=	square metre-pass	sum	=	lump sum
ha	=	hectare	MN	=	MegaNewton
m^3	=	cubic metre	MN.m	=	MegaNewton-metre
m^3.km	=	cubic metre-kilometre	P C sum	=	Prime Cost sum
ℓ	=	litre	Prov sum	=	Provisional sum
kℓ	=	kilolitre	%	=	per cent
MPa	=	MegaPascal	kW	=	kilowatt

Payment for the labour-intensive component of the works

Payment for works identified in the Scope of Work 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.

Applicable labour laws

The Ministerial Determination, 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.

1 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.

1.2 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.

2 Terms of Work

2.1 Workers on a SPWP are employed on a temporary basis.

2.2 A worker may NOT be employed for longer than 12 months in any five-year cycle on a SPWP.

2.3 Employment on a SPWP does not qualify as employment as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

3 Normal Hours of Work

3.1 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.

3.2 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.

3.3 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.

4 Meal Breaks

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

4.2 An employer and worker may agree on longer meal breaks.

4.3 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.

4.4 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.

5 Special Conditions for Security Guards

5.1 A security guard may work up to 55 hours per week and up to eleven hours per day.

5.2 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.

6 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.

7 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").

8 Work on Sundays and Public Holidays

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

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

8.3 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.

8.4 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.

9 Sick Leave

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

9.2 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.

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

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

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

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

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

9.8 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.

9.9 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.

9.10 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.

10 Maternity Leave

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

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

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

10.4 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.

10.5 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.

10.6 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.

10.7 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.

11 Family responsibility leave

11.1 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.

12 Statement of Conditions

12.1 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.

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

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

13 Keeping Records

13.1 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.

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

14 Payment

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

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

14.3 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.

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

14,5 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

14.6 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.

14.7 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.

14.8 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

14.9 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.

15 Deductions

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

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

15.3 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.

15.4 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.

16 Health and Safety

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

16.2 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.

17 Compensation for Injuries and Diseases

17.1 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.

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

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

17.4 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.

18 Termination

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

18.2 A worker will not receive severance pay on termination.

18.3 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.

18.4 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.

18.5 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.

19 Certificate of Service

19.1 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;
(f) any other information agreed on by the employer and worker.

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

C2.2 : BILL OF QUANTITIES

ITEM NO.	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200 A	**SECTION A: GENERAL**				
	8.3	**SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS**				
1	8.3.1	Contractual requirements	Sum	1.0		
2		Political Riot Insurance	Sum	1.0		
	8.3.2	**Establishment of Facilities on Site**				
	8.3.2.1	**Facilities for Engineer**				
3		a) Furnished office as specified per SABS 1200AB Item No. 3.2	Sum	1.0		
4		b) Communication costs (cellular phone)	Sum	1.0		
5		c) Contract Name boards	Sum	2.0		
6		d) Car port	Sum	1.0		
7		e) Survey equipment and assistants (1 No.)	Sum	1.0		
	8.3.2.2	**Facilities for Contractor**				
8		a) Offices and storage sheds	Sum	1.0		
9		b) Workshops	Sum	1.0		
10		c) Laboratories	Sum	1.0		
11		d) Living Accommodation	Sum	1.0		
12		e) Ablution and latrine facilities	Sum	1.0		
13		f) Tools and equipment	Sum	1.0		
14		g) Water supplies, electric power and communications	Sum	1.0		
15		h) Dealing with water on site for the duration of the contract	Sum	1.0		
16		i) Access	Sum	1.0		
17		j) Plant	Sum	1.0		
18	8.3.3	**Other Fixed Charge Obligations**	Sum	1.0		
19	8.3.4	**Removal of Site Establishment on completion**	Sum	1.0		
	8.4	**SCHEDULED TIME RELATED ITEMS**				
20	8.4.1	**Contractual Requirements**	Sum	1.0		
	8.4.2.1	**Facilities for Engineer**				
21		a) Furnished office	Month	12.0		
22		c) Contract Name boards	Sum	2.0		
23		d) Car ports	Sum	1.0		
24		e) Survey assistants	Sum	1.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
	BROUGHT FORWARD					
	8.4.2.2	**Facilities for Contractor**				
25		a) Offices and storage sheds	Sum	1.0		
26		b) Workshops	Sum	1.0		
27		c) Laboratories	Sum	1.0		
28		d) Living accommodation	Sum	1.0		
29		e) Ablution and latrine facilities	Sum	1.0		
30		f) Tools and equipment	Sum	1.0		
31		g) Water supplies, electric power and communications	Sum	1.0		
32		h) Dealing with water on site for the duration of the contract	Sum	1.0		
33		i) Access	Sum	1.0		
34		j) Plant	Sum	1.0		
35	8.4.3	**Supervision for Duration of Construction**	Sum	1.0		
36	8.4.4	**Company and Head Office Overhead Cost for the duration of the Contract**	Sum	1.0		
37	8.4.5	**Other Time-Related Obligations**	Sum	1.0		
38		Provision of Security Personnel	Month	12.0		
	8.4.6	**Standing Time** Compensation for delays incurred				
39		a) Plant	Sum/day	5.0		
40		b) Labour	Sum/day	5.0		
41		c) Supervision	Sum/day	5.0		
42		d) Other facilities not covered by (a), (b) and (c)	Sum/day	3.0		
	8.5	**PROVISIONAL SUMS**				
43	8.5.1	Soil and concrete testing by the Engineer	Prov Sum	1.0	100 000.00	100 000.00
44		Overheads charges and profit on item 43 above	%	100000		
45		Allowance for payment of a CLO	Prov Sum	1.0	120 000.00	120 000.00
46		Overheads charges and profit on item 45 above	%	120000		
47		Reimbursement of PSC members for attaendance of site meetings	Prov Sum	1.0	20 000.00	20 000.00
48		Overheads charges and profit on item 47 above	%	20000		
49		Payment to the Municipality/Eskom for the supply, installation and connection of LV and MV electrical cables	Prov Sum	1.0	300 000.00	300 000.00
50		Overheads charges and profit on item 49 above	%	300000		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
51		Provision of permanent potable water supply for the WWTW (including connection, storage, distribution piping, valves, fittings, and compliance testing)	Prov Sum	1.0	400 000.00	400 000.00
52		Overheads charges and profit on item 51 above	%	400000		
53		Provision of solar high mast lighting for WWTW site (including installation and commissioning)	Prov Sum	1.0	500 000.00	500 000.00
54		Overheads charges and profit on item 53 above	%	500000		
55		Office furniture, worktops, cupboards, etc for Office and Control room	Prov Sum	1.0	120 000.00	120 000.00
56		Overheads charges and profit on item 55 above	%	120000		
	8.7	**DAY WORK (Provisional)** **NOTE:** (i) All rates to be Gross (Mark up, profits under overheads, etc. and all requirements listed in item 8.7 included) (ii) The Tenderer must state the capacity of the Plant that his rate is based on: (iii) Dayworks will apply in quantities. Sub clause 6.5 of the General Conditions of Contact Limiting increases in quantities and/or any Sub items will not apply in day works (iv) Standing time will be taken as 2/3 of the Rate				
	8.7.1	**Labour**				
57		a) Site Foreman	Hr	20.0		
58		b) Trade Foreman	Hr	20.0		
59		c) Supervisor	Hr	40.0		
60		d) Artisan	Hr	20.0		
61		e) Operator	Hr	30.0		
62		f) Gang Boss	Hr	20.0		
63		g) Leading Hand	Hr	20.0		
64		h) Survey Assistant	Hr	50.0		
65		i) Labourer	Hr	100.0		
	8.7.2	**Plant**				
66		a) Track Excavator minimum 20 tons. State make ..... and model	Hr	20.0		
67		b) Track Excavator minimum 40 tons. State make ..... and model	Hr	40.0		
68		c) Backhoe TLB type min. 60kW. State make ..... and model	Hr	20.0		
69		d) Bulldozer (CAT D7 or similar approved - approx. 145 Kw)	Hr	20.0		
70		e) Grader (CAT 140H or similar approved)	Hr	30.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
71		f) Rubber tyred front-end loader mi. 90kW. State make…….. and model ……..……	Hr	10.0		
72		g) Pedestrian type vibrating roller (Bomag BW65H or similar approved). State make …….. and model ……..	Hr	10.0		
73		h) Compacting vibrating roller - Single Drum Smooth - Self Propelled - min. 12 tons. State make……..……..…….. and model ……..……	Hr	10.0		
74		i) Compacting vibrating roller - Single Drum Padded or Grid - Self Propelled - min. 12 tons. State make ……..……..…….. and model ……..……	Hr	10.0		
75		j) Compactor (PAN)	Hr	10.0		
76		k) Water cart (9000 litre)	Hr	20.0		
77		l) Water cart (5000 litre)	Hr	20.0		
78		m) Tip-up truck (10 m³)	Hr	20.0		
79		n) Tip-up truck (6 m³)	Hr	20.0		
80		o) Compressor: min 250 cfm complete with hand tools and attachments. State make……..…….. and model ……..……	Hr	10.0		
81		p) Bakkie (1 ton)	Hr	20.0		
82		q) Cement	Bag	1.0		
83		r) Building Sand	m³	1.0		
84		s) Crushed Stone (19mm)	m³	1.0		
85		t) Bricks (ROK's)	No.	1 000.0		
	8.8	**TEMPORARY WORK**				
	8.8.2	**Accommodation of Traffic**				
86		Provide and erect warning signs, flag persons, lights, controls for duration of Contract in crossings of roads	Sum	1.0		
	8.8.4	**Existing Services**				
87		Excavate by hand in soft material to locate existing services	m³	10.0		
	8.8.5	**Cost of survey in terms of Land Survey Act**				
88		a) Locate, record and protect erf boundaries and survey pegs	Sum	1.0		
89		b) Replace pegs recorded as missing at commencement of Contract	No.	5.0		
	8.8.7	**Compliance with OHS Act and Regulations (Including the Construction Regulations 2003)**				
90		(a) Contractor's initial obligation in respect to the Occupational Health and Safety Act and Construction Regulations, including the preparation of a Health & Safety Plan. Include for responsibilities and duties as Main Contractor and dealing with all other contractors	Sum	1.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		BROUGHT FORWARD				
91		(b) Contractor's time-related obligations in respect of complying with the Occupational Health and Safety Act and Construction Regulations. Include for responsibilities and duties as Main Contractor and dealing with all other contractors	Month	12.0		
92		(c) Provision of competent Health & Safety Officer and all other competent staff required	Month	12.0		
	8.8.8	**Compliance with Environmental Requirements**				
		NEMA (Act No. 107 of 1995 and ECA No. 73 of 1989)				
93		(a) Compile Method Statement and Implementation and Management Plan required in terms of NEMA and ECA. Include for responsibilities and duties as Main Contractor and dealing with all other contractors	Month	12.0		
94		(b) Contractor's time-related obligations in respect of complying with the NEMA and ECA requirements. Include for responsibilities and duties as Main Contractor and dealing with all other contractors	Month	12.0		
95		(c) Provision and management of competent staff to monitor, manage and oversee environmental responsibilities	Month	12.0		
	8.8.9	**Training**				
96		Training of targeted labour	Sum	1.0		
97		Overheads and Charges on item 96	%			
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200 C	**SECTION C: SITE CLEARANCE**				
	8.2.1	**Clear and grub**				
1		a) Clear site as directed, including spoiling material within the free haul distance of 3km	ha	5.5		
2	8.2.8	Demolish and remove existing brick and concrete structures / buildings and cart rubble to spoil at an approved Municipal Tip Site	Sum	1.0		
3		Remove existing liner and concrete at ponds and cart rubble to spoil at an approved Municipal Tip Site	Sum	1.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200D	**SECTION D: EARTHWORKS**				
	8.3.1.2	Remove topsoil to nominal depth 150mm, stockpile, and maintain				
1		To stockpile for later re-use	m²	1 000.0		
2		To spoil on site	m²	3 033.0		
	8.3.2	**BULK EXCAVATION**				
		a) CUT TO FILL in all materials within a free haul distance of 1km, and compacted to 95% of MOD AASHTO density				
3		From excavations to construct terrace at Night Soil Discharge and Inlet Channels	m³	100.0		
4		**b) CUT TO STOCKPILE** within a free haul distance of 1km,	m³	100.0		
5		**c) CUT TO SPOIL** within a free haul distance of 1km	m³	150.0		
		d) STOCKPILE TO FILL				
6		**To construct terrace at Night Soil Discharge and Inlet Channels. Fill compacted to 95% MOD AASHTO**	m³	145.0		
7		To construct other embankments and terraces	m³	100.0		
		Extra Over Items 3, 4, 5 and 6 for:				
9	8.3.2 b) 2)	Excavation in hard rock material (Provisional)	m³	100.0		
	8.3.3	**RESTRICTED EXCAVATION**				
	8.3.3a)	**Excavate in all materials and use for backfill or spoil within free haul distance:**				
10		Night Soil Discharge and Inlet Channel	m³	36.0		
11		Other structures, not measured elsewhere	m³	50.0		
	8.3.3 b) 2)	**Extra Over Items 10 to 16 for:**				
12		Hard rock material (Provisional)	m³	50.0		
	8.3.5	**Extra excavation in all materials to provide working space for outside formwork:**				
13		Around structures	m²	250.0		
		Extra Over Backfill against structures (non cohesive free drainage sandy soil) Payment only for volume 1m from outside face of wall of structure				
14		Night Soil Discharge and Inlet Channel	m³	450.0		
15	8.3.9	**Top Soiling areas as directed 100mm thick with material from stockpile**	m²	2 800.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200DB	**SECTION DB: PIPE TRENCHES**				
	8.3.2 a)	**Excavation in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material, for pipes:** **Pipes up to 400mm diameter for depths:**				
1		Less than 1m deep	m	2 154.0		
2		Exceeding 1.0 m but not exceeding 2.0 m	m	125.0		
3		Exceeding 2.0 m but not exceeding 3.0 m	m	21.0		
4		Exceeding 3.0 m but not exceeding 4.0 m	m	5.0		
		Extra over item 8.3.2 (a) for excavation in:				
5	b)	Hard rock material Provisional)	m^3	126.0		
	8.3.5	**Existing Services**				
		a) Services that intersect a trench:				
6		Fences	No.	2.0		
7		Pipelines	No.	2.0		
8		Cables	No.			
		b) Services that adjoin a trench:				
9		Fences	m	30.0		
10		Pipeline	m	150.0		
11		Cables	m			
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200DE	**SECTION DE: SMALL EARTH DAMS**				
	8.3.3	**Excavation:**				
1	8.3.3a)	**Material unsuitable for embankment: Remove to spoil on site**	m³	100.0		
	8.3.3b)	**Material suitable for embankment from essential excavations for:**				
2		Core trench	m³	10.0		
3		Pipe trenches	m³	10.0		
4		Extra Over for excavations in rock	m³	20.0		
	8.3.4	**Preparation of exposed surfaces for:**				
5		Core trench	m²	100.0		
6		Area to be covered by damm wall	m²	1 280.0		
	8.3.5	**Forming embankment from materials excavated under 8.3.3b) and stockpiles formed from other excavations from site**				
7		Selected impervious material	m³	100.0		
8		Unselected pervious material	m³	50.0		
9		Topsoil	m³	20.0		
10		Gravel capping	m³	20.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200DM	**SECTION DM: EARTHWORKS (ROADS, SUBGRADE)**				
	8.3.4	**Cut to fill, borrow to fill:**				
1		a) Cut to fill compacted to 93% Mod AASHTO	m³	450.0		
2		b) Borrow to fill from stockpile on site	m³	550.0		
	8.3.3	**TREATMENT OF ROAD-BED**				
3		Road- bed preparation and compaction of material to 93% Mod AASHTO density	m³	450.0		
	8.3.5	**Selected layers:**				
		a) Using material cut from site				
4		150mm Selected subgrade (SSG), G7 selected layer compacted to 95% Mod ASSHTO density	m³	110.0		
		b) Using material from commercial or off site sources located by the Contractor				
5		150mm Selected subgrade (SSG), G5 selected layer compacted to 95% Mod AASHTO density	m³	180.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS1200G	**SECTION G: CONCRETE (STRUCTURAL)**				
		Mass concrete of 20 MPa (19mm coarse aggregate) in :				
1		Thrust, anchor blocks and pipe supports	m³	10.0		
2		Pipe collars at outlet of Emergency Storage Pond	m³	5.0		
3		Base to precast concrete retaining walls	m³	50.0		
4		Benching to Grit Inlet Channels	m³	25.0		
5		Infill as backing to fix Parshall Flume to channel floor and wall	m³	1.0		
6		Foundations for pre-cast concrete walling	m³	8.0		
7		Pipe encasings at Grid Inlet Channels	m³	3.0		
		Mass concrete of 30 MPa (19mm coarse aggregate) with				
8		Hardstand at Night Soil Discharge terrace	m³	107.0		
	8.4.3	**Strength reinforced concrete of 35 MPa (19 mm coarse**				
9		Floor and upstands of drain area, and channel base, walls and support to grid, of Night Soil Bucket Discharge facility	m³	15.0		
10		Bases and stub columns to Canopy Shelter at Night Soil Discharge area	m³	2.5		
11		Base, walls and grid support for Grit Inlet Channels and all chambers and boxes connected to Inlet Channels	m³	43.0		
12		Base and walls of Inlet and Outlet structures to Emergency Storage Dam	m³	1.0		
13		Base, walls and roof of Outlet and Overflow Chamber	m³	8.0		
14		Staircase and landing of Chlorination Building	m³	15.0		
15		Generator building floor, ramp and roof slab	m³	12.0		
	8.1.1 8.2.1	**FORMWORK** **Rough formwork to sides of :**				
16		50mm Thick blinding layer under base and floor and base of channel of night soil drainage slab (Provisional)	m²	3.0		
17		50mm Thick blinding layer under base and floor and base of channel of night soil drainage slab (Provisional)	m²	3.0		
18		50mm Thick blinding layer under base of Grit Inlet channels, chambers and boxes that are part of Inlet Works (Provisional)	m²	5.0		
19		50 mm Thick blinding layer under inlet and outlets to Emergency Storage Dam, Outlet and Overflow Chamber (Provisional)	m²	1.0		
20		50 mm Thick blinding layer under bases of Canopy Shelter at Grid Inlet Works (Provisional)	m²	1.0		
21		50 mm Thick blinding layer under Division Box (Provisional)	m²	0.7		
22		50 mm Thick blinding layer under Inlet and Outlet structures at Pond (Provisional)	m²	10.0		
23		Pipe encasing at Grid Inlet Channels	m²	1.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
	8.2.2	**Smooth formwork to sides of :**				
24		Perimeter upstand of Night Soil Drain Slab	m²	8.0		
25		Wall bases (floors), floor upstands, and walls of Night Soil channel and Grid Inlet Channel, and chambers and boxes linked to the Grid Inlet Channel	m²	421.0		
26		Cover slab supporting grid at Night Soil Channel and at Grid Channel	m²	3.0		
27		Bases and stub columns of Canopy Shelter at Night Soil Discchare area	m²	11.0		
28		Floor base of Inlet Channel and chambers and boxes connected to Inlet Channel	m²	30.0		
29		Walls and floor upstands of Inlet Channel and chambers and boxes connected to Inlet Channel	m²	25.0		
30		Sides of Grid Support (drainage platform) of Inlet Channels	m²	15.0		
31		Base, walls and division wall of Outlet and Overflow Chamber	m²	8.0		
32		Base, and floor upstand of Chlorination Channels, including side of cover slab as building building (Steel or GRP formwork only)	m²	4.0		
33		Construction joint in 250mm thick floor of Chlorination Channels	m²	364.0		
34		Walls of Chlorination Channels, including side of cover slab as building building (Steel or GRP formwork only)	m²	13.0		
36		Construction joint in 250mm thick wall of Chlorination Channels	m²	13.0		
37		45 degree chamfer 125mm high to top of weir wall at Chlorination tank	m²	6.0		
38		200mm wide construction joint in hardstand at Night Soil Discharge	m²	5.0		
	8.2.2	**Smooth formwork to horizontal soffits of :**				
39		Grid supports at Night Soil Discharge and at Inlet Channels	m²	5.0		
		Smooth formwork to inclined soffits of :				
40		Staircases at Control Room and Gaurdhouse	m²	14.0		
	8.2.2	**Smooth formwork to form :**				
41		30mm wide x 1.285m high slot through 200mm thick wall of flow meter chamber at Inlet Channels	No	1.0		
42		250mm x 2500mm openings in 250mm thick wall at Chlorination Channels	No	8.0		
43		30mm diameter openings in Grid Support slab at Night Soil Discharge	No	6.0		
44		20mm diameter openings in Grid Support slab at Inlet Channels	No	6.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
	8.1.2	**REINFORCEMENT**				
	8.3.1	**Mild steel rod reinforcement**				
45		Not exceeding 12 mm diameter	t	1.0		
46		Exceeding 12 mm diameter	t	2.5		
	8.3.1	**High tensile rod reinforcement**				
47		Not exceeding 12 mm diameter	t	50.0		
48		Exceeding 12 mm diameter	t	60.0		
49		High tensile welded mesh reinforcement Ref 617	m²	55.0		
	8.4.4	**CONCRETE SURFACE FINISHES** **Wood floated finish to top of:**				
50		150mm thick surface drainage platform at Night Soil Discharge	m²	28.0		
51		200mm wide perimeter upstand around drainage platform at Night Soil Discharge	m²	5.0		
52		400 mm bases for Canopy Shelter at Night Soil Discharge	m²	1.0		
53		Top of surface of outer edge of 250mm thick edge of base of Chlorination Channels	m²	8.0		
54		Top of surface of 250mm floor of Chlorination Channels	m²	55.0		
55		Top of surface of outer edge of staircase base of Chlorination	m²	1.0		
56		Top of floor and staircase landing of Chlorination Building	m²	2.0		
57		250mm thick base of Night Soil Discharge channel	m²	7.8		
58		200mm wide wall of Night Discharge Channel	m²	4.0		
59		250mm thick base of Grid Inlet Channels and all chambers and baxes	m²	80.0		
60		200mm wide top of walls of channels and all chambers and boxes	m²	2.0		
61		Top of Grid Support (drainage platform) of Inlet Channels	m²	2.0		
62		400 x 400mm stub columns for Canopy Shelter at Night Soil Discharge	m²	0.8		
63		200mm thick walls of Outlet/Overflow Chamber	m²	1.8		
64		150mm wide circular overflow wall, inclusive of the 45 degree chamfered edge	m²	10.0		
		1 : 3 Cement and sand screed :				
65		20 mm thick (maximum) to inclined benching surfaces in Grid Inlet Channels and Central Sludge Collection Chamber of Sedimentation Tanks and finished to a smooth even surface	m²	101.0		
66		220 to 20mm thick in Overflow Channel of Sedimentation Tank and finished to a smooth even surface	m²	50.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
	8.5	**JOINTS**				
		(Formwork, surface finishes, curing, sealant grooves, waterstops and sealants elsewhere measured unless specifically noted)				
		Construction joints in :				
		(Rates for construction joints to include all costs for formwork, stopends, joint preparation for following casts and "Vandex Super" application unless specifically noted. Extra reinforcement at construction joints elsewhere measured)				
		Inlet Channels				
67		250 mm Thick floor and 200mm wide walls of Inlet Channels	m	6.0		
		Concrete Hardstand on terrace ta Night Soil Discharge and Inlet Works				
68		200mm thick concrete hardstand	m	40.0		
		Concrete Hardstand on terrace ta Night Soil Discharge and Inlet Works				
69		Saw cut joints	m	105.0		
		"Vandex Cemelast waterproofing slurry" or similar approved across construction joints :				
70		Wall sections	m	380.0		
		170mm wide "Vandex construction joint tape" or similar approved to cover construction joints				
71		Wall sections	m	380.0		
		SEALANT GROOVES				
		Alternative cutting of sealant grooves for the installation of two-part polysulphide sealant in place of specified bandage seals				
		15 x 20 mm Sealant groove to joints in				
		Inlet Channels				
72		250mm floor base and 200mm wide walls	m	18		Rate Only
		Concrete Hardstand on terrace ta Night Soil Discharge and Inlet Works				
73		200mm thick concrete hardstand	m	40.0		
		Concrete Hardstand on terrace ta Night Soil Discharge and Inlet Works				
74		Saw cut joints	m	185.0		
		SUNDRIES				
75		Fibre glass Parshall Flume, manufacture to dimensions shown on drawing	No	1.0		
76		Stainless steel frame for Stop Logs 500mm wide for opening size 500mm wide x 1.75m high, including all fixings.	No	5.0		
77		Aluminium frame for Stop Log 500mm wide 300mm high. Each Stop Log must have a flexible seal at to top and bottom end to allow stacked Logs to give tight grip.	No	24.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
		Two layers of 3 ply Malthoid sliding strip				
78		On top of 250 wide concrete wall	m	46.0		
79		On top of 230mm brick wall	m	20.0		
80		Cast 400 mm diameter pipe into 200mm thick wall of Night Soil Discharge Channel surface bed	No	2.0		
81		Cast 400 mm diameter pipes into 200mm thick wall of Inlet Channel	No	2.0		
82		Cast 300 mm diameter pipe into 200mm thick wall of Inlet Channel	No	1.0		
83		Cast 150 mm diameter pipes into 200mm thick wall of Inlet Channel	No	2.0		
84		Cast 100 mm diameter pipe into 200mm thick wall of Inlet Channels	No	4.0		
85		Cast 100 mm diameter pipe into encasings under Inlet Channels	No	2.0		
86		Cast 300 mm diameter pipe into sloped wall of Inlet to Emergency Storage Dam	No	1.0		
87		Cast 300 mm diameter pipe into sloped wall of Outlet to Emergency Storage Dam	No	1.0		
88		Cast 300 mm diameter pipe into 200mm thick wall of Outlet and Overflow Chmaber	No	3.0		
89		Cast 250 mm diameter pipe into 250mm thick wall of Chlorination Channels	No	2.0		
90		Cast 300 mm diameter pipe into wall of Pond Outlet	No	1.0		
		Precast concrete (Terraforce or similar approved) Retaining Wall (concrete to foundations measured separately). Wall constructed in steps as shown on Drawing				
91		400 x 300 x 225mm precast concrete blocks	m²	220.0		
92		Grouted stone pitching (as per Clause 5.3.3 of SABS1200DK)	m²	400.0		
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS1200H	**SECTION H: STRUCTURAL STEELWORK**				
		STAINLESS STEEL **Supply, fabricate and install the following items complete, including protective treatment and all necessary stainless steel fasteners :**				
1		Stainless steel sluice gate only for 1.0m wide channel, including all fixinings as per Detail 1 on Drawing S0323-01-HWST-001-T-00	No	1.0		
2		Stainless steel frame only for sluice gate for 1.0m wide channel, including all fixings as per Detail 1 on Drawing S0323-01-HWST-001-R-00	No	2.0		
3		Stainless steel sluice gate only for 1.0m wide channel, including all fixinings as per Detail 2 on Drawing S0323-01-HWST-001-T-00	No	1.0		
4		Stainless steel frame only for sluice gate for 1.0m wide channel, including all fixings as per Detail 2 on Drawing S0323-01-HWST-001-T-00	No	2.0		
5		Stainless steel sluice gate only for 1.0m wide channel, including all fixings as per Detail 3 on Drawing S0323-01-HWST-001-T-00	No	1.0		
6		Stainless steel frame only for sluice gate for 0.3m wide and 1.0m deep channel, including all fixings as per Detail 3 on Drawing S0323-01-HWST-001-T-00	No	2.0		
		HOT DIP GALVANISED MILD STEEL				
7		Grid for night Soil Discharge Channel. Complete installation to be hot dipped galvanised. Include stainless steel fixing bolts, all as shown on Drawing No S0323-01-HWST-002-T-00	No	1		
8		Grid for Inlet Channels. Complete installation to be hot dipped galvanised. Include stainless steel fixing bolts, all as shown on Drawing No 8358AU-ST100	No	1		
9		Drainage Grid for night Soil discharge Channels, including angle iron frame, all as shown on Drawing No S0323-01-HWST-002-T-00, Complete installation to be hot dipped galvanised	No	1		
10		**Canopy at Night Soil Discharge Platform:** Complete as detailed on Drawing S0323-01-HWST-001-T-00. Concrete measured separately. Include for all fixings and finishes	Item	1		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200L	**SECTION L: MEDIUM PRESSURE PIPELINES**				
	8.2.1 **8.2.1.1**	**Supply, lay, bed and test Pipes complete with couplings uPVC Pipelines to SABS/ISO 966-1:**				
1		200mm diameter Class 12 uPVC Pumping Main from Raw Sewage Pump Station	m	50.0		
	8.2.2	**Extra Over 8.2.1 for the Supply, Fix and Bed of uPVC Pressure Pipe Specials, complete with couplings**				
2		200mm X 90 degree bend	No.	1.0		
3		200 x 200 diameter Tee	No	1.0		
		HDPE Pipelines: Type PE 60 Class 10 to SABS/ISO 4427:				
4		32mm diameter	m	20.0		
5		50mm diameter	m	20.0		
		Valves				
	8.2.3	**Extra Over 8.2.1 for the Supplying, Fixing and Bedding of Valves**				
6		315mm Dia. Knife Gate Valve (Orbinox or Similar with Stainless Steel Blade)	No.	1.0		
7		160mm Dia. Knife Gate Valve (Orbinox or Similar with Stainless Steel Blade)	No.	1.0		
8	8.2.11	Anchor / Thrust Blocks and Pedestals: Cost to cover concrete and formwork	m^3	4.0		
		PIPE SPECIALS Supply, lay, joint and maintain pipework specials and fittings including bedding, complete with couplings, bolts, nuts, washers, gaskets and any other items required by the specifications or necessary in the interests of good workmanship. Allow for corrosion protection as specified in the Project Specification and shown on the drawings.				
		STAND PIPES				
9		Supply and erect stand pipe as per detail on Drg. No	No	2.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS1200LB	**SECTION LB: BEDDING (PIPES)**				
	8.2.1	**Provision of Bedding from Trench Excavations**				
1	8.2.1 (a)	Selected granular material	m^3	100		Rate Only
2	8.2.1 (b)	Selected fill material	m^3	300		Rate Only
	8.2.2.3	**Provision of Bedding from Commercial Sources**				
3	8.2.2.3 (a)	Selected granular material	m^3	15		
4	8.2.2.3 (b)	Selected fill material	m^3	15		
5	8.2.3	Concrete bedding (20 MPa/19 mm)	m^3	10		Rate Only
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200LD	**SECTION LD: SEWERS**				
	8.2.1	**Supply, lay, bed and test sewer pipes complete with couplings**				
	8.2.1.1	**uPVC Pipelines**				
1		110mm diameter Class 34	m	20.0		
	8.2.3	**Sewer Manholes**				
		900mm diameter precast concrete manholes complete as shown on the drawings, without cover, for depths:				
2		0.5m - 1.0m	No.	1.0		
3		1.0 m - 2.0 m	No.	0.0		
		900mm diameter precast concrete manholes complete as shown on the drawings, with cover, for depths:				
4		0.5m - 1.0m	No.	5.0		
5		1.0 m - 2.0 m	No.	0.0		
6		2.0 m - 3.0 m	No	0.0		
7		3.0 m - 4.0 m	No	0.0		
		PIPE SPECIALS				
		Supply, lay, joint and maintain pipework specials and fittings including bedding, complete with couplings, bolts, nuts, washers, gaskets and any other items required by the specifications or necessary in the interests of good workmanship. Allow for corrosion protection as specified in the Project Specification and shown on the drawings.				
		Grit Channels:(Drg. No S0323-01-HWST-001-T-00)				
8		Pipe Tag No GRC01	No	1.0		
9		Pipe Tag No GRC02	No	1.0		
10		Pipe Tag No GRC03	No	2.0		
11		Pipe Tag No GRC04	No	1.0		
12		Pipe Tag No GRC05	No	2.0		
13		Pipe Tag No GRC06	No	2.0		
14		Pipe Tag No GRC07	No	1.0		
15		Pipe Tag No GRC08	No	1.0		
		Night Soil Disposal Facility: (Drg No S0323-01-HWST-001-T-00)				
16		Pipe Tag No DF01	No	2.0		
	8.2.1	**Supply, lay and bed "Cordrain" uPVC flexible slotted drainage pipes with socket "push-fit" type joints at bends and junction pieces in no-fines concrete collector drains:**				
17		160 mm Diam	m	0.0		
18		110 mm Diam	m	2 298.0		
	8.2.2	**Extra over 8.2.1 for the supply, lay and bedding of specials complete with couplings:**				
		uPVC:				
		Reducers:				
19		160 x 110 mm Diam	No	0		
		Bends:				
20		110 mm Diam x 90 degree	No	16		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
		Tees:				
21		160 mm x 160 mm Diam	No	0		
22		110 mm x 110 mm Diam	No	6		
		Y Junction:				
23		110 mm x 110 mm Diam	No	36		
		Crosses:				
24		110 mm x 110 mm Diam	No	0		
		End Caps:				
25		110 mm x 110 mm Diam	No	36		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS 1200LE	**SECTION LE: STORMWATER DRAINAGE**				
	8.2.1	**Supply and lay concrete pipe culverts on Class C bedding, Class 50D, for:**				
1		375mm diameter	m	12.0		
2		450mm diameter	m	0.0		
	8.2.8	**Supply and install manholes, catchpits and the like**				
		Type A Drainage Manholes as per detail for Stormwater Manholes shown on Drawing No S0323-01-LDLP-001-R-00, to depths of				
3		upto 1,0m	No	3.0		
4		deeper than 1,0m and upto 1,5m	No	1.0		
5		deeper than 1,5m and upto 2,0m	No	1.0		
6		deeper than 2,0m and upto 2,5m	No	0.0		
7		deeper than 2,5m and upto 3,0m	No	0.0		
		Type B Drainage Manholes as per detail for Stormwater Manholes shown on Drawing No S0323-01-LDLP-001-R-00, to depths of				
8		upto 1,0m	No	3.0		
9		deeper than 1,0m and upto 1,5m	No	2.0		
10		deeper than 1,5m and upto 2,0m	No	1.0		
		Headwalls as per detail for brick headwalls for stormwater pipes shown on Drawing No, for pipe sizes:				
11		110mm diameter stormwater pipe	No	5.0		
12		450mm diameter stormwater pipe	No	0.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS1200MJ	**SECTION MJ: SEGMENTED PAVING**				
	8.2.1	**Provision of Edge Restraint**				
1		75mm x 150mm in straights. Cost to include for 100mm thick concrete bedding and 75mm concrete backing	m	145.0		
	8.2.2	**Construction of paving complete**				
2		80mm Type SA Class 25 interlocking concrete pavers. Include for 20mm sand bedding. Lay in herringbone pattern	m²	270.0		
	8.2.3	**Cutting units to fit Edge Restraints**				
3		Straight	m	70.0		
4		Circular	m	120.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SABS1200MK	**SECTION MK: KERBING AND CHANNELLING**				
		Concrete kerbing				
		Precast barrier kerb, 150 x 225mm high. Include for 150mm concrete bedding and 150mm concrete backing				
1		Straight	m	165.0		
2		Curved	m	65.0		
CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	PPB	**SECTION : BUILDING WORK**				
		OFFICE/ADMIN AND CONTROL BUILDING INCORPORATING THE GAURDHOUSE				
		EXCAVATIONS				
		Excavation in earth not exceeding 2m deep:				
1		Foundations	m³	25.0		
2		Reduced levels under floors	m³	6.0		
		Extra over trench excavations in earth for excavation in:				
3		Hard rock	m³	0.5		
		Extra over all excavations for loading, carting and dumping surplus excavated material (no allowance made for increase in bulk)				
4		Off site to a dumping site to be found by the Contractor	m³	15.0		
		FILLING				
		Filling with selected earth filling from the excavations on site and compacted to 95% Mod. AASHTO density.				
5		Back filling to trenches	m³	9.0		
		Filling with approved G5 material in accordance with SABS 1200DM supplied by the Contractor and compacted to 95% Mod. AASHTO density				
6		Under floors	m³	11.0		
		TESTS				
		Prescribed density tests on filling:				
7		Modified AASHTO Density tests	No	3.0		
		UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES				
		15Mpa/19mm Concrete:				
8		Strip footings	m³	12.0		
		30Mpa/19mm Concrete:				
9		Surface beds cast in panels on waterproofing	m³	4.0		
		TEST CUBES				
10		Making and testing of three 150x150x150mm concrete strength test cubes for 7day and 28 day results for each batch of concrete	No	7.0		
		SOUND INSULATION TO CONCRETE FLOORS				
11		250 micron USB Green/Black DPC membrane laid with minimium 150mm overlaps	m²	70.0		
		Finishing top surface of concrete smooth with a steel trowel				
12		Surface beds	m²	100.0		
		MASONARY				
		BRICKWORK IN FOUNDATIONS				
		Brickwork of NFX bricks in class ll mortar:				
13		220mm Walls	m²	53.0		
14		One brick walls	m²	11.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	
	BROUGHT FORWARD					
		BRICKWORK IN SUPERSTRUCTURE				
		Brickwork of NFP bricks in class ll mortar:				
15		220mm Walls	m²	305.0		
16		One brick walls	m²	65.0		
17		Brick- on- edge cill 220mm wide set sloping and slightly projecting	m	35.0		
		BRICKWORK SUNDRIES				
18		Leave or form cable duct opening 200x200mm in 270mm hollow walls	No	3.0		
19		Extra over for fair face pointed with flush horizontal and vertical joints	m²	77.0		
20		Smooth plaster of 1:3 cement and sand mixture on brick walls	m²	305.0		
		Brick work reinforcement				
21		230mm Wide reinforcement built in horizontally in foundations	m	55.0		
22		230mm Wide reinforcement built in horizontally.	m	65.0		
		Prestressed fabricated concrete lintels:				
23		100x70mm Lintels in lengths not exceeding 3m	m	15.0		
24		150x70mm Lintels in lenghts not exceeding 3m	m	15.0		
		PREFABRICATED ROOF TRUSSES,ETC.				
25		**Plated nailed timber roof trusses:** Allow all costs roof trusses, purlins and wall plates designed by specialists to Engineer's approval, supplied and delivered to site, including all necessary clips, brackets etc. and allow for hoisting and fixing in position.	Item		Sum	
		ROOF COVERING				
26		0.6mm Corrugated iron roof sheets	Item		Sum	
		FACIA BOARDS				
27		Supply and install 10x225mm Nutec Facia bBards	m	22.0		
		BARGE BOARDS				
28		Supply and install 200x80mm Nutec Barge Boards	m	16.0		
		NAILED UP CEILINGS				
29		38x38mm Sawn softwood brandering at 400mm centers nailed to underside of rafters in one direction only	m	316.0		
30		6,4mm Rhinoboard gypsum pleastered ceiling fixed print side up with 38mm galvanised serrated nails at 150mm centers with pvc cover strips.	m²	150.0		
		CORNICES				
31		75mm Coved cornices	m	44.0		
		SKIRTINGS				
32		76mm Pine skirtings fixed to wall with steel nails.	m	50.0		
		FRAMED WROUGHT HARDWOOD DOORS				
33		44mm Thick framed, ledged and battened hardwood door, size 813x2032mm high complete with hinges and 3 lever door locks.	No	3.0		
CARRIED FORWARD						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BROUGHT FORWARD					
		SOLID CORE FLUSH DOORS.				
34		44mm Solid flush doors with 3.2mm standard hardboard covering on both sides,815x2032 high complete with hinges and 2 lever door locks.	No	5.0		
		PAINTWORK				
		General: All work to be executed in strict accordance with the specifications of the manufacturer. Primers and first coats may be thinned in accordance with the paint specifications. All surfaces must be sound, clean and have a moister content of less than 8% for walls.				
		ON FLOATED PLASTER				
		Prepare surfaces and apply one coat Plaster Primer and two coats coats Acrylic paint:				
35		On interior walls.	m²	305.0		
36		On interior ceilings.	m²	150.0		
		ON METAL				
		Prepare and degrease galvanized surfaces and apply one coat Iron Primer and two coats Polyurethane Enamel paint on galvanised steel surfaces.:				
37		On frames and windows.	m²	16.0		
		Prepare surfaces and apply three coats Plascon Woodcare Clear pluss high gloss varnish:				
38		On exterior doors and frames	m²	10.0		
		Prepare surfaces and apply one coat Plascon Wood primer and two coats Plascon Velvaglo Polyurethane enamel Paint:				
39		On interior doors, frames and skirtings.	m²	20.0		
		PLUMBING				
40		Supply and install all plumbing fittings(pipes, taps, toilets, hand basins etc) to ablutions as per drawing (S0323-01-TD-004-T-00 and S0323-01-TD-003-T-00).	Item		Sum	
		WATERPROOFING				
41		Waterproof shower walls and floor with Cemflex 326 or similar approved product.	m²	7.5		
		TILING				
		White glazed ceramic wall tiles fixed with Tylon cement based wall adhesive and flush pointed with Tylon grout.				
42		On walls including all cuttings.	m²	8.5		
43		On shower floor including cuttings to form mosaic pattern.	m²	4.0		
		FLOOR COVERINGS				
44		Vinyl floor tiles including pavelite screed to concrete floor.	m²	40.0		
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		SECTION P: FENCING				
		CLEAR FENCE LINE				
1	PA.8.8.1	Clear fence line for erection of new fencing	m	600		
2		a) New 2.4m high see-through steel fence complete with spikes and under-dig protection (Refer to Drawing S0323-01-TD-003-T-00 for details)	m	1 045.0		
3		b) New 2.1m high see-through steel gate, with tamper proof lock and spiked top, complete as shown in the drawing S0323-01-TD-003-T-00 (1 No.)	No	1.0		
4		Supply and installation of solar-powered LED security lights mounted on fence posts, including all brackets and commissioning (spaced every 25 meters)	No	25.0		
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		PW : WATERPROOFING (PARTICULAR SPECIFICATION PW)				
		WATERSTOPS				
		Construction Joints in Sludge Beds Underflow Return Pump				
1		Continuous vertically placed 250 mm ABE Durajoint PVC Dumbbell waterstop (sole approved waterstop) in construction joint in kicker of well of Night Soil Discharge Facility	m	6.0		
2		Infill as backing to fix Parshall Flume to channel floor and wall	m	20.0		
3		Continuous vertically placed 150 mm ABE Durajoint PVC Cenre Bulb waterstop (sole approved waterstop) in contraction joint in floor base and walls of Inlet Channels	m	12.0		
		Allow for all costs connected with preparing for and carrying out the procedures described in the Project Specification for the water testing complete :				
		WATER TEST				
4		Water test: Night Soil Dischage Facility	No	2		
5		Water test: Chlorination Channels	No	1		
6		Water test: Inlet Channels	No	1		
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO.	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		PX : SEALANTS (PARTICULAR SPECIFICATION PX)				
		BANDAGE SEALS				
		Sikadur-Combiflex or equal and approved flexible bandage seals with minimum 150 mm geomembrane bandage width x 2 mm minimum thickness installed complete at contraction joints including all preparation, sandblasting, polysulphide filling, bondbreaking tape and protection at :				
		Inlet Channels				
1		250mm floor base and 200mm wide walls	m	6		
		SEALANTS				
		Alternative installation of two-part polysulphide sealant with two-part primer in 15 x 20 mm sealant grooves to contraction joints, including preparation of sealant grooves and placing of bondbreaking tape in :				
		Inlet Channels				
2		250mm floor base and 200mm wide walls	m	18		Rate Only
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO.	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	PAA	**GEOMEMBRANE SHEETING**				
		Sheeting and lining to Oxidation Ponds:				
		b) Supply, install and test BGCL - Bentonite Geosynthetic Clay Liner or approved equivalent as:				
1		i) Primary liner to horizontal and and sloping surfaces of dam including fixing into anchor trench.	m²	25845		
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS						

ITEM NO.	PAYMENT CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	PAB	**NON-WOVEN PROTECTION GEOTEXTILES**				
		Geotextile placing to the dams:				
		a) Supply, install and stitch Bidim A6 or approved equivalent as:				
1		i) Protection layer around 19 mm stone in the leakage detection sump.	m²	2020		
2		ii) Protection layer around 19 mm stone in the subsurface drainage system	m²	2695		
3		iii) Protection layer below the Geosynthetic Clay Liner	m²	21859		
TOTAL CARRIED FORWARD TO SUMMARY OF SECTIONS						

SUMMARY OF BILL OF QUANTITIES		
Section	**Description**	**Amount**
A	**General**	
C	**Site Clearance**	
D	**Earthworks**	
DB	**Pipe Trenches**	
DE	**Small Earth Dams**	
DM	**Earthworks: (Roads, Subgrade)**	
G	**Concrete (Structural)**	
H	**Structural Steel Work**	
L	**Medium Pressure Pipelines**	
LB	**Bedding**	
LD	**Sewers**	
LE	**Storm Water Drainage**	
MJ	**Segmented Paving**	
MK	**Kerbing and Channeling**	
PPB	**Buildings**	
P	**Fencing**	
PW	**Waterproofing**	
PX	**Sealants**	
PAA	**Geomembrane Sheeting**	
PAB	**Non-Woven Protection Geotextiles**	
SUB TOTAL		
Add: 10% Contingencies		
SUB TOTAL		
Add: 15% VAT		
TOTAL		

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

CONTRACT
PART 3 (OF 4): SCOPE OF WORKS

ITEM	
C3.1	**Description Of The Works**
C3.2	**Engineering**
C3.3	**Procurement**
C3.4	**Construction**
C3.5	**Management**

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

C3.1 : DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The Employer's objective is to refurbish the Griekwastad Wastewater Treatment Works (WWTW) to restore its full functionality, ensure compliance with Department of Water and Sanitation regulations, and meet future wastewater treatment needs driven by population growth and development.

The project also aims to improve infrastructure security, introduce sustainable sludge management, and provide a reliable potable water supply for operations. These upgrades will support long-term environmental protection, public health, and community resilience.

Specific work tasks must be executed by labour. ***Such works shall be constructed using local workers.***

C3.1.2 OVERVIEW OF THE WORKS

The Griekwastad Wastewater Treatment Works is a refurbishment project aimed at restoring a previously operational facility that has deteriorated due to neglect and vandalism.

The existing works consist of oxidation ponds with damaged linings and no functioning electrical or mechanical infrastructure.

The site is located south of Griekwastad town and is accessible via municipal roads, although internal access roads require upgrading. The treatment works currently lack a potable water supply and adequate security. The refurbished facility will include upgraded screening systems, sludge management, and improved infrastructure to meet Department of Water and Sanitation standards.

C3.1.3 EXTENT OF THE WORKS

The Works under this contract comprise the refurbishment and upgrading of the Civil and Structural components of the Griekwastad Wastewater Treatment Works. Mechanical and Electrical Works will be addressed under a separate contract.

The Civil and Structural Works include the construction and rehabilitation of the following facilities:

- Refurbishment of inlet works including coarse screening and flow measurement;

- Rehabilitation of oxidation ponds with new lining and embankment protection;
- Construction of sludge drying beds;
- Upgrading of internal gravel access roads;
- Refurbishment or reconstruction of operational buildings including:
- Control room and operations building;
- Guardhouse and security offices;
- Ablution and staff welfare facilities;
- Equipment and chemical storage units;
- Installation of perimeter fencing and access control infrastructure;
- Provision of potable water supply for operational use;
- Site lighting using solar-powered high-mast and LED floodlights;
- Environmental compliance measures including sludge management and effluent monitoring;
- One-year maintenance and guarantee of refurbished infrastructure;
- Preparation of detailed “as-built” drawings;
- Training of municipal staff on operation and maintenance;
- Preparation, printing, and binding of three sets of Operation and Maintenance Manuals.

The section **“General”** includes ***Provisional Sums*** for the following:
(a) Eskom supply;
(b) Laboratory equipment and furniture;
(c) Soil Testing by Engineer;
(d) Project Steering Committee: Meeting Costs;
(e) Community Liaison Officer;

Labour-intensive works

It is a condition of this Contract that:
- 30% of the works should be subcontracted to local contractor
- 5% of material should be procured locally
- at least 1% of the budget spent on local labour.

Labour-intensive works comprise the activities described in the Labour-Intensive Specification. Such works shall be constructed using local workers who are temporarily employed in terms of this scope of work.

LABOUR INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF

Established contractors shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2005, are registered for training towards, the skills programme outlined in Table 1.

Emerging contractors shall have personally completed, or for the period 1 April 2004 to 30 June 2005 be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or for the period 1 April 2004 to 30 June 2005 be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills programme for supervisory and management staff

Personnel	**NQF level**	**Unit standard titles**	**Skills programme description**
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e the contractor's most senior representative that is resident on the site)	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard

Details of these skills programmes may be obtained from the CETA ETQA manager
(e mail:gerard@ceta.co.za , tel: 011-265 5900)

EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

1.1 Requirements for the Sourcing and Engagement of Labour.

1.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

The rate of pay set for the SPWP is R..... per task or per day.
(Insert value determined by public body in terms of clause 2.2 of these Guidelines)

1.1.2 Tasks established by the contractor must be such that:

a) the average worker completes 5 tasks per week in 40 hours or less; and
b) the weakest worker completes 5 tasks per week in 55 hours or less.

1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.

1.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

a) where the head of the household has less than a primary school education;
b) that have less than one full time person earning an income;
c) where subsistence agriculture is the source of income.
d) those who are not in receipt of any social security pension income

1.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:

a) 60 % women;
b) 20% youth who are between the ages of 18 and 35; and
c) 2% on persons with disabilities.

1.2 Specific Provisions Pertaining to SANS 1914-5

1.2.1 Definitions

Targeted Labour: Unemployed persons who are employed as local labour on the project.

1.2.3 Contract Participation Goals

1.2.3.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

1.2.3.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

1.2.4 Terms and Conditions for the Engagement of Targeted Labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

1.2.5 Variations to SANS 1914-5

1.2.5.1 The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

1.2.5.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

1.3 Training of Targeted Labour

1.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

1.3.2 The cost of the formal training of targeted labour, will be funded by the local office of the Department of Labour. This training will take place as close to the project site as practically possible. The contractor must access this training by informing the relevant regional office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The Employer and the Department of Public Works (Fax: 012 3258625/ EPWP Unit, Private Bag X65, Pretoria 0001) must be furnished with a copy of this request.

1.3.3 The contractor shall do nothing to dissuade targeted labour from participating in training programmes and shall take all reasonable steps to ensure that each beneficiary is provided with two days of formal training for every 22 days worked.

1.3.4 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 1.3.3 above.

1.3.5 Proof of compliance with the requirements of 1.3.2 to 1.3.4.must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

LABOUR INTENSIVE SPECIFICATION

Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

a) Excavation of foundation trenches having a depth of less than 1.5 metres
b) Removal of existing fence
c) Placing bedding, selected and main fill to pipe trenches;
d) Gabion work;
e) Mixing of concrete
f) Masonry work
g) Site clearing and levelling

Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

Hand Excavateable Material

Hand excavateable material is material:

a) Granular Materials:

i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) Cohesive Materials:

i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
ii) where the material is a gravel having a maximum particle size of 10mm and contains no

cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate100mm;

Note: 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with resepect to the horizontal) into the material being used.

Table 1: Consistency of Materials when Profiled

GRANULAR MATERIALS		**COHESIVE MATERIALS**	
CONSISTENCY	**DESCRIPTION**	**CONSISTENCY**	**DESCRIPTION**
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in upto 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation.	Stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

Trench Excavation

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

Compaction of Backfilling to Trenches (Areas not Subject to Traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding

100mm. Each layer shall be compacted using hand stampers

a) to 90% Proctor density;
b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm 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.

Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and Grubbing

Grass and small bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand, regardless of the method of haulage.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

Offloading

All material, however transported, is to be off- loaded by hand, unless tipper-trucks are utilised for haulage

Spreading

All material shall be spread by hand.

Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

Grassing

All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

Stone Pitching and Rubble Concrete Masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the

haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them.

C3.1.4 LOCATION OF WORKS

The proposed refurbishment of the Griekwastad Wastewater Treatment Works shall be undertaken on the existing municipal land located directly south of Griekwastad Town, within the Siyancuma Local Municipality in the Northern Cape Province.

The site is situated approximately 150 km west of Kimberley, along the main route connecting Kimberley and Upington. It lies within a strategic corridor that also serves as a gateway to Witsand and the Siyanda District.

The total area of the site earmarked for the Wastewater Treatment Works is approximately 10 hectares.

Access to the site is via an existing municipal gravel road, which connects to the provincial road network. This access road currently serves local agricultural and municipal operations and shall be upgraded under this contract to support construction and long-term operational needs.
The refurbishment works will be carried out within the fenced boundary of the existing oxidation pond facility. The site includes damaged pond infrastructure, vandalized buildings, and lacks operational mechanical and electrical systems. It also contains three groundwater monitoring boreholes, which must be protected during construction.

The location of the Griekwastad Wastewater Treatment Works is illustrated on Drawing No **S0323-01-GA-001-D-00**

C3.1.5 TEMPORARY WORKS

No Temporary Works are required.

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

C3.2 : ENGINEERING

C3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

Works designed by, per design stage*:*

Concept, feasibility and overall process	Employer
Basic engineering and detail layout to tender stage	Employer
Final design to approved for construction stage	Employer
Temporary works:	Contractor
Preparation of as-built drawings	Contractor

C3.2.2 EMPLOYER'S DESIGN

Samex Consulting (Pty) Ltd, appointed as "Engineer" in terms of this Contract, is responsible for the "Works Designed by the Employer" as listed under Clause C3.2.1.

C3.2.3 DRAWINGS

The drawings listed below are attached in order to give an overview of the project.

Drawing No.	Drawing Title
S0323-01-GA-001-T-00	OVERALL PLANT LAYOUT PLAN
S0323-01-PDLL-001-T-00	EXISTING PONDS LAYOUT AND LONG SECTION DETAILS (SHEET 1 OF 3)
S0323-01-PDLL-002-T-00	EXISTING PONDS LAYOUT AND LONG SECTION DETAILS (SHEET 2 OF 3)
S0323-01-PDLL-003-T-00	EXISTING PONDS LAYOUT AND LONG SECTION DETAILS (SHEET 3 OF 3)
S0323-01-HWST-001-R-00	PROPOSED INLET WORKS
S0323-01-HWST-002-T-00	GRIT REMOVAL CHANNEL DISPOSAL FACILITY FOR NIGHT SOIL BUCKETS
S0323-01-CCSTT-001-T-00	CHLORINE CONTACT TANK: LAYOUT AND SECTIONS DETAILS
S0323-01-RDLL-001-T-00	PROPOSED INTERNAL ROAD LAYOUT AND LONG SECTION DETAILS (SHEET 1 OF 2)
S0323-01-RDLL-002-T-00	PROPOSED INTERNAL ROAD LAYOUT AND LONG SECTION DETAILS (SHEET 2 OF 2)
S0323-01-SELL-001-T-00	SITE SEWER
S0323-01-SSLP-001-T-00	LAYOUT PLAN & DETAILS: SUBSOIL DRAINAGE SYSTEM
S0323-01-LDLP-001-T-00	LAYOUT PLAN & DETAILS: LEAKAGE DETECTION SYSTEM

Drawing No.	Drawing Title
S0323-01-TD-001-T-00	TYPICAL THRUST BLOCKS DETAILS
S0323-01-TD-002-T-00	GUARDHOUSE DETAIL
S0323-01-TD-003-T-00	FENCE AND GATE DETAILS
S0323-01-TD-004-T-00	PROPOSED STORES FLOOR PLAN, SECTIONS, ELEVATIONS & DETAILS
S0323-01-TD-005-T-00	OXIDATION PONDS LINER DETAILS

Additional construction drawings will, in terms of Clause 13 of the General Conditions of Contract (2015), be issued to the Contractor by the Engineer/Employer on the commencement date and from time to time as required.

The Contractor is required to do a survey of the Waste Water Treatment Works Site prior to the commencement of construction and to plot the levels on a scale of 1:500 on an A0 Drawing. The Contractor must give one copy of this drawing, together with a CD with the survey information to the Engineer.

On completion of the construction, the Contractor must mark-up the “As Built” information on a set of drawings, showing clearly all pipe, service and facility positions and levels and all other features that were part of the construction of the Works. The Engineer shall provide the Contractor with a set of drawings to enable the Contractor to mark-up the “As Built” information. No other drawings are required from the Contractor.

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C3.3 : PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT PROCEDURES

C3.3.1.1 Resources standards

Tenders will be evaluated in terms of the Siyancuma Local Municipality's Supply Chain Management Policy. Copies of the policy are obtainable from the Procurement Office, Siyancuma Local Municipal Offices, Civic Centre, Charl Cilliers Street, Douglas

C3.3.2 SUBCONTRACTING

C3.3.2.1 Scope of mandatory subcontract works

The Contractor must plan and execute the Works to ensure that the following MINIMUM contractual targets are met:

- 30% of the works should be subcontracted to local contractors
- 5% of material should be procured locally
- 1% of the budget spent on local labour.

No specific part of the Works has been specified to be constructed under subcontracts. The Contractor shall identify work packages that could be subcontracted to meet the above requirements.

C3.3.2.2 Preferred subcontractors/suppliers

The local contractors residing in Pixley ka Seme district have been identified as preferred subcontractors. Local labour residing in the Pixley ka Seme district has been identified as the preferred labour to be employed under the Contract.

The Contractor shall adhere to preference in order to achieve the requirements as stated under Clause C3.3.2.1 above.

C3.3.2.3 Subcontracting procedures

The Contractor is obliged to submit details of the subcontractors to the Employer and to provide proof to the Employer should the Contractor wish to employ such subcontractors to meet the requirements as stated under Clause 3.3.2.1 above. Should such documentation not be received

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

and approved by the Employer then such subcontracting shall not be accepted as meeting the requirements under Clause C3.3.2.1.

C3.3.2.4 Attendance on subcontractors

The Contractor shall provide management support to the subcontractors. This management support shall includes assistance in terms of planning work execution, programming, assessing material, labour and plant needs, and assistance with cost management and Occupational Health and Safety management.

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C3.4: CONSTRUCTION

C3.4.1 WORKS SPECIFICATION

C3.4.1.1 Applicable SANS standards

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 DK	- GABIONS & PITCHING
SANS 1200 DM	- EARTHWORKS (ROADS, SUBGRADE)
SANS 1200 G	- CONCRETE (STRUCTURAL)
SANS 1200 G	- PRE-CAST CONCRETE
SANS 1200 H	- STRUCTURAL STEELWORK
SANS 1200 HA	- STRUCTURAL STEELWORK (ANCILLARY WORKS)
SANS 1200 L	- PIPELINES
SANS 1200 LB	- BEDDING (PIPES)
SANS 1200 LC	- CABLE DUCTS
SANS 1200 LE	- STORMWATER DRAINAGE
SANS 1200 M	- ROADS (GENERAL)
SANS 1200 ME	- SUBBASE
SANS 1200 MK	- KERBS AND CHANNELS
SANS 4427	- HDPE PIPE
SANS 966-1	- UPVC PIPE
SANS 966-2	- MPVC PIPE
SANS 62-1 AND 2	- GMS PIPE
SANS 664	- BALL VALVES
SANS 664-2	- GATE VALVES
SANS 664-3	- RESILIENT SEAL VALVES
SANS 1123	- PIPE FLANGES
SANS 10100	– The Structural Use of Concrete.
SANS 10155	– Accuracy in Buildings
SANS 10164	– The Structural Use of Masonry.
SANS 10163	– The Structural Use of Timber.
SANS 10162	– The Structural Use of Steel.

SANS 1921-1, - General
SANS 1921-3, Structural steelwork
SANS 1921-4, Third party management support
SANS 1921-5, Earthworks activities which are to be performed by hand
SANS 1921-6, HIV/AIDS Awareness

Statutory Regulations: SANS 0400: National Building Regulations

C3.4.1.2 The term "project specifications" appearing in any of the SANS 1200 standardised specifications must be replaced with the terms "scope of work".

C3.4.1.3 The variations and additions to the specifications listed in C3.4.1.1 are as follows:

VARIATIONS AND ADDITIONS TO THE STANDARDIZED SPECIFICATIONS, SANS 1200

The following variations and additions to the SANS 1200 Standardized Specifications referred to in the last clause of Portion 1 will be valid for this Contract. The prefix "PSA" indicates an amendment to SANS 1200 PA, "PSC" to SANS 1200 C, etc. The numbers following these prefixes are the relevant Clause numbers in SANS 1200.

New clauses and payment items not covered by clauses or items in the Standard Specification have been included here and have also been designated with the prefix PS. Such clauses and items have been given a new number following upon the last number used in the particular section of the standard Specifications referred to.

4.1.1 Variations and additions to the Specifications listed in 4.2.1 are as follows:

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 DK - GABIONS & PITCHING
SANS 1200 DM - EARTHWORKS (ROADS, SUBGRADE)
SANS 1200 G - CONCRETE (STRUCTURAL)
SANS 1200 G - PRE-CAST CONCRETE
SANS 1200 H - STRUCTURAL STEELWORK
SANS 1200 HA - STRUCTURAL STEELWORK (ANCILLARY WORKS)
SANS 1200 L - PIPELINES
SANS 1200 LB - BEDDING (PIPES)
SANS 1200 LC - CABLE DUCTS
SANS 1200 LE - STORMWATER DRAINAGE
SANS 1200 M - ROADS (GENERAL)
SANS 1200 ME - SUBBASE
SANS 1200 MK - KERBS AND CHANNELS

4.1 Particular / Generic Specifications

The following Particular Specifications are applicable:

PAF: APPLIED FINISHES
PPS: EMBEDDED MEMBRANES
PW: WATERSTOPS
PX: SEALANTS
PWA: WATER TEST
PDA: MANUFACTURE & INSTALLATION OF STEEL PIPELINES

PDB: MANUFACTURE & INSTALLATION OF VALVES
PDE: HEAVY DUTY CORROSION PROTECTION OF STEEL
PDF: HEAVY DUTY CORROSION PROTECTION TO STEEL – RILSAN COATING
PPB: BUILDING WORK
PPBK: BRICKWORK AND MASONRY
PPBP: PAINTING
PPB.W: APPLIED FINISHES: SCREEDS AND CEMENT PAVINGS
PPA: FENCING
PPC: PAINTING AND PROTECTIVE COATINGS
PLIC: GUIDELINES FOR THE IMPLEMENTATION OF LABOUR INTENSIVE INFRASTRUCTURE PROJECT UNDER EXPANDED PUBLIC WORKS PROGRAMME (LABOUR INTENSIVE ACTIVITIES)

4.2 Employment of Local Labour

It is the intention that this Contract should make maximum use of the local labour force that is presently under employed. To this end the Contractor shall limit the utilisation on the Contract of non-local employees to that of key personnel only and to employ and train local labour to the extent necessary for the execution and completion of this Contract.

The Contractor shall fill in the form entitled “Key Personnel” in the “Forms to be Completed by the Tenderer”. The data stated on the above-mentioned form will be strictly monitored during the Contract period and any deviations there from shall be subject to the prior approval of the Engineer, which approval shall not be unreasonably withheld.

4.3 Certification by Recognized Bodies

All pipes and fittings to carry the SANS mark or *Agrément Board of South Africa* certification.

4.4 Samples

Materials or work which does not conform to the approved samples submitted in terms of Sub clause 23.4 of the Conditions of Contract will be rejected. The Engineer reserves the right to submit samples to tests to ensure that the material represented by the sample meets the specification requirements.

The costs of any such tests conducted by or on behalf of the Engineer, the results of which indicate that the samples provided by the Contractor do not conform to the requirements of the Contract, shall, in accordance with the provisions of Sub clause 23.7 of the Conditions of Contract, be for the Contractor’s account.

4.5 Construction Equipment

4.5.1 Plant and Equipment provided by the Contractor

The plant and equipment used on the site shall not be inferior to that described in the Schedule of Plant and Equipment.

4.5.2 Plant and Materials provided by the Employer

None

4.6 Existing Services

All services will be dealt with as set out in SANS 1200A.

4.7 Site Establishment

4.7.1 Services and Facilities provided by the Employer

4.9.1.1 Water Supply

There is no reticulated water supply available on Site.

The Contractor shall obtain water at his own cost and make all arrangements necessary for the supply and distribution required for construction purposes as well as for use in and about his site establishment and for human consumption.

The source of all water utilised for the purposes of the Contract shall be subject to prior approval of the Engineer, which approval shall not be unreasonably withheld.

The Contractor shall comply with all prevailing legislation in respect of drawing water from natural or other sources and shall, when required by the Engineer, produce proof of such compliance. The distribution of water shall be carried out by the Contractor strictly in accordance with applicable laws and regulations.

All water provided by the Contractor for construction purposes shall be clean, free from undesirable concentrations of deleterious salts and other materials and shall comply with any further relevant specifications of the Contract. The Contractor shall, whenever reasonably required by the Engineer, produce test results demonstrating such compliance. Water provided by the Contractor for human consumption shall be wholesome and potable to the satisfaction of the health authorities in the area of the Site.

No separate payment will be made to the Contractor for the obtainment, distribution and consumption of water, the costs of which will be deemed to be included in the Contractor's tendered rates.

4.9.1.2 Electricity Supply

There is no reticulated electrical power supply available in close proximity to the Site.

The Contractor shall at his own cost, make all arrangements necessary for the supply and distribution of electrical power required for construction purposes as well as for use in and about his site establishment.

The Contractor shall comply with all prevailing legislation in respect of the generation and distribution of electricity and shall, when required by the Engineer, produce proof of such compliance.

The distribution of electricity shall be carried out by the Contractor strictly in accordance with the applicable laws and regulations.

No separate payment will be made to the Contractor for the obtainment, distribution and consumption of electricity, the costs of which will be deemed to be in the Contractor's tendered rates and prices.

4.9.1.3 Excrement Disposal

No water-borne sewage or other off-site excrement disposal systems are available in the vicinity of the Site.

The Contractor shall, at his own expense, be responsible for safely and hygienically dealing with and disposing of all human excrement and similar matter generated on the Site during the course of the Contract, to the satisfaction of the Engineer and the responsible health authorities in the area of the Site.

The Contractor shall further comply with any other requirements in this regard as may be stated in the Contract.

4.9.1.4 Area for Contractor's Site Establishment

The Contractor shall, at his own cost, be responsible for locating and making all arrangements necessary for securing an area suitable to meet his needs in respect of the erection of the Contractor's offices, stores and other facilities, including the facilities to be provided for the Engineer in accordance with the Contract.

Any potential area proposed by the Contractor shall be within reasonable proximity to the Site of the Works and its location shall be subject to the approval of the Engineer, which approval shall not be unreasonably withheld.

4.7.2 Services and Facilities provided by the Contractor

The Contractor shall provide on Site, for the duration of the Contract and for the exclusive use of the Engineer and / or his Representative (as applicable), the various facilities described hereunder. All such facilities shall be provided promptly on the commencement of the Contract and failure on the part of the Contract to provide any facility required in terms of this specification shall constitute grounds for the Engineer to withhold payment of the Contractor's tendered Preliminary and General items until the facility has been provided or restored as the case may be.

On completion of the contract all facilities provided as set out in the clause shall be removed from sit and the site where the contractor's camp was established rehabilitated.

4.9.2.1 Office Accommodation

The Contractor shall provide on the Site **one (1)** office for the exclusive use of the Engineer. Such office shall comply with and be furnished in accordance with the requirements of sub clause 3.2 of SANS 1200 AB. The Contractor shall maintain the office(s) in accordance with the requirements of sub clause 5.2 of SANS 1200 AB.

Such office accommodation shall be provided within the Contractor's site establishment facilities.

The Engineer and the Engineer's Representative shall be allowed free use of survey equipment and assistants to carry out control work as and when required, and the Contractor shall provide all pegs, concrete, tools and other necessary items as well as all necessary labour for excavation, bush clearing, mixing and placing of concrete, as and when required for the control of the setting out of the Works.

4.9.2.2 Carports

The Contractor shall provide on Site **one (1)** carports for the exclusive use of the Engineer, in accordance with the requirements of sub clause PSAB 3.3 of Portion 2 of the Project Specifications.

4.9.2.3 Site Meeting Venue

The Contractor shall provide within his own site establishment facilities, a suitably furnished office or other venue capable of comfortably accommodating a minimum of ten (10) persons at site meetings. The Engineer shall be allowed free use of such venue for conducting any other meetings concerning the Contract at all reasonable times.

4.9.2.4 Contract Name Boards

The Contractor shall provide, erect and maintain one contract name board at such positions and locations directed by the Local Municipality, which name board shall, unless otherwise specified elsewhere in the Contract, comply with the recommendations for the standard board of the South African Association of Consulting Engineers, with regard to size, painting, decorating and detail, and the requirements described hereunder.

Each name board shall be made of tempered hardboard with a thickness of at least 12 mm, so braced on the reverse side as to prevent warping and shall be mounted on two or more, as necessary, firmly planted poles. The painting of the boards shall comply with the relevant requirements of CKS 193 and the colours of the plaints shall be an acceptable match to the applicable colours given in SANS 1091.

The Contractor shall keep the contract name boards in good repair for the duration of the Contract and shall remove them on completion of the Contract.

4.9.2.5 Survey Equipment and Assistants

(a) Survey Equipment

The Contractor shall, in accordance with the requirements of SANS 1200 AB (as amended) provide the following survey equipment ***for the exclusive use of the Engineer and his staff:***

(i) 1 tacheometer with tripod;
(ii) 1 metric levelling staff with protective cover bag;
(iii) 1 x 100 metre Stilon tape measure;
(iv) 1 x hand-held GPS-Garmin 60CS or similar approved.

(b) Survey Assistants

The Contractor shall, in accordance with the requirements of sub clause 5.5 of SANS 1200 AB make available to the Engineer, **two (2)** survey assistants. These staff must be available as and when required by the Engineer.

4.9.2.6 Telephone Facilities

The Contractor shall, in accordance with the requirements of sub clauses PSAB 4.1 and PSAB 5.4 of the Project Specifications, provide on Site for the duration of the Contract, the following telephone facilities for the use of the Engineer and his Representative:

(a) Telkom telephones

(i) Number of separate exchange lines (numbers): **Nil (0)**

(ii) Number of telephone hand-sets required: **Nil (0)**

(b) Cell phones

Number of cell phones required: **1**

4.9.2.7 Computer Facilities

Not required.

4.9.2.8 Fax Facilities

Not required

4.9.2.9 Electricity Supply for the Engineer

All electricity supply to the Engineer's office(s) and laboratory (if applicable), whether provided by the Contractor by way of a reticulated supply from a local authority or other authorised electricity supply, or by way of on-site generators, shall be regulated by the Contractor to within limits such as to

prevent damage due to fluctuations in the electrical current supply that may occur to any electrical plant and equipment provided by the Contractor or the Engineer.

The Contractor shall be liable for and pay to the Engineer on demand, all costs that the Engineer may incur in the repair or replacement of any electrical equipment provided by the Engineer on the Site. Reliance by the Contractor on the regulation of the electrical supply by the supplier or on current regulators fitted to generators shall not absolve the Contractor of his liabilities in terms of this Sub clause and, where appropriate, the Contractor shall provide and install at his own cost, all such electrical current-regulating equipment as is necessary to prevent damage to the said equipment.

4.9.2.10 Camera

Not required.

4.9.2.11 Site Instruction Book

The Contractor shall keep a triplicate book for site instructions on the Site at all times.

4.9.2.12 Housing for Engineer's Representative

Not required.

4.9.2.13 Site Maintenance

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

4.9.2.14 Notices, Signs, Barricades and Advertisements

All notices, signs and barricades, as well as advertisements, may be used only if approved by the Engineer. The Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his tendered rates.

The Engineer shall have the right to instruct the Contractor to move any sign, notice or advertisement to another position, or to remove it from the Site of the Works if in his opinion it is unsatisfactory, inconvenient or dangerous.

Notwithstanding the afore going, the Contractor may, with the prior approval of the Engineer, (which approval shall not be unreasonably withheld), make arrangements with and obtain the acceptance of the occupiers of erven and properties to close off part of a street, road, footpath or entrance temporarily, provided that the Contractor duly notifies the occupiers of the intended closure and its probable duration, and re-opens the route as punctually as possible. Where possible, such streets, roads, footpaths and entrances shall be made safe and re-opened to traffic overnight. Such closure shall not absolve the Contractor from his obligations under the Contract to provide access at all times. Barricades, traffic signs, drums and other safety measures appropriate to the circumstances shall be provided by the Contractor to suit the specific conditions.

4.8 Site Usage

4.8.1 Access to Properties

The Contractor shall organise the work to cause the least possible inconvenience to the public and to the property owners adjacent to or affected by the area in which he is working. In this respect the Contractor's attention is drawn to Clause 17 of the Conditions of Contract.

If, as a result of restricted road reserve widths and the nature of the work, the construction of by-passes is not feasible, construction shall be carried out under traffic conditions to provide access to erven and properties.

5. MANAGEMENT

5.1 Generic Specifications

SANS 1200 A of the Standardised Specifications listed in 4.2.1 is applicable to this contract. The variations and additions to this Specification are included in Sub-clause 4.2.3

5.2 Programme

5.2.1 General

The Contractor's programme to be submitted in terms of Clause 12 of the Conditions of Contract shall take full account of all matters that may impact on the sequence of executing the various components of the Works and the requisite rate of progress of the Works, as are specified in or reasonably to be inferred from the Contract.

5.2. Format

The construction programme to be submitted by the Contractor in accordance with the provisions of Clause 12 of the Conditions of Contract shall

(a) be in the form of a bar chart;

(b) clearly indicate the start and end dates and duration of all construction activities and identify the critical path; and

(c) take full cognisance of all the Contractor's risks and obligations in terms of the Contract.

The programme and all revisions thereto shall be provided to the Engineer in electronic format using Microsoft Project Version 2003 or later.

5.2.2 Failure to Maintain Construction Programme

If the construction programme has to be revised in terms of Clause 5.6 of the Conditions of Contract because the Contractor is falling behind in his programme, the Contractor shall submit a revised programme of how he intends to regain lost time to ensure completion of the Works before the Due Completion Date. Any proposals by the Contractor to increase the tempo of work must incorporate positive steps to increase production either by the provision of more labour and Plant on the Site, or by using the available labour and Plant in a more efficient manner.

Failure on the part of the Contractor to submit or to work according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps as set out in Sub clause 9.2 of the Conditions of Contract.

5.3 Quality Control and Workmanship

5.3.1 Testing

5.3.1.1 Contractor to Engage Services of an Independent Laboratory

Notwithstanding the requirements of the Specifications pertaining to testing and quality control, the Contractor shall engage the services of an approved independent laboratory to undertake all testing of materials, the results of which are specified in, or may reasonably be inferred from, the Contract.

These results will be taken into consideration by the Engineer in deciding whether the quality of materials utilised and workmanship achieved by the Contractor comply with the requirements of the Specifications. The afore going shall apply irrespective of whether the specifications indicate that the said testing is to be carried out by the Engineer or by the Contractor.

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

For the purpose of this clause, and "independent laboratory" shall mean an "approved laboratory" as defined in Sub clause PSA 7.2) which is not under the management or control of the Contractor and in which the Contractor has no financial interest, nor which has any control or financial interest in the Contractor.

5.3.1.2 Additional Testing Required by the Engineer

In addition to the provisions of Sub clause 5.3.1.1: Contractor to engage services of an independent laboratory, the Engineer shall be entitled at times during the Contract to require that the Contractor arrange with an independent laboratory to carry out any such tests, additional to those described in Sub clause 5.3.1.1: Contractor to engage services of an independent laboratory at such times and at such locations in the Works as the Engineer shall prescribe. The Contractor shall promptly and without delay arrange with the independent laboratory for carrying out all such additional testing as required by the Engineer, and copies of the test results shall be promptly be provided by the Engineer.

5.3.1.3 Costs of Testing

(a) Tests in terms of Sub clause 5.3.1.1: Contractor to engage services of an independent laboratory

The costs of all testing carried out by the independent laboratory in accordance with the requirements of Sub clause 5.3.1.1: Contractor to engage services of an independent laboratory above shall be done by the Contractor and shall be deemed to be included in the tendered rates and prices for the respective items of work as listed in the Schedule of Quantities and which require testing in terms of the Specifications. No separate payments will be made by the Employer to the Contractor in respect of any testing carried out in terms of Sub clause 5.3.1.1: Contractor to engage services of an independent laboratory.

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

(b) Additional Tests required by the Engineer

The costs of any additional tests required by the Engineer in terms of Sub clause 5.3.1.2: Additional testing required by the Engineer shall be reimbursed to the Contractor against substitution of the Provisional Sum allowed therefore in the Schedule of Quantities; provided always that the costs of any such additional tests ordered by the Engineer, the results of which will indicate that the quality of the materials utilised and / or the standard of workmanship achieved are / is not in accordance with the specifications, shall not be reimbursable to the Contractor.

5.3.2 Workmanship

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and Drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality control system and provide suitably qualified and experienced engineers, foremen,

surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the Works at all times.

The cost of supervision and process control, including testing carried out by the Contractor, will be deemed to be included in the rates tendered for the related items of work.

The Contractor's attention is drawn to the provisions of the various Standardised Specifications regarding the minimum frequency of testing required. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control.

On completion and submission of every part of the work to the Engineer for examination and measurement, the Contractor shall furnish the Engineer with the results of the relevant tests, measurements and levels to demonstrate the achievement of compliance with the Specifications.

5.4 Environment

The Contractor shall comply with the Environmental Management Plan (EMP) included in the Annexes. Failure to comply will result in the application of the penalties as stipulated under the EMP.

5.5 Extension of Time Due Abnormal Rainfall

5.5.1 Extension of time in respect of delays resulting from wet climatic conditions on the Site will only be considered in respect of abnormally wet climatic conditions and shall be determined for each calendar month or part thereof, in accordance with the formula given below:

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

in which formula the symbols shall have the following meanings:

V = Potential extension of time in calendar days for the calendar month under consideration:
If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.
When the value of V for any month exceeds the number of days in the particular month, V will be the number of days in the month.

Nw = Actual number of days in the calendar month under consideration on which a rainfall of Y mm or more was recorded on the Site

Nn = Average number of days, derived from existing records of rainfall in the region of the Site, on which a rainfall of Y mm or more was recorded for the calendar month

Rw = Actual rainfall in mm recorded on the Site in an approved rain gauge for the calendar month under consideration

Rn = Average rainfall in mm for the calendar month, derived from existing records of rainfall in the region of the Site

The factor (Nw – Nn) shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall exceeds Y mm.

The factor (Rw – Rn)/X shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work

5.5.2 The rainfall records for Griekwastad are shown under the table below, and the monthly averages (Rn and Nn) for this period shall, for the purposes of this Contract be taken as normal and as the values to be substituted for Rn and Nn in the formula above. The values of X and Y shall be 20 and 10 respectively.

	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Nn	2.9	2.9	3.3	1.4	0.7	0.4	0.4	0.6	1.0	2.0	2.3	2.8
Rn	91	91	96	44	23	11	13	20	34	62	67	83

5.5.3 The Contractor shall, at his own cost, provide and erect on the Site at a location approved by the Engineer, an approved rain gauge, which shall be fenced off in a manner which will prevent any undue interference by workmen and others. The Contractor shall, at his own cost, arrange for the reading of the rain gauge on a daily basis for the duration of the Contract. The gauge readings, as well as the date and time at which the reading was taken shall be recorded in a separate record book provided by the Contractor for this purpose. All entries in the rainfall record books shall be signed by the person taking the reading and the gauge shall be properly emptied immediately after each reading has been taken. If required by the Engineer, the Engineer shall be entitled to witness the reading of the gauge.

5.5.4 The Contractor's claims in terms of Sub clause 5.12 of the Conditions of Contract for extension of time in respect of delays resulting from wet climatic conditions on the Site during each month, shall be submitted in writing to the Engineer monthly, provided that:

(a) the period allowed to the Contractor in terms of Clause 10.1 of the Conditions of Contact in which to submit his claim for each month shall be reduced to seven (7) days, calculated from the last day of the month to which the claim applies; and

(b) the 28-day period allowed to the Engineer in terms of Sub clause 5.12 of the Conditions of Contract in which to give his ruling on the claim, shall be reduced to fourteen (14) days.

The Contractor's monthly claim shall be accompanied by a copy of the signed daily rainfall readings for the applicable month.

5.5.5 The extent of any extension of time which may be grated to the Contractor in respect of wet climatic conditions (whether normal or abnormal) shall be determined as the algebraic sum of the "V" values for each month between the Commencement Date and the Due Completion Date of the Contract, calculated in accordance with the General Conditions of Contract as revised; provided always that

(a) rainfall occurring within the period of the Contract's Christmas shut-down period shall not be taken into account in the calculation of the monthly "V" values;

(b) rainfall occurring during any period during which the Contractor was delayed due to reasons other than wet climatic conditions on the Site, and for which delay an extension of time is granted by the Engineer, shall not be taken into account in the calculation of the month "V" values;

(c) if the algebraic sum of the "V" values for each month is negative, the time for completion will not be reduced on account of subnormal rainfall, and

(d) where rainfall is recorded only for part of a month, the "V" value shall be calculated for that part of the month using pro rata values for Nn and Rn.

5.5.6 The Engineer shall, simultaneous with granting any extension of time in terms of this clause, revise the Due Completion Date of the Contract to reflect an extension of time having been granted in respect of wet climatic conditions, to the extent of the algebraic sum of all the "V" values for all the preceding months of the Contract, less the aggregate of the "Nn" values for the remaining (unexpired) months of the Contract (viz less aggregate of the potential maximum negative "V" values for the

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

remaining Contract Period). This, provided that where such period is negative, the Due Completion Date shall not be revised.

5.5.7 Any extension of time in respect of wet climatic conditions granted in terms of this clause shall not be deemed to take into account delays experienced by the Contractor in repairing or reinstating as regards damage to or physical loss of the Works arising from the occurrence of abnormal climatic conditions. Extension of time in respect of any such repairs or reinstatement as regards damage shall be the subject of a separate application for extension of time in accordance with the provisions of Clause 5.12 and Clause 10.1 of the Conditions of Contract.

5.6 Payment Certificates

The statement to be submitted by the Contractor in terms of Clause 6.10 of the Conditions of Contract shall be prepared by the Contractor at his own cost, strictly in accordance with the standard payment certificate prescribed by the Engineer in digital electronic computer format. The Contractor shall, together with a copy of the digital electronic computer file of the statement, submit two (2) A4-sized paper copies of the statement.

For the purposes of the Engineer's payment certificate, the Contractor shall subsequently be responsible, at his own cost, for making such adjustments to his statement as may be required by the Engineer for the purposes of accurately reflecting the actual quantities and amounts which the Engineer deems to be due and payable to the Contractor in the payment certificate.

The Contractor shall, at his own cost, make the said adjustments to the statement and return it to the Engineer within three (3) normal working days from the date on which the Engineer communicated to the Contractor the adjustments required. The Contractor shall submit to the Engineer five (5) sets of A4-sized paper copies of such adjusted statement, together with a copy of the electronic digital computer file thereof.

Any delay by the Contractor in making the said adjustments and submitting to the Engineer the requisite copies of the adjusted statement for the purposes of the Engineer's payment certificate will be added to the times allowed to the Engineer in terms of Sub clause 6.10.4 of the Conditions of Contract to submit the signed payment certificate to the Employer and the Contractor. Any such delay will also be added to the period in which the Employer is required to make payment to the Contractor.

5.7 Community Participation

In order to give effect to the need for participation and transparency in the process of delivering services, the community should participate in the decision making process through out the life of the project. This may be achieved through structured engagement between those responsible for the delivery of the project and the communities affected by the project. A project steering committee (PSC) is to be established as a communication structure that interacts with all parties involved with the project.

A community liaison officer (CLO) will be appointed by the employer. The CLO and PSC shall be paid under the Contract from monies allowed for under the Provisional sums.

The contractor shall make use of established community communication channels and shall appoint from among his site personnel a responsible person to participate in the PSC business.

The contractor is encouraged to use the community participation process in order to facilitate harmonious relationships on the project. Some of the elements of construction that should be discussed with the PSC are:

- Facilitating and assisting Contractor with recruitment of labour
- Assistance with general community / project liaison

5.8 Trenches

No trenches may be left open during the Contractor's holiday during December and January. All trenches which have been excavated but which have not been finally backfilled and compacted at the commencement of the said holiday period shall be temporarily backfilled and compacted to a standard which will:

(a) prevent damage occurring to the trenches or any other part of the Works;

(b) prevent damage to or physical loss of the property of any person or animal;

(c) eliminate the risk of injury to any person or animal;

during the said period.

All costs involved in the temporary backfilling and compaction of such trenches and the subsequent re-opening of the trenches after the holiday period shall be for the Contractor's account.

Trenches shall be completed in sections between isolating valves which includes laying and testing of pipes and fittings, replacement of topsoil, construction of berms where required and spreading of excess materials, before any of the remaining trenches are excavated.

5.9 Construction Regulations, 2003

The Contractor shall be required to comply with the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 (the regulations) as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works.

The proposed type of work, materials to be used and potential hazards likely to be encountered on this Contract are detailed in the Project Specifications, Schedule of Quantity and Drawings, as well as in the Employer's health and safety regulations (regulation 4 (1)) of the Construction Regulations 2003, which are bound in the Contract document.

The Contractor shall in terms of regulation 5(1) provide a comprehensive health and safety plan detailing his proposed compliance with the regulations, for approval by the Employer within 7 days of the commencement date of the contract.

The Contractor shall at all times be responsible for full compliance with the approved plan as well as the Construction Regulations and no extension of time will be considered for delays due to con-compliance with the abovementioned plan or regulations.

A payment is included in the Schedule of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned regulations.

6. VARIATIONS AND ADDITIONS TO THE STANDARDISED SPECIFICATIONS FOR THIS CONTRACT

PSA **GENERAL**

PSA 1 **SCOPE**

REPLACE THE CONTENTS OF SUBCLAUSE 1.1, INCLUDING THE NOTES, WITH THE FOLLOWING:

"1.1 This specification covers requirements, principles and responsibilities of a general nature which are generally applicable to civil engineering construction and building works contracts, as well as the requirements for the Contractor's establishment on the Site".

PSA 2 **INTERPRETATIONS**

PSA 2.3 **DEFINITIONS**

IN THE OPENING PHRASE BETWEEN THE WORDS "specification" *AND* "the following", *INSERT THE WORDS* "the definitions given in the Conditions of Contract and".

(a) General

ADD THE FOLLOWING DEFINITIONS:

"'General Conditions" and "Conditions of Contract": The General Conditions of Contract specified for use with this Contract, together with the Special Conditions of Contract as applicable.

'Specified": As specified in the Standardized Specifications, the Drawings or the Project Specifications. 'Specifications' shall have the corresponding meaning".

(b) Measurement and Payment

REPLACE THE DEFINITIONS FOR "Fixed charge", "Time- related charge" AND "Value-related charge" *WITH THE FOLLOWING:*

"'Fixed charge': A charge that is not subject to adjustment on account of variations in the value of the Contract Price or the time allowed in the Contract for the completion of the work.

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

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

PSA 2.4 **ABBREVIATIONS**

(a) Abbreviations relating to standard documents

ADD THE FOLLOWING ABBREVIATION:

"CKS: SANS Co-ordinating Specification".

PSA 3 **MATERIALS**

PSA 3.1 **QUALITY**

ADD THE FOLLOWING AT THE END OF SUBCLAUSE 3.1:

"All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified to be in accordance with SANS Specifications shall bear the SANS mark, where such a mark is available for the type of product."

ADD THE FOLLOWING SUBCLAUSE TO CLAUSE 3:

"PSA 3.4 **MATERIALS SUPPLIED BY THE EMPLOYER**

The Contractor will provide all the material for the contract.

PSA 4 **PLANT**

PSA 4.1 **SILENCING OF PLANT**

REPLACE THE CONTENTS OF SUBCLAUSE 4.1 WITH THE FOLLOWING:

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

The Contractor shall at all times and at his own cost, be responsible for implementing all necessary steps to ensure full compliance with such regulations, including but not restricted to the provision and use of suitable and effective silencing devices for pneumatic tools and other plant which would otherwise cause a noise level in excess of that specified in the said regulations.

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

PSA 4.2 **CONTRACTOR'S OFFICES, STORES AND SERVICES**

ADD THE FOLLOWING PARAGRPAH BEFORE THE EXISTING FIRST PARAGRAPH IN SUBCLAUSE 4.2:

"The Contractor's buildings, sheds and other facilities erected or utilised on the Site for the purposes of the Contract shall be fenced off and shall contain all offices, stores, workshops, testing laboratories, toilet facilities, etc. as may be required by the Contractor. The facilities shall always be kept in a neat and orderly condition.

Provision is made in the Bill of Quantities for breaking down and re-establishment of facilities as work progress.

No personnel may reside on the Site. Only night-watchmen may be on the Site after hours".

DELETE "and first-aid services" *IN THE SECOND PARAGRAPH OF SUBCLAUSE 4.2 AND ADD THE FOLLOWING:*

"The Contractor shall provide on the Site and in close proximity to the actual locations where the work is being executed, one toilet per 10 workmen, which toilets shall be effectively screened from public view and their use enforced. Such toilets shall be relocated from time to time as the location of the work being executed changes, so as to ensure that easy access to the toilets is maintained.

The Contractor shall, where applicable, make all necessary arrangements and pay for the removal of night soil".

PSA 5 CONSTRUCTION

PSA 5.1 SURVEY

PSA 5.1.2 Preservation and Replacement of Survey Beacons and Pegs subject to the Land Survey Act

DELETE THE WORDS "in the vicinity of boundaries" *IN THE SECOND SENTENCE OF SUBCLAUSE 5.1.2 AND REPLACE THE WORDS* "under the direction of" *IN THE SAME SENTENCE WITH* "in consultation and liaison with".

ADD THE FOLLOWING AFTER THE SECOND SENTENCE OF SUBCLAUSE 5.1.2:

"The Contractor and the Engineer shall record on the said list, their concurrence or disagreement (as the case may be) regarding the completeness and accuracy of the details recorded therein".

REPLACE THE THIRD SENTENCE OF SUBCLAUSE 5.1.2 WITH THE FOLLOWING:

"At the completion of the Contract, the Contractor shall expose all pegs that were listed at the commencement of the construction as being in order and the Contractor shall arrange with a registered Land Surveyor for the checking of the positions of all such pegs and the replacement of those that the Land Surveyor's check reveals have become disturbed or damaged. The Contractor shall, as a precedent to the issue of the Certificate of Completion, provide to the Engineer, a certificate from the registered land surveyor, certifying that all the pegs listed at the commencement of construction in accordance with the provisions of this clause, have been checked and that those found to have been disturbed, damaged or destroyed have been replaced in their correct positions, all in accordance with the provisions of the said Act.

The costs of all checking, replacement and certification as aforesaid shall be entirely for the Contractor's account. This, with the provision always that the Contractor shall not be held liable for the cost of replacement of pegs which:

(a) cannot reasonably be re-established in their original positions by reason of the finished dimensions of the permanent works, and

(b) the Contractor can prove beyond reasonable doubt to the satisfaction of the Engineer, were disturbed, damaged or destroyed by others beyond his control".

PSA 5.3 PROTECTION OF EXISTING STRUCTURES

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

PSA 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

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

"PSA 5.4 LOCATION AND PROTECTION OF EXISTING SERVICES

PSA 5.4.1 Location of Existing Services

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

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

Thereafter, the Contractor shall, by the use of appropriate methodologies, carefully expose the services at such positions as are agreed to by the Engineer, for the purposes of verifying the exact location and position of the services. Where the exposure of existing services involves excavation to expose underground services, the further requirements as instructed by the Engineer shall apply. Payment shall be made in accordance with appropriate rates or on Dayworks as is appropriate.

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

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

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

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

(a) known services, anywhere along the entire lengths of their routes, as may reasonably be deduced from the actual locations at which their positions were verified as aforesaid, due cognizance being taken of such deviations in line and level which may reasonably be anticipated, and

(b) any other service which ought reasonably to have been a known service in accordance with the provisions of this clause.

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

No separate payment will be made to the Contractor in respect of his costs of providing, holding available on the Site and utilising the said detecting and testing equipment, nor for any costs incurred in preparing and submitting to the Engineer the Drawings as aforesaid. These costs should be deemed included in the Contractor's other tendered rates and prices included in the Contract.

Payment to the Contractor in respect of exposing services at the positions agreed by the Engineer and described above will be made under the payment items (if any) as may be

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

provided for in the respective sections of the specifications pertaining to the type of work involved.

PSA 5.4.2 **Protection during Construction**

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

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

Unless otherwise instructed by the Engineer, no services shall be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services shall be promptly backfilled and compacted. In roadways, the requirements shall be as specified by the Engineer. In other areas compaction is to be to 90% modified AASHTO density.

PSA 5.4.3 **Alterations and Repairs to Existing Services**

Unless the contrary is clearly specified in the Contract or ordered by the Engineer, the Contractor shall not carry out alterations to existing services. When any such alterations become necessary, the Contractor shall promptly inform the Engineer, who will either make arrangements for such work to be executed by the owner of the service, or instruct the Contractor to make such arrangements himself.

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

PSA 5.7 **SAFETY**

REPLACE THE CONTENTS OF SUBCLAUSE 5.7 WITH THE FOLLOWING:

"Pursuant to the provisions of the Conditions of Contract, and without in any way limiting the Contractor's obligations thereunder, the Contractor shall at his 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), provide the following:

(a) Provide to its Employees on the site of the 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 (hereinafter referred to as the Act) at all times, and shall institute appropriate and effective measures to ensure the proper usage of such safety materials, clothing and equipment at all times;

(b) Provide, install and maintain 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;

(c) Implement on the site of the 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;

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

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

The Employer 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 requirements 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 inspections 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 provisions of Clause 39 of the Conditions of Contract, be entitled to suspend progress on the works of any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Engineer, that such 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 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 grounds for the Engineer to act in terms of Sub clause 53.1.3 of the Conditions of Contract and for the Employer to cancel the Contract in accordance with the further provisions of the said Clause 53."

ADD THE FOLLOWING SUBCLAUSES TO CLAUSE 5:

"PSA 5.9 <u>SITE MEETINGS</u>

The Contractor or his authorised agent will be required to attend regular site meetings, which shall normally be held once a month on dates and at times determined by the Engineer, but in any case whenever reasonably required by the Engineer. Unless otherwise indicated in the Contract, or instructed by the Engineer, such meetings shall be held at the Contractor's offices on the site. At such monthly meetings, matters such as general progress on the works, quality of work, problems, claims, payments, and safety shall be discussed, but not matters concerning the day-to-day running of the Contract.

PSA 5.10 Features requiring Special Attention

PSA 5.10.1 Backfilling Around Structures

Plant used for the compaction of backfill behind the perimeter walls of the water retaining structures will be restricted to twin drum vibrating rollers of 600kg maximum mass. Compaction of backfill at all other structures must be carried out by means of vibrating plate compactors.

PSA 6 <u>TOLERANCES</u>

ADD THE FOLLOWING SUBCLAUSE TO CLAUSE 6:

"PSA 6.4 <u>USE OF TOLERANCES</u>

No guarantee is given that the full specified tolerances will be available independently of each other, and the Contractor is cautioned that the liberal or full use of any one or more of the tolerances may deprive him of the full or any use of tolerances relating to other aspects of the work.

Except where the contrary is specified, or when clearly not applicable, all quantities for measurement and payment shall be determined from the 'authorised' dimensions. These are specified dimensions or those shown on the Drawings or, if changed, as finally prescribed by the Engineer, without any allowance for the specified tolerances. Except if otherwise specified, all measurements for determining quantities for payment will be based on the 'authorised' dimensions.

If the work is constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, the calculation of quantities will be based on the 'authorised' dimensions, regardless of the actual dimensions to which the works has been constructed.

When the work is not constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, the Engineer may nevertheless, at his sole discretion, accept the work for payment. In such cases no payment shall be made for quantities of work or material in excess of those calculated for the 'authorised' dimensions, and where the actual dimensions are less than the 'authorised' dimensions minus the tolerance allowed, quantities for payment shall be calculated based on the actual dimensions as constructed."

PSA 7 TESTING

PSA 7.1 PRINCIPLES

PSA 7.2 APPROVED LABORATORIES

REPLACE THE CONTENTS OF SUBCLAUSE 7.2 WITH THE FOLLOWING:

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

(a) Any testing laboratory certified by the South African National Accreditation Systems (SANAS) in respect of the nature and type of testing to be undertaken for the purposes of the Contact:

(b) Any testing laboratory owned, managed or operated by the Employer or the Engineer;

(c) Any testing laboratory established and operated on the Site by or on behalf of the Employer or the Engineer.

(d) Any other laboratory that the Engineer approves in his absolute discretion."

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.1 MEASUREMENT

PSA 8.1.1 Method of Measurement, All Sections of the Schedule

DELETE THE WORDS "and South West Africa".

PSA 8.1.2 Preliminary and General Item or Section

PSA 8.1.2.1 Contents

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

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

PSA 8.1.2.2 Tendered Sums

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Except only where specific provision is made in the Specifications and/or the Schedule of Quantities for separate compensation for any of these items, the Contractor's tendered sums under items PSA 8.3 and PSA 8.4 shall collectively cover all charges for:

- risks, costs and obligations in terms of the Conditions of Contract and of this standardized specification;
- head-office and site overheads and supervision;
- profit and financing costs;
- expenses of a general nature not specifically related to any item or items of the permanent or temporary work
- providing such facilities on site as may be required by the Contractor for the proper performance of the Contract and for its personnel, including, but without limitation, providing offices, storage facilities, workshops, ablutions, services such as water, electricity, sewage and rubbish disposal, access roads and all other facilities required, as well as for the maintenance and removal on completion of the works of these facilities and cleaning-up of the site of the Contractor's establishment and reinstatement to not less than its original condition, and
- providing the facilities for the Engineer and his staff as specified in the Contract and their removal from the site on completion of the Contract."

PSA 8.2 <u>PAYMENT</u>

PSA 8.2.1 <u>Fixed-charge and Value-related Items</u>

REPLACE THE CONTENTS OF SUBCLAUSE 8.2.1 WITH THE FOLLOWING:

PSA 8.2.1.1 Fixed-charge Items

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

(a) EIGHTY PER CENT (80%) of the sum tendered will be paid when the facilities have been provided and approved;

(b) The remaining TWENTY PER CENT (20%) will be paid when the works have been completed, the facilities have been removed and the site of the Contractor's establishment has been cleared and cleaned to the satisfaction of the Engineer.

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

PSA 8.2.1.2 Value-related Items

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

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

(b) The second instalment, which is 40% of the sum, will be made when the amount certified for payment, including retention moneys but excluding this second instalment, exceeds 50% of the tender sum.

(c) The final payment, which is 20% of the sum will be made when the works have been certified as completed and the Contractor has fulfilled all his obligations to date under this Specification, the General Conditions of Contract and the Special Conditions of Contract.

Should the value of the measured work finally completed be more or less than the tender sum, the sum tendered under item 8.3.2 will be adjusted up or down in accordance with the provisions of Clause 53 of the Conditions of Contract, and this adjustment will be applied to the third instalment."

PSA 8.2.2 Time-related Items

REPLACE THE CONTENTS OF SUBCLAUSE 8.2.2 WITH THE FOLLOWING:

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

PSA 8.3 <u>SCHEDULED FIXED-CHARGE AND VALUE-RELATED ITEMS</u>

REPLACE THE CONTENTS OF SUBCLAUSE 8.3.1 WITH THE FOLLOWING:

"PSA 8.3.1 <u>Fixed Preliminary and General Charges</u>……..Unit: sum

The sums tendered shall include full compensation for all fixed-charge preliminary and general charges as described in sub clause PSA 8.1.2.2. Payment will be made as described in sub clause PSA 8.2.1.1.

PSA 8.3.2 <u>Value-related Preliminary and General Charges</u>…..Unit: sum

The sums tendered shall include full compensation for all value-related preliminary and general charges as described in sub clause PSA 8.1.2.2. Payment will be made as described in sub clause PSA 8.2.1.2."

PSA 8.4 <u>SCHEDULED TIME-RELATED ITEMS</u>

REPLACE THE CONTENTS OF SUBCLAUSE 8.4 WITH THE FOLLOWING:

"PSA 8.4.1 <u>Time-related Preliminary and General Charges</u>……Unit: sum

The sum tendered shall include full compensation for all time-related preliminary and general charges as described in subclause PSA 8.1.2.2. Payment will be made as described in subclause PSA 8.2.2.2."

PSA 8.5 SUMS STATED PROVISIONALLY BY THE ENGINEER

REPLACE THE CONTENTS OF SUBCLAUSE 8.5 WITH THE FOLLOWING:

"PSA 8.5.1 Works executed by the Contractor……Unit: Prov Sum

The Contractor will be reimbursed in substitution of the Provisional Sums (if any) allowed in the Schedule of Quantities for work to be executed by the Contractor, in the amounts determined in accordance with the provisions of Clause 48 of the Conditions of Contract.

PSA 8.5.2 Works executed by Employer or Nominated Sub-Contractors

(a) Work to be executed by Employer or a Nominated Subcontractor …… Unit: Prov Sum

(b) Overheads, charges and profit on items (a) above ……Unit: % or sum

Sub items (a) and (b) will be provided in the Schedule of Quantities for the Employer and each different Nominated Subcontract included in the Contract.

The Contractor shall be reimbursed under sub item (a), in substitution of the respective Provisional Sums (if any) allowed in the Schedule of Quantities, the amounts actually paid or payable by the Contractor to the Employer or respective Nominated Subcontractors, in accordance with the provisions of Clause 48 of the Conditions of Contract.

The Contractor shall be paid under sub item (b), either:

(a) where the unit of measurement for sub item (b) was specified as being a percentage, the respective percentage, as stated by the Contractor in its tender, of the amount certified by the Engineer for payment under the related sub item (a), all in accordance with the provisions of Sub clause 48(1)(b)(i) of the Conditions of Contract, or

(b) where the unit of measurement for sub item (b) was specified as being a lump sum, an amount which is in the same proportion to the amount certified for payment under sub item (a) and the tendered lump sum is to the amount of the provisional Sum stated under sub item (a);

provided always that where the Contractor has failed for any reason to insert a percentage or sum (as applicable) for sub item (b) in its tender, or where no provision was made in the tender documents for tenderers to make any such entry, the Contractor will, in accordance with the provisions of Sub clause 48(1)(b)(ii), be paid an amount equal to SEVEN AND ONE HALF PER CENT (7,5%) of the amount actually certified by the Engineer for payment under sub item (a).

The percentage or sum (as applicable) paid under sub item (b) as aforesaid, shall be deemed to include for full and final compensation to the Contractor for all costs as may be incurred and all charges and profits associated with the engagement, supervision, administration and management of the Nominated Subcontractor required of him in fulfilling its obligations under the Contract as per the Principal Contractor."

PSA 8.6 PRIME COST ITEMS

REPLACE SUBCLAUSE 8.6 WITH THE FOLLOWING:

"PSA 8.6 PRIME COST SUMS

(a) Description of item to which Prime Cost Sum applies ……Unit: PC Sum

(b) Charge required by Contractor on subitem (a) above ……..Unit: %

Subitems (a) and (b) will be provided in the Schedule of Quantities for each different item to which a Prime Cost Sum applies.

The Contractor shall be reimbursed under subitem(s) (a) in substitution of the respective Prime Cost Sums included in the Contract, the actual price(s) paid or payable by him in respect of the goods, materials or services supplied, but excluding any charges for the Contractor's labour, profit, carriage, establishment or other charges related to such goods, services or materials.

The Contractor shall be paid under subitem (b), the respective percentage, as stated by the Contractor in his tender, of the amount certified by the Engineer for payment under the related subitem (a). The percentages tendered by the Contractor for each respective subitem (b) included in the Schedule of Quantities shall be deemed to be in full and final compensation to the Contractor in respect of any charge by the Contractor for labour, carriage profit, establishment and for any other charges related to the goods, services or materials supplied under the related subitem (a).

If the Contractor shall have omitted within his tender to insert a tendered percentage under subitem (b), or tendered a zero percentage, the Contractor's tendered rate for subitem (b) shall be deemed to be zero and the Contractor shall not be entitled to any payment under subitem (b).

Note in connection with additional tests required by the Engineer:

When a PC sum is included in the Schedule of Quantities for additional test required by the Engineer, the Contractor shall be responsible for both the cost of normal testing as described in subclause PS 8.2 in portion 1 of the Project Specifications and for the cost of any additional test that indicates that the specifications have not been complied with."

PSA 8.7 DAYWORK

REPLACE THE CONTENTS OF SUBCLAUSE 8.7 WITH THE FOLLOWING:

"Measurement and payment shall be in accordance with the provisions of Subclause 40(4) of the Conditions of Contract."

PSA 8.8 TEMPORARY WORKS

ADD THE FOLLOWING ITEMS:

PSA 8.9 WAYLEAVE ……Unit: sum

The tendered sum shall include full compensation to the Contractor for all the costs involved in obtaining the wayleaves as specified in Portion 1 of the Project Specifications.

PSA 8.10 COMPLIANCE WITH OHS ACT AND REGULATIONS (INCLUDING THE CONSTRUCTION REGULATIONS

2003) ……Unit: sum

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements of the OHS Act and Regulations (including the Construction Regulations 2003) at all times for the full duration of the Contract, as described in PS 8.7 of Portion 1 of the Project Specifications. The successful tenderer shall provide the Engineer with a complete breakdown of this tendered sum.

This sum will be paid to the Contractor in equal monthly amounts subject to proper / substantial compliance."

PSA 8.11 **COMPLIANCE WITH NEMA (ACT NO. 107 OF 1998) AND ECA NO 73 OF 1989**……Unit: sum

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements of National Environmental Management Act (Act No. 107 of 1998) and the Environmental Conservation Act, No 73 of 1989. The two Acts" are not necessarily complete requirements and the onus shall remain on the contractor to ensure that all relevant legislation are conformed with.

This sum will be paid to the Contractor in equal monthly amounts subject to proper / substantial compliance."

PSAB **ENGINEER'S OFFICE**

PSAB 3 **MATERIALS**

PSAB 3.1 **NAMEBOARDS**

REPLACE THE FIRST SENTENCE OF SUBCLAUSE 3.1 OF SANS 1200 AB WITH THE FOLLOWING:

"The Contractor shall supply and erect at locations approved by the Engineer, the number of contract name boards specified in Portion 1 of the Project Specifications, which, unless otherwise specified in the Contract, shall comply with the recommendations for the standard board of the South African Association of Consulting Engineers with regard to size, painting, decorating and detail, and the requirements described hereunder."

PSAB 3.2 **OFFICE BUILDING(S)**

REPLACE THE WORDS "as scheduled" *IN PARENTHESIS IN THE FIRST LINE OF SUBCLAUSE 3.2 OF SANS 1200 AB WITH* "AS SPECIFIED IN Portion 1 of the Project Specifications";

AND REPLACE SUBCLAUSE 3.2(j) OF SANS 1200 AB WITH THE FOLLOWING:

"(j) a heater and fan or air-conditioning unit capable of both heating in summer and cooling in winter."

ADD THE FOLLOWING SUBCLAUSES TO CLAUSE 3:

"PSAB 3.3 **CARPORT**

The Contractor shall construct the number of carports specified in Portion 1 of the Project Specifications, for the sole use of the Engineer and his staff. Each carport shall be constructed so that the vehicle parked under it is always protected against the direct rays of the sun. The carport area shall be at least 20 m² and the floor shall be covered with a layer

of crushed stone to alleviate dusty and muddy conditions. The carport(s) shall be positioned so as to provide easy and convenient access to the Engineer's office."

PSAB 4 PLANT

PSAB 4.4 SURVEY EQUIPMENT

The Contractor shall provide on site and make available for the exclusive use of the Engineer and his staff, the survey equipment listed in Portion 1 of the Project Specifications.

All survey equipment provided by the Contractor shall be in good condition, properly calibrated and fit for the purpose.

In addition to survey equipment provided by the Contractor for the exclusive use of the Engineer and his staff, the Contractor shall make available for use by the Engineer, the further survey equipment listed in Portion 1 of the Project Specifications, at all times when such is reasonably required by the Engineer and his staff for the purposes of the Contract.

PSAB 5 CONSTRUCTION

PSAB 5.8 SURVEY EQUIPMENT

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

Where required by the Engineer, the Contractor shall, at his own cost, promptly arrange for the recalibration of survey equipment provided."

PSC SITE CLEARANCE

PSC 3 MATERIALS

PSC 3.1 Disposal of Material

Delete the first two sentences of this clause and replace with:

"Debris arising from clearing and grubbing or from the demolition of structures on site shall be removed by the Contractor and disposed of at the Municipal tipsite.

The rate tendered shall allow for any fees to be paid at the tipsite.

PSD EARTHWORKS (SANS 1200 D)

PSD 5.1.1.3 Blasting of Hard Rock

Add the following:
Any blasting procedures for the excavation of hard rock must take account of the proximity of existing structures and the applicable safety regulations must be rigorously implemented to safeguard residents and their livestock and to minimise the risk of any damage to existing structures and underlying pipe work.

PSD 5.2.2.2.1 Excavations for General Earthworks and Structures

(a) Add the following:

Material from the excavations which will be used for backfilling, must be stockpiled at positions approved by the Engineer on designated stockpile sites. Material must be separately stockpiled according to the selection processes described in Clause PSD 5.

(d) Add the following:

Excavations at the reservoir for the no-fines collector drains underneath the surface beds and the perimeter collector drains as well as the outlet pipe encasings and perimeter wall base shear keys, which project below the underside of the no-fines blinding and are carried out after trimming of the bulk excavation floor, will be measured as restricted excavations.

PSD 5.2.2.3 Disposal

Add the following:
All material to be spoiled must be removed to an approved designated dumping site and all costs for loading, transporting and dumping must be allowed for in the relevant Earthworks payment items.

Boulders and hard rock material carted to spoil shall be spread on the spoil site and processed and compacted as described in section d) of Sub clause 5.2.4.2 in SANS 1200 DM.

PSD 5.2.3.2 Backfilling of Trenches and Backfilling or Backfilling against Structures

Add the following:
Material excavated from the upper layers of the soil profile will in general be suitable for placing in earth embankments. This surface material must be stockpiled separately from the material excavated from a greater depth. Any material obtained from the excavation of boulders or blasting of hard rock must be separated into material of a size suitable for placing in the filling and that which is not must be spoiled.

Selected granular fill from the excavations placed around the reservoir up to natural ground level and fill placed in the earth embankments around the reservoir must be compacted to at least 95% Mod. AASHTO density.

PSDB EARTHWORKS (PIPE TRENCHES) (SANS 1200 DB)

MATERIALS

PSDB.1 Classes of Excavation (Clause 3.1)
Intermediate (sub clause 3.1.2 (b) of SANS 1200) shall be classified as soft excavation (sub clause 3.1.2 (a) of SANS 1200 D).

CONSTRUCTION

PSDB.1 Minimum Base Width Specified (Clause 5.2)
The base width of trenches shall have a side allowance of 300 mm on both sides of the pipe.

PSDB.2 Excavation (Clause 5.4 and 8.3.2(a))
Use appropriate control and construction methods as specified under PSLB.3 to obtain suitable selected fill material from trench excavations. Select and place suitable fill material separate. The cost for selection of suitable material from trench excavation, including the cost of all labour and equipment, must be included under the unit tariff for trench excavations.

The tariff for excavation and backfilling of trenches must include for costs for dewatering of trenches, where required.

PSDB.3 Backfilling: Material for Backfilling (Clause 5.6.2)
Obtain suitable material for selected fill blanket from trench excavations. Use material from trench excavations for main fill. Place topsoil material from trench excavations at the top of main fill.

PSDB.4 Backfilling: Disposal of material (Clause 5.6.3 and 5.6.4)
Accept if otherwise ordered by the Engineer, the Contractor shall be allowed to spread surplus and unsuitable materials from trench excavations over the 6 m wide strip alongside the pipe routes.

Surplus material and material unsuitable for backfilling from trench excavations, ordered by the Engineer to be spoiled at spoil sites, shall be spoiled at the approved Spoil Site as indicated by the Engineer. The dumped material at the spoil sites must be evenly graded to ensure adequate drainage of the site. The cost thereof must be included in the rates for the pipe trenches and earthworks.

PSDB.5 Compaction: Areas Subject To Traffic Loads (Clause 5.7.2)
All pipeline road crossings are subject to traffic loads.

MEASUREMENT AND PAYMENT

PSDB.6 Scheduled Items: Overhaul (Clause 8.3.3.4)
No overhaul will be paid for surplus material from trench excavations or for material unsuitable for backfill transported to be spoiled to the disposal sites within the free haul distance of 2.0 km.

PSDK GABIONS AND PITCHING

PSDK 3 MATERIALS

PSDK 3.1.4 Geotextile
Add the following to Clause 3.1.4:

"Filter fabric for groundwater drains shall be a non-woven continuous filament, needle punched, spun-bounded polyester geotextile having the following physical characteristics:

Mass per unit surface	150 g/m² (min)
Porosity under 0,5 KPa	93%
Porosity under 200 KPa	82%
Normal permeability under 2 KPa	3 x 10 - 3 m/s
Normal permeability under 200 KPa	7 x 10 - 4 m/s
Normal through flow under constant head of 400mm	270 ℓ /m²/s

Alternatively - for woven filter fabrics the following characteristics shall apply :

Mass per unit area	270 g/m²
Water percolation	160 ℓ/m²/s

Composition polypropylene tape and polyethylene monofil.

The material shall be placed as directed and shall not be exposed to direct sunlight for prolonged period."

PSDK 8 MEASUREMENT AND PAYMENT

PSDK 8.2.4 Geotextile
Delete the contents of Clause 8.2.4 and replace with the following:

"The area measured will be that of the nett area of geotextile used.
The rate shall cover the cost of supplying geotextile, cutting, waste, placing, joining, overlapping and fastening the geotextile in position."

PSDM EARTHWORKS (ROADS, SUBGRADE)

PSDM 3 MATERIALS

PSDM 3.1 Classification of Excavation

Clause PSDB 3.1 will apply for this clause.

PSDM 5 CONSTRUCTION

PSDM 5.2.3.3 Treatment of Road Bed

(a) Preparation and Compaction of Road Bed

Add the following:
"Where road bed preparation takes place in sand the in-situ sand layer is to be watered and compacted to 100% Mod. AASHTO density. The surface of the in-situ sand layer is to be firm and smooth in order to receive the subsequent S.S.G. or subbase layer, as the case may be. To this end the Engineer may order that unnecessary construction traffic remain off the finished in-situ sand layer until the subsequent layer has been completed."

PSDM 5.2.9 Trimming and Grading of Verges
(New Clause)

During the initial earthworks the verge width shall be cut or filled to approximately the final level and shall be kept trimmed and tidy during construction of the works. After completion of the road layers, including the premix surface, and after construction of the necessary kerbs, including the satisfactory backfilling behind the kerb, the verge shall be finished off to the lines and levels shown on the drawings or as specified.

The verge material shall consist of that material which would normally be occurring at that position or depth when in cut and shall not be contaminated by foreign materials such as bricks, basecourse material, horticulturally inferior materials from trench excavations, etc. Verges in fill conditions are to consist of the material as specified for the fills and similarly not be contaminated with foreign materials.

Over those sections of verge where grass is to be planted or where the Engineer deems it necessary to spread topsoil, he may instruct the Contractor at the stage of the major earthworks operation to work to levels altered from those shown on the drawings.
Topsoil may be provided from stockpiles on site in which case the Contractor shall load, transport and spread as ordered by the Engineer. In the case of topsoil provided and imported by the Contractor the quality of the topsoil shall be approved of by the Engineer beforehand.

The Contractor shall be responsible for taking the necessary precautions and measures to control the dust nuisance which may arise due to his operations on the verge, whether from the natural ground surface or topsoil layer, until the verge is accepted by the Engineer.

PSDM 5.2.10 Dimension and Level Control and Process Control
(New Clause)

The Contractor shall submit to the Engineer records of dimension and level control and/or process control prior to requesting the Engineer to carry out any routine tests and/or inspections.

A sample form can be obtained from the Engineer.

PSDM 5.2.11 Requesting of Tests
(New Clause)

Tests and Inspections of the works will only be carried out by the Engineer once the appropriate test/inspection request forms have been fully completed. Test/inspection request forms can be obtained from the Engineer.

PSDM 8 MEASUREMENT AND PAYMENT

PSDM8.3.4(a) Cut to Fill, Borrow to Fill
Add to Clause 8.3.4(1) the following:
"Where fill material is borrowed from trench excavations the rate shall include the selection from the sides of trenches, transporting, if necessary, stockpiling, preparing, processing, shaping (including forming side channels and benching if applicable), watering, mixing, compacting to the densities specified and finishing the slopes of fills."

PSDM 8.3.13 Surface Finishes
Add to Clause 8.3.13 the following Clause (c):

"The major earthworks required to bring the verge to the required level and the additional depth of excavation or reduction in fill height as ordered for the topsoil operation shall be measured and paid for under the appropriate excavation item.
Only the following verge item will be measured and paid for separately.

The unit of measurement for trimming and grading of verges shall be per square metre.

The rate tendered for the above item shall include for all things necessary to complete the work as specified."

PSDM 8.3.17 Construct Selected Layers using Imported Material Compacted
(New Clause) **to 93% Mod. AASHTO**

The rate shall cover the cost of locating the source, complying with all the relevant precautions required in terms of Clause 5.1, SANS 1200 D, procuring the material, basic selection, transporting from source to point of deposition on the road, spreading, watering, compacting, final grading and complying with the tolerances and testing.

PSG CONCRETE (STRUCTURAL)

PSG 3 MATERIALS

PSG 3.2.1 CEMENT: APPLICABLE SPECIFICATIONS

Replace 3.2.1 with the following:

The following standard cement and cement extenders specifications shall be applicable to this contract:

- ***SANS 50197-1:2000*** *Cement Part 1: Composition, specifications and conformity criteria for common cements;*
- ***SANS 50197-2:2000*** *Cement. Part 2 : Conformity evaluation*
- ***SANS 50431-1:2004*** *Masonry cement. Part 1: Composition, specification and conformity criteria ;*
- ***SANS 1491-1:2005*** *Portland cement extenders;*

The descriptions and types of cements *or extenders* specified, will be based on the designations as defined in these specifications.

In order to meet the durability requirements of this Specification and to implement practical measures to limit the risk of potential alkali-aggregate reaction occurring, the selection of binder in the specified strength concrete mixes in this Contract must be based on ***SANS 50197-1,2:2000***:

The Contractor shall make use of a Portland-composite Cement (CEM II) in combination with a minimum 21% replacement of cement content by mass of an approved extender either delivered bagged or in bulk by the manufacturer. The concrete mix design must be based on using an approved non-reactive (in terms of alkali-aggregate reaction) granite or dolerite coarse aggregate. The Contractor must submit the necessary test results to prove that the aggregate is not reactive.

Supply all cement and other approved binder constituents from the same sources for the duration of the Contract.

Details of the types and sources of cement and other binder constituents proposed for use on the Contract, must be submitted for approval to the Engineer before any concrete work commences.

All cement extenders to strictly adhere to ***SANS 1491: 2005*** *Portland cement extenders. Part 1 : Ground granulated blastfurnace slag, Part 2: Fly ash and Part 3: Condensed silica fume* that outline the chemical and physical requirements, packing and marking, and inspection and methods of test.

PSG 3.2.3 STORAGE OF CEMENT AND OTHER BINDER CONSTITUENTS

Add the following:
If a binder constituent is to be blended with cement on site, it shall be stored separately from the cement and shall have separate delivery facilities. If handled in bulk it must be stored in silos (note the possible requirements for greater silo capacity, more efficient filters than for Portland cement and provision for aeration).

Cement and any other binder constituent to be used in concrete for water-retaining structures shall always be stored in a cool environment. It is strongly advised that silos used for storing these materials be painted white to reduce any temperature rise in the stored materials.

Cement or any other binder constituent shall not be kept in storage for longer than 10 weeks without the Engineer's permission.

PSG 3.3 WATER

Add the following:
The Contractor to ensure mixing water conforms with specifications as set out in **BS EN 1008:2002** Mixing water for concrete and **SANS 10100-2:1992.**

A sample of water of not less than 5 litres shall be taken by the Contractor for testing purposes. The sample shall be correctly identified and representative of the water to be used, due regard given to the possible effects of seasonal fluctuations. The water shall be tested within two weeks of sampling.

Potable water need not be tested.

To limit heat gain in concrete cast in water-retaining structures, the temperature of mixing water must preferably be below 20 °C when added to the concrete mix.

Mixing water shall not impair the strength and durability of the concrete or reinforcing embedded in the concrete

The chloride content of mixing water shall not exceed 500 mg/l (sea water shall not be permitted as mixing water)

Mixing water shall have a pH greater than or equal to 4.

PSG3.4.1 AGGREGATES : APPLICABLE SPECIFICATIONS

Add the following:

All Fine and coarse aggregates must fully comply with the requirements of ~~SANS 1083.~~ **SANS 1083:2006** Aggregates from natural sources-Aggregates for concrete, SANS **5843:2002** Water absorption of aggregates.

The Contractor to ensure that the aggregate samples taken for testing purposes are representative of the bulk of material considered for use during that period.

Contractor to ensure and proof to Engineer that all aggregates used in concrete meet the following requirements:

Fine aggregates

The fine aggregate shall be of particle size such that at least 90% passes a sieve having square apertures of nominal size 4.75mm and is retained on a sieve having square apertures of nominal size 75µm.

Fine aggregate must be clean naturally occurring siliceous sand.

The grading of fine aggregate shall be so that not less than 90% shall pass a 4.75mm sieve and between 5 and 25% shall pass the 150 µm sieve.

The dust content for fine aggregates shall not exceed 5% by mass passing a 75µm sieve.

The FM (Fineness modulus for fine aggregates shall be in a range of 1.2 to 3.5.

Fine aggregate to be tested according to **SANS 6243,SANS 6244** to ensure that deleterious quantities of clay are not present and be used in concrete.

Course aggregates

The coarse aggregate shall be of a particle size such that it is retained on a sieve having square apertures of nominal size 4.75mm.

Course aggregates for concrete shall not have a dust content, which shall not exceed 2% by mass. Exceptions shall be permitted provided that deleterious quantities of expansive clay are not detected.

The maximum water absorption of the coarse aggregate shall not exceed 1% by mass as per **SANS 5843.**

The minus-13,2-mm-plus-9,5-mm fraction shall be tested for the 10% fines aggregate crushing value .The load shall not be less than 110 kN (dry value) for stone subject to abrasion.

The Flakiness index of course aggregate shall be maximum value of 35%.

The content of chloride ion in the aggregates shall be determined and shall be within the limits specified in **SANS 1083:2006**

Portland-composite Cement (CEM II) will be used in combination with a minimum 21% replacement of cement content by mass of an approved cement extender and proof that the aggregates are non-reactive (in terms of alkali-aggregate reaction) must be supplied in accordance with **SANS 1083:2006**.

The use of plums will not be permitted in any of the strength concrete specified on the Works.

At tender stage the Contractor shall assure himself by means of tests and test mixes by an accredited laboratory that the fine and coarse aggregates that he intends to use, comply with the specification.

The tendered rates shall therefore be deemed to allow for the importation of aggregates, if necessary, that do comply with the Specification.

The Contractor shall be responsible for locating the sources of all aggregates.

Details of the type and source of coarse and fine aggregates to be used on the Contract must be submitted at tender stage.

PSG 3.4.3 STORAGE OF AGGREGATES

Add the following:
The aggregates to be used for water-retaining structures shall at all times be stored in a cool environment and, if at time of mixing, the ambient temperature exceeds 30 °C, only the coarse aggregate shall be sprayed with water to assist cooling. It is advisable that all aggregate stockpiles be shaded from the sun by means of 80% shade netting. The Contractor shall ensure adequate drainage of the coarse aggregate stockpile.

PSG 3.5. ADMIXTURES : APPROVAL OF ADMIXURES REQUIRED

Add the following:
The use of admixtures that improve workability and water retention will be approved subject to compliance with the following standards:

ASTM C494/494M-08 and EN 934 : Standard specification for chemical admixtures for concrete

No admixtures containing chloride in any form as an active ingredient will be permitted. The use of air entraining agents and plasticizers with air-entraining properties will not be permitted.

If the Contractor proposes using admixtures in the concrete mix design, the necessary information must be supplied to prove to the satisfaction of the Engineer that the proposed admixtures are non-toxic, are suitable for potable water structures, and will be beneficial and not detrimental to the durability of the concrete.

PSG PLANT

PSG 4.5.1 FORMWORK : DESIGN
Add the following:

At the commencement of the Contract, submit detail proposals for formwork and support work to the Engineer for approval. Design formwork to limit deflection to a value not exceeding 1/360th of the span between supports.

PSG 4.5.3 FORMWORK : TIES

Add the following:
Limit the number of formwork ties through walls to a minimum by selecting formwork systems with large tie spacings.

Use through-ties which can be extracted after casting concrete. Drill out tie-sleeves, sandblast tie-holes and caulk with an approved cementitious non-shrink waterproof mortar well rammed in.

Any ties which are not through-ties and which are approved for elements other than walls, must be provided with the minimum concrete cover specified for reinforcement. Clean pockets by sandblasting and caulk immediately afterwards with an approved epoxy mortar.

PSG 5 CONSTRUCTION

PSG 5.1.1 REINFORCEMENT : BENDING

Add the following:

Contractor to adhere to **SANS 282: 2004 and SANS 920: 2005**

PSG 5.1.2 REINFORCEMENT : FIXING

Add the following:

No welding of reinforcement will be permitted.

All reinforcement shall be correctly cut and bended. Reinforcement shall be correctly positioned, using suitable supports and spacers. Reinforcement shall be securely tied to prevent any movement during construction.

PSG 5.1.3 REINFORCEMENT : COVER

Add the following:

The specified concrete cover shall be deemed to apply to main reinforcement bars, secondary reinforcement, tie stirrups, tying-wire knots and wire ends.

The exposure condition on which the 50 mm concrete cover over reinforcement for :

i) water retaining faces;
ii) the exposed faces above the waterline; and
iii) concrete buried below finished ground level has been based, lies in the "severe" category.

Binding wire used for fixing reinforcement must be tightly bound around the nodes at bar intersections with cut ends bent inwards. Only a nominal reduction of the minimum specified cover by a single strand thickness will be allowed for binding wire.

Concrete cover blocks for water-retaining structures shall be manufactured from concrete of grade, durability, density and impermeability at least equal to that specified for the respective elements except that 12 mm stone instead of 19 mm stone shall be used. The size of the cover blocks shall be 60 mm x 60 mm, with a thickness equal to the specified cover. Wires shall be cast into the blocks to enable them to be fixed to the reinforcement. The wires shall be fully galvanised Class A as per **SANS 675 - 1993.** The wires shall be carefully held in position while the concrete is setting to ensure that all the wires are inserted to a uniform and consistent depth of 50 % of the thickness of the cover block for all the cover blocks.

The concrete shall be thoroughly compacted by means of a vibrator or vibratory table and the blocks shall be protected against early drying and shrinkage due to sun and wind, by being kept continually wet while still in the mould. After the blocks have been removed from the mould they shall be kept in water continuously until being used, and this period shall not be less than 14 days.

A proper mix design for concrete in cover blocks shall be submitted to the Engineer for approval.

PSG 5.1.4 SPLICING OF REINFORCEMENT

Add the following:

Splice lengths for reinforcement in the case of water-retaining structures shall not be less than 55 diameters and in non-water-retaining structures not less than 50 diameters. Where applicable in water-retaining structures, splices shall be staggered so that they are evenly spread throughout the structure.

PSG 5.2.1 FORMWORK : CLASSIFICATION OF FINISHES

Add the following:

Concrete surface finishes must be provided in accordance with the general notes on each of the construction drawings. The durability of concrete surface finishes is of prime importance on the Contract.

Use steel or glass reinforced plastic formwork suitable for providing the surface finish specified for all walls which are exposed or which form part of water retaining elements in the structures.

Take account of the problem of possible crazing of the concrete surface finish occurring with this type of formwork. Select formwork such that surface crazing will not occur.

Provide all exposed external corners of walls, beams, slabs or any other concrete elements not covered by backfill with 20 x 20 mm chamfers.

Formwork panels shall be free from rust, ridges, fins, bulges, imperfections, irregularities, chips and holes. Small approved laminated wooden board inserts and make-ups to steel or glass reinforced plastic formwork may only be used in confined places and the use thereof will be subject to approval by the Engineer. The concrete surface shall be smooth and free from irregularities, bulges, ridges, imperfections, air bubbles, honeycomb or surface discolourations. Grout checks shall be used at all construction joints and chamfers at all corners.

Joints between panels shall be sealed tightly to prevent local honeycombing or leaching of concrete. Joints between panels shall form straight horizontal and vertical lines which shall be spaced evenly on the formed concrete surface, and shall be even and smooth and require minimal or no finishing. The layout of all formwork panels shall be discussed with the Engineer before application and shall be approved in writing prior to erection of formwork.

Provide sample panels of the specified surface finishes at typical elements constructed as part of the completed Works at the beginning of the Contract for the Engineer's approval. Subject to approval use these sample panels as references for the standard of finishes to be provided on the rest of the Works.

The making good of imperfections defined for smooth surface finish formwork must include filling blowholes with any dimension exceeding 10 mm.

Full payment for formwork will only be made when concrete has been finished to the standard specified.

PSG 5.2.2 PREPARATION OF FORMWORK

Add the following:

All formwork must be treated with a release agent which is compatible with the concrete surface finish specified. Submit details of the proposed release agent to the Engineer for his approval prior to its use on site.

PSG 5.2.5.2 REMOVAL OF FORMWORK

Add the following:

Remove formwork at the earliest time permitted according to Table 2 of SANS 1200-G for Portland Blastfurnace cement in order to limit temperature rise in the concrete due to heat of hydration, but

taking prevailing weather conditions and temperatures and the concrete mix's early age strength gain characteristics into account.

PSG 5.5.1.2 CONCRETE CONSISTENCY

Add the following:

Observe the slump limits specified in Table 3 of SANS 1200-G except for slabs where the maximum slump must not exceed 60 mm.

PSG 5.5.1.5 DURABILITY

Add the following:

No reinforced concrete which is exposed or which forms part of a water retaining element may be cast in strength concrete which has a water cement ratio exceeding the specified maximum value in Table 5 of SANS 1200-G for Severe Exposure Conditions or of 0,50 generally or 0,48 for thin sections of dimension 150 mm or less.

Notwithstanding the specified water cement ratio, provide a minimum binder content of 350 kg/m^3 for such concrete.

PSG 5.5.1.7 STRENGTH CONCRETE

Add the following:

Due to the design approach and assumptions adopted for this contract, it is of the utmost importance that good strength concrete with consistent quality and composition is used throughout.

Strength concrete must be provided in accordance with the general notes on each of the construction drawings.

Design mix proportions for strength concrete to provide a workable non-bleeding non-segregating mix with a mean concrete strength equal to the specified cube strength plus 1,7 times the standard deviation.

Assume the degree of control of concrete manufacture at the beginning of the Contract is such that the standard deviation will be 0,182 times the specified cube strength. On this basis the target strength for the design mix proportions must be equal to 1,30 times the specified cube strength.

Select high quality aggregates to reduce strength concrete grade 35/19 water demand to 175 litre/m^3 maximum. Restrict the maximum cement content of strength concrete mixes to 450 kg/m^3.

The concrete mixes used on the Contract must be designed by an accredited concrete laboratory. Characteristics of the fresh concrete must be determined by making trial mixes and sufficient test cubes taken from the trial mixes must be crushed to determine the concrete strength at least at 7 and 14 days. The concrete mix designs and details of the concrete constituents (cement, PFA, slag and aggregates) showing compliance with all the specified requirements, together with the sources of supply of the constituents, must be submitted to and must be formally approved by the Engineer prior to any concrete being cast on site.

Any mix displaying a tendency to "bleed" after placing must be modified to reduce bleeding so that the finishing and curing requirements specified for horizontal or sloping surfaces can be practically implemented.

All possible measures to limit shrinkage must be applied in the concrete mix design.

PSG 5.5.1.8 NO-FINES CONCRETE

New Clause

The Contractor shall be responsible for the design of a no-fines concrete mix on the basis, and within the limitations, of certain parameters specified hereafter:

Classes of no-fines concrete

No-fines concrete shall be classified by the prefix NF and the size of aggregate to be used e.g. 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 no-fines concrete shall be as follows:

Class	Aggregate per 50 kg cement
NF 26,5	0,32 m^3
NF 19	0,30 m^3

Aggregates
Aggregate shall be a single-graded aggregate in accordance with SANS 1083, provided that the particle size shall be less than 38 mm and greater than 13 mm. Aggregate shall not contain any dust. Aggregate not complying with these requirements will be summarily rejected.

Cementitious materials
Ordinary Portland cement shall be used in no-fines concrete. The addition of cement extenders will not be permitted.

Cement Paste
The consistency of cement paste shall be such that all aggregate particle surfaces receive a uniform coating. Paste consistency shall be sufficiently viscous as to prevent the flow of paste through the placed concrete.

Strength
Concrete cube strengths at 4 and 28 days shall be 3,0 and 4,0 MPa respectively.

Permeability
Notwithstanding the preceding specifications, it is the Contractor's responsibility to ensure the permeability of the no-fines concrete. The Contractor shall be required to demonstrate the permeability of cast no-fines concrete on request of the Engineer. Any portion of the said no-fines concrete, deemed by the Engineer to be of insufficient permeability, shall be broken out and replaced at the Contractor's expense.

Batching and mixing
Cement shall be measured by mass or full bags of 50 kg each and aggregate shall be measured by volume in approved measuring boxes or barrows.

The quantity of water added shall be just sufficient to form a smooth grout that will adhere to and completely coat each and every particle of aggregate and that is just wet enough to ensure that at points of contact of the 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 per 50 kg of cement.

Mixing shall be carried out in an approved batch-type mechanical mixer.

Placing
No-fines concrete shall be placed in accordance with the procedure agreed to by the Engineer. It shall be placed in a single operation in its final position within 30 minutes of mixing.

The concrete shall be worked sufficiently to ensure that it completely fills the space to be concreted and that adjacent aggregate particles are in contact with one another. Excessive tamping or ramming must be avoided and under no circumstances shall the concrete be vibrated.

Use a light compacting roller to consolidate no-fines concrete in surface beds.

Sealing
Within 24 hours after casting no-fines blinding and prior to casting any reinforced concrete over it, seal sides that will eventually be in contact with ground or concrete to be subsequently cast and all

top surfaces with a layer not exceeding 6 mm nominal thickness of 1:3 cement mortar. Wood-float top surfaces to form a smooth even surface finished to the tolerances specified for Degree of Accuracy II in terms of Clause 6.2.3.

Protection and Curing
All no-fines concrete shall be protected from the elements and from the ingress of soil, fines or other contaminants that may prejudice permeability. In this regard, the Contractor's attention is drawn to the special requirements for protecting the no-fines concrete in the reservoir perimeter collector drains shown on the Drawings. The curing of no-fines concrete shall be accomplished in one or more of the following ways:

- Retaining formwork in place.

- Covering exposed surfaces with plastic sheeting laid on top of hessian according to the requirements set out in Clause PSG-24.

No-fines concrete placed during cold weather shall be adequately protected against frost for at least 3 days.

The costs of protection and curing of no-fines concrete must be included in the concrete rates for the various items.

PSG 5.5.3.1 MIXING AT CONSTRUCTION SITE

Add the following:
For all the larger concrete pours, make provision for a standby concrete supply and placing facilities in the event of plant breakdown.

Permission for additional construction joints in the larger concrete pours (± 20 m^3) in water retaining elements, necessitated due to plant breakdown, will not be granted.

PSG 5.5.3.2 READY-MIXED CONCRETE

The use of ready-mixed concrete will be permitted for the construction of the Works, subject to full compliance with the Specifications.

The results of cube tests supplied by the ready-mixed concrete supplier shall not be regarded as part of the Contract quality control system, and the Contractor shall take his own samples of concrete on site and have them tested in accordance with this Project Specification.

PSG 5.5.5 PLACING

Add the following:
The Contractor shall give the Engineer at least 48 hours notice of his intention to cast concrete.

The use of pumped concrete will only be allowed on the Contract subject to the concrete mix's full compliance with this specification and the Engineer's written approval of the proposed procedures for mixing, transport and placement.

The placing and finishing of concrete in horizontal and sloping slabs must be carried out in conjunction with the method of curing specified so as to eliminate plastic settlement and plastic shrinkage cracking.

Allow for carefully controlled re-vibration of concrete in all cases where plastic settlement cracking is a potential danger.

In order to be effective, re-vibration must be done at as late a stage as possible. As a guide, re-vibration must be done while the concrete is sufficiently plastic to not leave a hole or sign of vibrator penetration once the vibrator has been withdrawn from the concrete.

All re-vibration is to be done in the presence of the Resident Engineer at a time agreed by him.

Allow for finishing concrete at as late a stage as possible and for immediately following up with the application of the specified curing compound in all cases where plastic shrinkage cracking is a potential danger.

PSG 5.5.7 CONSTRUCTION JOINTS

Add the following:
In elements of water retaining structures approval may not be granted for construction joints in positions other than those indicated on the construction drawings.

Where horizontal or sloping construction joints occur on exposed surfaces, provide joints with a straight edge formed with a timber batten fixed to the formwork at the level where concreting will be terminated so that a neat finish is obtained.

Cast concrete against formwork stop-ends which have been approved by the Engineer at vertical or sloping construction joints.

Within 24 hours of the previous concrete pour, the full surface area of the concrete at all construction joints in structural elements in contact with water, exposed above water or buried underground must be sandblasted or waterblasted under high pressure to remove all laitance and fine particles to a depth of at least 10 mm and to expose a complete mosaic of clean, coarse aggregate embedded in sound concrete. All loose material must be removed prior to resuming concreting. The Contractor shall ensure that the green concrete is not damaged or disturbed during the preparation of the joint and that waterstops are not damaged.

After the reinforcement for the next pour has been fixed and the formwork erected, the construction joint shall be cleaned thoroughly with a pressurised water jet. The joint shall then be wetted continuously with water for 24 hours to completely saturate the concrete immediately before new concrete is cast. Before the new concrete is cast all excess water shall be removed from the construction joint and the new concrete shall be cast directly onto the prepared surface.

Where so indicated on construction drawings resume concreting at construction joints within the time period specified.

The length of construction joints will be measured on the centrelines of walls. Where construction joints have not been measured, their costs including the application of Vandex Super, where specified, must be allowed for in the rates for concrete and formwork.

PSG 5.5.16 DESIGNATED CONTRACTION JOINTS

New Clause
Provide contraction joints in accordance with the details shown on the construction drawings.
Protect prepared bearing surfaces to prevent damage during construction.

Glue the joint filler to the face of the first concrete section cast with a contact adhesive applied over the full contact area so that no displacement of the joint filler can occur before or during concreting.

Check that the contact adhesive is compatible with the other joint materials used and apply the adhesive strictly in accordance with the manufacturer's specifications. Protect the joint filler to prevent damage during construction.

Where indicated paint butting faces at contraction joints with an approved bituminous bond breaking paint with a dry film thickness of not less than that specified on the construction drawings.

PSG 5.5.17 SEALANT GROOVES

New Clause
Cut sealant grooves of the dimensions indicated with a diamond saw after completion of concreting at the positions indicated on the construction drawings. Slightly tapered hard-wood formers may

also be used to form sealant grooves, but only at other specific positions indicated on the construction drawings (eg grooves at sides of walls and at slab soffits).

Sealant grooves shall have sharp-edged, even, vertical, or slightly tapered sides in sound concrete and be of consistent width and depth. The bottom of the groove shall be plane and reasonably uniform. Where this condition has not been achieved the bottom of the groove must be rendered plane by installing back-up sealant to the Engineer's approval.

Remove all laitance on the top surfaces at horizontal or sloping slabs by grinding concrete over a strip 100 mm wide prior to cutting sealant grooves. Grind concrete so that the edges of grooves fall in the same plane as that of adjoining slab or wall surfaces on either side of the groove. Where suspect concrete, chipping or spalling occurs at sides of sealant grooves, dress up and re-nose edges with epoxy mortar in accordance with the Engineer's instructions.

The concrete surfaces of sealant grooves in the surface bed, walls, wall bases, channels and walkway slabs to which the specified sealants will be bonded must be sandblasted to provide a sound, clean, sharp bonding surface.

Sealant grooves must be completely dry and thoroughly cleaned prior to sealant application. Test for the presence of moisture by covering prepared lengths of sealant groove with 250 micron black polythene sheet of minimum dimensions 500 x 500 mm taped to the concrete surface and left overnight. The concrete will be accepted as dry if there is no condensation evident when the sheet is lifted first thing on the following morning.

PSG 5.5.8 CURING AND PROTECTION

Add the following:
Particular attention must be paid to curing concrete properly. Horizontal and sloping slab and wall base elements must be cured by applying curing compound, covering exposed surfaces with protective polythene sheeting laid on top of hessian to completely enclose the cast element within 2 hours after finishing and then also keeping the concrete surfaces under the sheeting continuously wet by means of an irrigation type mist spraying system or by flooding the areas to be cured with a hosepipe for the specified curing period.

The vertical sides of columns must be cured by applying curing compound within 1 hour after stripping formwork and immediately afterwards enveloping the element with polythene sheeting laid on top of hessian and then keeping the concrete surfaces under the sheeting continuously wet by saturating the hessian at the tops of the columns with a hosepipe for the specified curing period.

The vertical and sloping sides of wall elements must be cured by applying curing compound within 1 hour after stripping formwork and then keeping the concrete surfaces continuously wet by means of an irrigation type mist spraying system. Sprayers shall be spaced at such intervals to ensure that the whole concrete face is wetted.

The irrigation type mist spraying system shall be controlled by an automatic timer with the capacity to activate the system for any chosen time period at any chosen time intervals, such that curing will be continuous over week-ends, public holidays and builders holidays.

Sprayers shall be spaced at such intervals as to ensure that the whole area of concrete is wetted. The design of the system shall be submitted to the Engineer for his approval.
Should the existing water pressure on site be insufficient, a pump must be installed to operate the mist spraying system and the Contractor must allow for this in his tendered rates and prices.

The duration of water application and the intervals of application must be determined on site by the Contractor and approved by the Engineer, such that the areas to be cured are kept continuously wet. The duration and intervals of spraying water must be adjusted to allow for adverse conditions such as high temperatures and/or dry, windy conditions.

The curing compound must be of an approved reflective type complying with the requirements of ASTM C 309-74 "Liquid Membrane forming Compounds for Curing Concrete" Type 2 and must be applied to provide a full even coverage:

i) Using suitable spray equipment for walls and columns
ii) By roller on the top horizontal and sloping surfaces of slabs, wall bases and other similar elements.

Use clear polythene sheeting of not less than 250 micron thickness for covering concrete and overlaying hessian after applying curing compound. Both the polythene sheeting and hessian must be in sound condition without tears or holes and must be effectively secured in position so that they cannot be lifted free of the concrete surface by wind.

Retain the polythene sheeting and hessian in position and continue applying water to keep the concrete surfaces to be cured continuously wet for a minimum curing period of 10 days after the date of application of the curing compound.

The Contractor shall also ensure that the concrete shall not be exposed to thermal shocks during the first 28 days after casting and he shall take the necessary, additional precautionary measures to shield the concrete with plastic sheets or hessian during extreme warm, cold, dry or windy weather conditions. Hessian shall be wetted should the conditions necessitate this.

Curing shall be done in such a manner as not to cause staining, contamination or marring of the surface of the concrete.

Concrete that has not been cured in compliance with this specification may not be accepted for purposes of full payment.

PSG 5.5.9.2 ADVERSE WEATHER CONDITIONS

Replace first sentence of clause with the following:

Irrespective of the ambient temperature, the temperature of concrete when placed shall not be allowed to exceed 25 °C.

PSG 5.5.10 CONCRETE SURFACES

Add the following:
Except where otherwise specified, provide exposed horizontal or sloping top surfaces of wall bases and slabs with a wood-floated surface finish.

The top surfaces of all walls must be steel floated.

The exposed top surfaces and edges of walls must be finished to the tolerances specified for Degree of Accuracy I in terms of Clause 6.2.3.

Slabs to be provided with a finishing screed and concrete which is buried underground must be tamped in accordance with Clause 5.5.10.1.

Where wood-floating is specified, the surface must first be tamped in accordance with Clause 5.5.10.1. After the concrete has hardened sufficiently, it must be wood-floated to a uniform surface free of trowel marks.

Where steel-floating is specified the same procedure as specified for wood-floating must be followed, except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the surface must be steel trowelled under firm pressure to produce a dense smooth uniform surface free from trowel marks.

PSG 5.5.11 CONCRETE : WATERTIGHT CONCRETE

Add the following:

All water retaining elements constructed in reinforced concrete under this Contract must be watertight in terms of the requirements of the water tests described in the Project Specification. Watertightness must be achieved without the addition of supplementary cement plaster, coatings or membranes. Ensuring watertightness is the exclusive responsibility of the Contractor and he shall take all the measures deemed necessary to achieve this. All remedial work that has to be undertaken to ensure watertightness shall be for the Contractor's own account.

PSG 5.5.14 DEFECTS

Add the following:

Any defects in the concrete or surface finishes must be inspected by the Engineer immediately after stripping of formwork. Remedial work to defects, where authorised by the Engineer, must be carried out strictly in accordance with his directives.

Make good localised minor imperfections (e.g. blowholes, small recesses, etc) by rubbing in a stiff 1:2 cement mortar immediately after stripping of formwork. Isolate repair areas and apply curing compound and the curing membrane around them in accordance with the specified curing procedures. Complete repair work and apply the curing compound and curing membrane over repair areas within 24 hours of stripping formwork.

Carry out all other remedial work in dry conditions after the concrete is fully cured. Cut out all defective material, clean contact surfaces to which new concrete will be bonded by sandblasting and effect repairs using either epoxy mortar with an appropriate two part epoxy primer or concrete and a wet to dry epoxy adhesive, depending on the extent of the defect.
All epoxy resin compounds used in repair work must be approved by the Engineer and applied strictly in accordance with the manufacturer’s specification. All repair materials shall be equivalent to the concrete to be repaired in respect of thermal properties and structural elasticity. Take care to match the colour of repair work with existing concrete where repair work will be permanently exposed.

PSG 5.5.18 CONCRETE : ITEMS BUILT INTO WATER RETAINING STRUCTURES

New Clause

The building in of items, such as puddle pipes etc. into water-retaining structures may be executed in either of the following ways, viz:

(a) the items shall be positioned prior to construction of the relevant part of the water retaining structure and subsequently cast in simultaneously with the concreting of the specific part of the water-retaining structure; or
(b) recesses or holes may be blocked out in or through the relevant part of the water-retaining structure, and the item may then be positioned afterwards and grouted or concreted in, in an approved manner.

In the case of (b) above where pockets were left for the later casting in of items, the following procedure shall be followed:

The old concrete surface shall be prepared by sandblasting as described for normal construction joints in Clause 5.5.7 prior to the installation of the pipework or other items to be cast in. Immediately prior to casting concrete, the surfaces shall be finally cleaned with a pressurised water jet and then coated with an approved acrylic polymer bonding agent. The pocket shall be filled with the same type and strength of concrete as the original type. After removal of the shutters, the exposed surfaces of the new concrete must be cured in accordance with the requirements of Clause 5.5.8.

The Contractor's attention is drawn to the fact that the decision as to which alternative to adopt is solely his and that finally the works shall be completed as specified and as detailed on the drawings with particular reference to the following:

- Some components with long delivery periods supplied under this Contract, may have to be built in at a later stage.

- Water-retaining structures shall be fully watertight, especially around cast in items, and no leaks or damp areas will be allowed.
- The concrete of the water-retaining structure around the built-in item shall be free of any honeycombing, shall have an acceptable smooth finish and the colour of the whole relevant part shall be uniform.
- Pipes passing through water-retaining structures shall be properly aligned as specified and as detailed on the drawings, and valve stems intended to be vertical shall, for example, be 100 % vertical in both planes.
- Notwithstanding the above, the contents of Clause 5.5.7 shall apply to all works in connection with items built into water-retaining structures.

Where pipes or other items have to be built into existing water-retaining structures, the existing concrete shall be cut out carefully to obtain sufficient space to install the items according to the requirements in respect of opening position and conditions relating to cutting procedures specified by the Engineer. Prior to commencing cutting concrete, the edges of the new opening must be defined by saw cutting to a depth of 20 mm to provide a clean joint line. On completion of the cutting, the installation and building in of the items shall then proceed as described above in this Clause.

PSG 6.2.3(a) (3) PERMISSIBLE DEVIATIONS : REINFORCEMENT COVER

Replace with the following:

The permissible deviation for cover to reinforcement shall be –0 +10 mm irrespective of the Degree of Accuracy.

PSG 7.2.1 TESTING: GENERAL

Add the following:

Provide a slump cone with baseplate and tamping rod on site. Standard slump cone tests will be carried out on a regular basis as part of the testing program to control the quality of concrete on the site.

The acceptance of concrete quality will be based on a statistical analysis of concrete test cube 28 day compressive strengths for each grade of strength concrete specified for the Works.

The performance of each grade of strength concrete will initially be assessed by carrying out a statistical analysis on 30 test cube results. Concrete sampling to accumulate this number of results will be carried out at an accelerated rate so that the appraisal of the performance of each grade of strength concrete in relation to the specified requirements can be made early in the Contract.

Subject to approval of each grade of strength concrete on this basis, concrete quality will be monitored for the balance of the Contract by statistical analyses carried out on the test results of concrete cubes for each grade of concrete according to the specified sampling rates.

The purpose of testing samples of all the concrete used in the structures is to ensure that the mix proportions and the degree of control of concrete quality existing on the site are suitable for the various grades of strength concrete required and are so maintained.

PSG 7.1.2 FREQUENCY OF SAMPLING

Add the following

Take a sample of concrete as actually placed in the structure at the point of discharge from the mixer at random on three separate occasions during each of the first 5 days of using that mix on site.

Each sample for initial sampling during the first occasions that a mix is used on site shall comprise three test cubes, one of which must be tested at 7 days and the other two at 28 days.

Each sample for subsequent testing shall comprise four test cubes, one of which must be tested at 7 days and the other three at 28 days. Samples for subsequent testing shall be taken at a rate by volume of not less than one sample per 20 m^3 of concrete cast or, in the event of smaller volumes, at least one sample on each day that concrete of a particular grade is made.

Notwithstanding this schedule, arrange the exact details of numbers of samples to be taken with the Engineer at commencement of construction. Make 150 mm test cubes in all cases.
Supply the necessary moulds and cubes under the supervision of the Engineer who has the right to reject any moulds which in his opinion will not give cubes which are true. Supply sufficient moulds to make the daily quota of cubes.

PSG 7.2.1 TESTING: GENERAL

Add the following:
Make, cure and test all test cubes in accordance with the requirements of SANS Standard Methods 863 and 864.

Cure test cubes in an approved curing tank provided on the site and deliver them to an independent laboratory as approved by the Engineer for testing not less than 24 hours in advance of the specified time for testing.

Keep accurate records of the exact position in the structure of the concrete batch represented by the test cube.

Allow for all costs connected with quality control sampling and testing of concrete, as described in this section of the Project Specification, in the relevant strength concrete rates.

PSG 7.3 ACCEPTANCE CRITERIA FOR STRENGTH CONCRETE

Add the following to clause 7.3.3:
The cube results for each grade of strength concrete (tested at the specified age) will be grouped in batches of thirty in chronological order as they become available and analysed statistically by the Engineer who will calculate the mean strength and the standard deviation.
If the mean strength less 1,7 times the standard deviation thus calculated be not less than the specified cube strength, the concrete represented by that batch of test results shall be deemed to comply, provided always that no single cube result is less than ninety percent (90%) of the specified cube strength.

Modify the mix represented by the applicable results of the test cubes if they fail to meet requirements.

Raise the mean strength of the concrete work already cast containing the mix under consideration to an acceptable level by recommencing curing in a manner to be prescribed for a period determined by the Engineer.

In addition, re-prop suspended work and/or delay the application of finishes and other superimposed loads in the Engineer so orders.

In addition, drill and test cores to prove that the concrete attains the strength required during the period of additional curing if the Engineer so orders.

If any single cube result is less than ninety percent (90%) of the specified cube strength, then the section of the concrete represented by the cube in the structure will be subject to rejection at the Engineer's discretion after the results of surface tests are known or after the results of tests on samples bored out from the concrete are available or after a loading test on the structure has been performed.

The Engineer may approve slight adjustments to the mix if the mean strength of the cube tests minus 1,7 times the standard deviation exceeds the specified cube strength by more than 10% by either reducing the cement content or increasing the water/cement ratio, provided that no detrimental change in the conditions of control exercised during manufacture and delivery of the concrete takes place.

In order to comply with the durability requirements of the concrete, increased water/cement ratios for adjusted concrete mixes shall not exceed the maximum values stipulated in the Project Specification for strength concrete mixes nor shall the maximum water requirement of 175 litres per cubic metre of

concrete be exceeded or the minimum cement content be reduced below 350 kg/m³ for strength concrete.

The Contractor will bear the expense of any additional testing, curing and propping ordered by the Engineer in the event of non-compliance. No delay will be considered due to these causes.

PSG 8.1.2.2 and 8.1.2.3 REINFORCEMENT : MEASUREMENT

Replace 8.1.2.2 and 8.1.2.3 with:

Reinforcement quantities are measured for bar diameters smaller or equal to 12 mm and greater or equal to 16 mm for both mild steel and high-tensile steel reinforcement.

PSH STRUCTURAL STEEL (SANS 1200H)

PSH 5.7 STRUCTURAL STEEL: ACCESS LADDERS, METAL WALKWAYS AND LOCKING BARS

Add the following:

Fabricate locking bars and fixings from Grade 350WA steel flat in accordance with the details shown on the construction drawings.

Metal walkways shall be Rectagrid type RS40 super pressure locked grating or similar approved with bearer bars not less than 25 x 4,5 mm and transversal bars not less than 7 mm round sections. Bearer and transversal bars shall be set at 40 mm centres with square openings.

All welds to access ladders shall be 6 mm minimum fillet welds. All other unspecified welds in Grade 350WA steel shall be 6 mm minimum fillet welds. Exposed welding shall be ground down flush.

All handrail sections shall be jointed with internal ferrules and self-tapping screws.

Provide stainless steel fixing bolts, washers and nuts, where applicable, for the installation of the access ladders and all walkways and structural steel supporting members.

PSH 5.3.9 PROTECTIVE TREATMENT :

Add the following:

Where so indicated on the drawings, carry out hot dip galvanising in accordance with the Standard Specification for structural steelwork.

Preliminary Requirement:

All fabrication, drilling of holes and deburring shall be completed before galvanising. Welds on flanges shall be cleaned of all splatter, slag, etc.

Galvanising:

The steelwork shall be pretreated and galvanised in accordance with specification SANS 763-1967 and/or 934-1969.

Painting:

Thoroughly degrease the galvanised surfaces by means of a suitable degreaser applied with a bristle brush. Hose down with fresh water and allow to dry.

Apply, preferably by spray, one coat of Self-Etching Zinc Chromate Wash Primer to a dry film thickness of 8-13 micrometres.

Apply by brush, flow or dipping 3 coats of Epoxy Tar coating (Black or Brown) to give a minimum dry film thickness of 100 micrometres per coat. Black shall be the final coating. Consecutive coats shall be applied within 24 hours of each other, but the minimum overcoating time will be dependent on the ambient temperature, humidity, etc.

PSH 5.4 SETTING OUT:

Add the following:

All dimensions and levels affecting structural steelwork erection and position must be checked on site. The Contractor shall be responsible for the correct fitting of the component parts of the steelwork, positions of holding down bolts, etc.

PPHA STRUCTURAL STEEL SUNDRY ITEMS (SANS 1200HA)

PPHA.1 GRADE OF STEEL (Sub clause 3.1.1)

Structural cold-formed steel work to be to Grade A43A or 43B with the minimum properties as tabled in Table B-2 of SANS 0162-1982.

Structural hot-rolled steel work to be to Grade 300W with the minimum properties as tabled in "Steel design date: No. 6" of the South African Rolled Steel Producers Coordinating Council and the South African Institute of Steel Construction.

PPHA.2 SHOP DRAWINGS (Sub clause 5.1.2)

The Contractor is to provide shop details.

Steel work generally of welded construction with site connections bolted:

- All holes 18 dia. For M16 bolts
- All gussets ex 8mm
- All welds, 6mm fillet

The Engineer must be notified, (at least 72 hours before hand) of the completion of the fabricated steel work at the Contractor's workshops, to enable him to make an inspection if he so desires. The fabricated steel work, thus to be inspected shall be in its prepared specified state immediately before the application of prime coat painting.

PPHA.3 WELDING (Sub clause 5.3.4)

Delete this clause in its entirety and add the following clause:

Welding shall be done in accordance with the relevant requirements of SANS 0162 – 1993 BS5135 – 1974 and AWS.D.1.1 – 90 (American Welding Society).

Welding shall be Grade B welding. The qualification of welders shall be in accordance with the relevant clauses of the above standards, and specifically SANS 044 1983 Part III and shall be Grade I welders. Grade 2 welders shall be permitted only with Engineer's approval.

The Contractor shall provide evidence, acceptable to the Engineer, that welding procedures and welders have been tested in accordance with the requirements of AWS D1.1.

PPHA.4 PROTECTIVE TREATMENT (Sub clause 5.3.9)

PPHA.4.1 Shop Painting

a) Steel work after fabrication shall be wire brushed to a finish equal to or better than Grade St3 or SIS 05 59 00.
b) Within 4 h after the completion of wire brushing, paint all structural steelwork with Epoxy Resin paint, all as shown on drawings. Painting shall be applied in workshop by spraying to a final thickness of not less than 300 micron.

PPHA.4.2 Painting after erection

After the erection of steelwork, all chips or scratch marks shall be made good with brush applied Epoxy paint.

PPHA.4.3 Galvanising

Where galvanizing is specified it shall be carried out by hot dip process to provide a minimum mass of zinc coating of 650g/m^2 in accordance with SANS 763-1977 Clause 4.3.1 Table 2. Exposed threads to be treated with zink based paint.

PSL MEDIUM PRESSURE PIPELINES

PSL 3 MATERIALS

PSL 3.2 AC Pipes and Specials

AC pipes and specials of diameter 300mm and less are to be bitumen dipped as specified in Appendix C of SANS 1223-1985- - " Fibre Cement Pressure Pipes and Couplings".

PSL 3.3 CI Pipes Fittings and Specials

Add: " All cast iron fittings to be lined with cement mortar or coated with Rilsan or fusion-bonded epoxy".

PSL 3.8.1 AC Pipes

Delete the second sentence and replace by : "All jointing shall be with AC sleeve type couplings unless otherwise ordered or shown on the Drawings".

Add: " The shortest length of pipe which may be used in the pipeline is 0,5m, thus the shortening of an adjacent pipe may be necessary so as to ensure compliance with the position of the specials. When pipes of 1,0m or less, in length, are used they shall be jointed by means of C.I. short collar detachable couplings".

Add : "The maximum length of pipe which may be used in the pipeline is 4,0m".

PSL 3.8.3 Flanges and Accessories

Add to Clause 3.8.3 :

"The insertion piece shall be such as to cover the full face of the flange (i.e. the O/D). Bolts and nuts shall comply with SANS 135. Drilling shall conform to BS4504 Table 16/11".

PSL 3.8.4 Loose Flanges

With regard to Clause 3.8.4 the following standard shall apply :
"Bolts and nuts shall comply with requirements of SANS 135".

PSL 3.9.6 Corrosive Soil

Add to Clause 3.9.6 :
"The soil within the Municipal area is classified as corrosive. All metal flanged joints, saddles, bolts and nuts shall be protected by means of Denso paste and then wrapped to give a covering of at least three layers of Denso- impregnated tape or other means of inhibiting corrosion approved by the Engineer or the Engineer's Representative".

PSL 3.10 Valves

Delete the contents of this Clause and replace by :
"Two types of valves are acceptable:

a) Wedge gate type valve,
b) Resilient seal gate type valve.

Valves shall comply with the requirements of SANS 664-1989 as amended, and shall bear the SANS quality mark. A test certificate as per Clause 3.5.20 of compliance with SANS 664 will be acceptable.

Valves shall display the following features;

- A minimum of 250 microns coating of fusion bonded epoxy or Rilsan Nylon 11.
- Class 16
- Anti-clockwise closing
- Non- rising spindle type with cap.
- May have spigotted, socketted or flanged end connections. When flanged valves are specified, the drilling shall be to Table 16/11 of BS 4504".
- In the case of resilient seal valves, valve gates shall be fully EPDM rubber lined, internally and externally and the spindle shall be Grade 316 Stainless Steel or equivalent with a double o-ring seal."

PSL 3.11.6 Surface Boxes

Delete the contents of this Clause and replace by :
"For non-trafficked areas, surface boxes are to be the thermoplastic type as per Engineer's Department Standard Detail Drawing No PSL 2/1. For trafficked areas surface boxes are to be cast iron type as per Engineer's Department Standard Detail drawing no. PSL 2/2".

PSL 3.12 Hydrants

(New Clause)

Hydrants shall be of the underground screw down type with an overall maximum height of 320 mm and rising spindle. The hydrant shall be opened by rotating the spindle in an anti-clockwise direction. The outlet connection shall be of the London Round Thread type. The hydrant must conform to SANS 1128: Part 1-1977.

PSL 5 CONSTRUCTION

PSL 5.1.1 General

Add to Clause 5.1.1
"The center line of the pipeline shall normally be 2,5m from the road reserve boundary inside the road reserve. The pipeline is to be laid continuously and leaving gaps for fittings will not be allowed.

For uPVC/mPVC pipelines the pipe shall be laid to within 2,0m of the connection point. For HDPE pipelines the Contractor is to lay at least 300mm past the connection point. In both cases the Water Division will complete the connection providing their own materials unless these have been ordered by the Engineer's Representative."

PSL 5.1.4 Depths and Cover

Unless otherwise shown on the drawings or instructed by the Engineer, cover to pipes shall be as follows :-
During Construction :
Where construction traffic is liable to cross over pipes, they shall be laid so that there is not less than 0,75m of cover over the pipe. Road crossings shall be constructed after the construction of the road layers has reached the stage where 0,75m cover is available.

Pipes beneath Verges and Open Spaces :
The tops of pipes beneath verges shall be not less than 0,75m and not more than 1,25m below the final verge level.

Supply Connection :
The tops of pipes shall not be less than 450mm and not more than 600mm below the final road surface.

Pipes beneath existing roadways:
The tops of pipes beneath a road shall not be less than 1m and not more than 1,25m below the road level.

PSL 5.2 **Jointing Methods**

Fusion butt-welding

a) Interpretation

This section shall cover the butt-welding of plastic pipes, which shall involve the heating of two pipe ends to fusion temperature and then subsequently joining the two ends by the application of force.

b) Equipment

The basic parts of the equipment shall be:

i) Planning Tool: used to face pipe ends.
ii) Heating Plate: used to melt pipe ends.
iii) Frame: holds on to the pipes to be joined. It has hydraulic cylinders which apply pressure to the pipe joints.
iv) Hydraulic Unit: has the hydraulic pump, tank, pressure gauges, directional valves, pressure regulation valves.
v) Data Logger: records pertinent process data such as time, pressure and temperature. The data logger ensures that every joint is made properly.

c) Site Preparation

The technician shall ensure that the machine is situated in a dry area, before welding is commenced. The equipment shall not be exposed to rain.

No welding shall be executed during rain, unless and outdoor roofing structure is provided to protect the equipment and process from rain. The technician shall ensure that the equipment does not sit on wet ground.

d) Pipe Preparation

Pipe ends to be joined shall be dry and free from foreign particles.

e) Welding Procedure

Pipes shall not be welded in trenches or other excavation or underground structures.
Securely fasten the pipes to be joined to the welding tool. The pipes must be attached square to the axial direction:

i) *Face the pipe ends*. The process shall be complete when the shavings are continuous in length and are equal in thickness. The faced ends shall be moved to touch each other in order to check for square-ness. The technician shall not touch the faced ends at this point in order to prevent contamination.

ii) *Drag force shall be accounted*. Heating pressure and soak pressure have to be as recommended by the manufacturer (typically 0.16m/mm²). On the site however, long lengths of pipes being connected one by one presents varying levels of drag force. Thus, the technician shall compensate the drag force so that the effective welding or soaking pressure is maintained as recommended by the manufacturer. It is important that this pressure is attained. Volume reduction of plastic in its solidification from the melted state would lead to cavitations (air pockets) in the joint if the proper level of welding pressure is not reached.

iii) *Melt the pipe interfaces*. Follow the recommended heating times from the manufacturer. Generally, a set level of bead height must be attained for a given pipe wall thickness. Bead height may vary from 0.5mm to more than 5mm. The recommended heating pressure is 0.16N/mm² (effective). Again, effective means that drag forces must be compensated.

iv) *Soak the pipe ends in heat*. When the designated heating time is up, the high pressure is relieved, but the pipes remain in contact with the heating plate. Heat soak time typically varies from 5 seconds to several minutes. Heat soak pressure is about 0.02 N/mm² effective.

v) *Changeover time*. After the pipes have been properly soaked, the pipes shall be immediately joined together. There is a changeover time, which refers to the maximum amount of time the pipes can be exposed to the atmosphere while removing the heating plate and moving the pipe ends together. Again, follow the recommended changeover time of the manufacturer of the welding equipment.

vi) *Cooling*. After following the correct elapsed time for heating, soaking, and changeover, the pipe ends shall be pressed together at an effective pressure of 0.15 N/mm² or as recommended by the manufacturer. Cooling time under pressure varies from 6 minutes to 80 minutes. Failure to follow the correct cooling times may lead to the formation of air pockets in the joint.

f) Quality Butt-Welds
A successful weld shall be a joint equal or exceeding the strength of the pipe itself. Thus, a hydrostatic pressure test of the pipe with the joint shall rather first lead to a failure in the pipe section and not in the joint section.

All external and internal beads, protruding more than 2mm, at the fusion welded joints shall be removed, prior to pipe installation, by a technique approved by the Engineer.

g) Technician Qualification
Fusion joint shall **ONLY** be performed by technicians trained in the use of the fusion equipment, and with minimum 3 years of active experience with the specific pipe material.

PSL 5.3 **Setting of Valves, Specials and Fittings**
Add to Clause 5.3 :
"The hydrant shall be bolted to the tee such that the outlet is in line with the pipeline. Valves shall be positioned opposite the erf splay peg at intersections".

PSL 5.6 **Valves and Hydrant Chambers**
Delete in Clauses 5.6.1 and 5.6.2 the references to drawings L1, L2 and L3 and replace by "The Standard Details of the Municipal Water Division".

PSL 5.10 **Disinfecting of Potable Water Pipelines**
"Delete the contents of this clause and replace by : "The disinfecting of the pipelines will be undertaken by the Municipal Water Division after they have connected the new reticulation".

PSL 5.11 **Markers for Fire Hydrants**
(New Clause)

Markers for Fire Hydrants are to be supplied and placed by the Contractor.

PSL 6 **TOLERANCES**

PSL 6.2 **CONTROL POINTS**
Add : "Valves shall be located as indicated on the plan layout opposite the boundary peg of the erf, and to within a longitudinal tolerance of 100mm."

PSL 6.3 **Alignment (Plan and Level)**
Add to last sentence: ", provided this does not result in a reversal of the grade of the pipeline."

PSL 7 **TESTING**

PSL 7.3.1 **Test Pressure and Time of Test**
Add to Clause 7.3.1.1: “The Contractor's test equipment shall be connected directly to the flange of a hydrant tee- not through the hydrant's screwed outlet - or through a specially adapted end cap or a short, discardable pipe. Alterations may have to be made to the Contractor's test equipment to allow the placing of a Water Division's "in-line" check pressure

gauge. If necessary, this will be requested by the Engineer prior to the start of a leakage test. Upon the successful conclusion of a leakage test, the removal of the Contractor's equipment from the tee and the fitting of the hydrant (supplied by Contractor) will be done by the Water Division when connecting the new reticulation."

Delete the contents of Clause 7.3.1.2 and replace by: "The test pressure for the field testing shall be 1,35 MPa for Class 9 - uPVC , Class 10 HDPE pipes and Class C AC pipes; 1,8 MPa for Class 12 - uPVC and Class 12 HDPE pipes and Class D AC pipes."

Delete Clause 7.3.1.3 and 7.3.1.4.

Add to Clause 7.3.1.5 ; "Water used by the Contractor to fill the reticulation and during testing shall be water drawn from the Municipal mains and transported in a clean container. A metered connection may be installed by the Water Division upon the request of the Contractor and upon the payment of the prescribed fee. The bleeding off of air trapped within the reticulation shall only be carried out via the hydrants, erf connections or at the prescribed connection points to the existing reticulation by :

(1) a bleeder system fitted to the end caps, or
(2) a bleeder system fitted to a short length, say 500mm, of a pipe included at the end of the new reticulation.

The Water Division will remove and return the end caps and short length of pipe to the Contractor once the new reticulation is connected.

PSL 7.3.3 Permissible Leakage Rates

Delete in Clause (a) the figure of "0,075" and replace by :

"0,0161 for Class C, AC pipes
0,0186 for Class D, AC pipes"

Add : "See standard drawings PSL 5/1, PSL 5/2, PSL 5/3 and PSL 5/4 for tables of permissible leakage rates for uPVC, mPVC, AC and HDPE pipes. When testing reticulations made up of different types of pipes, the arithmetical sum of the respective calculated leakage rates for the various pipe types, diameters and lengths shall be taken as the maximum allowable leakage. Alternatively the Contractor may request that each section be tested separately in which case the additional tests, witnessing and connecting fees shall be at his expense."

PSL 7.3.4 Witnessing of a Successful Leakage Test by an Official of The Water Division

(New Clause)

The Contractor shall take note that the Engineer's Representative is required to ensure that an official of the Water Division witnesses a successful leakage test of the whole new reticulation being put forward for acceptance. Visits to site of this official to witness the test after the initial visit will be charged at a rate determined by the Municipal Water Division.

This amount shall be payable directly to the Municipality by the Contractor prior to each subsequent visit.

PSL 7.3.5 Removal of Test Equipment

(New Clause)

Upon the successful completion of the leakage test the new reticulation will be deemed to be Municipal property and the Contractor shall not carry out any work on the pipes apart from the disconnection of his pump (but not his flange and pipe system from the hydrant tee), the completion of the backfilling to the pipeline and construction of the hydrant and valve chambers. The Water Division will connect in the new reticulation as soon as possible and the Contractor shall supply such materials, pipes and specials as detailed by the Engineer. The completion of backfill at the connection points and the surface restoration/reinstatement shall be carried out by the Contractor.

PSL 7.5 **Defects Liability Period**
(New Clause)

Should leaks or defects develop during the Defects Liability Period they shall be rectified by the Municipality at the Contractor's expense. This will include the cost of re-testing and subsequent sterilization. During the Defects Liability Period the Municipality may carry out further pressure tests on the whole or part of the new reticulation and any necessary remedial work shall be carried out at the Contractor's expense.

PSL 8 **MEASUREMENT AND PAYMENT**

PSL 8.2.1 **Supply, Lay and Bed Pipes Complete with Couplings**
Add : "The measured quantity of pipe length will only be included in the payment certificate after the reticulation has successfully passed a leakage test. Payment may be made for material on site up to this stage."

PSL 8.2.17 **Markers for Fire Hydrants**
(New Clause)

The rate shall include for the supply and installation of the hydrant markers in the verge as ordered.

PSL 8.2.18 **Connection to Mains**
(New Clause)

An item will be allowed in the Schedule of Quantities for the connection to existing mains by the Municipal Water Division after acceptance of the reticulation.

PSLB **BEDDING (PIPES)**

PSLB 3 **MATERIALS**
PSLB 3.1 **Selected Granular Material**
Delete Subclause 3.1 and replace with the following:
Selected granular material shall be an aggregate, sand, or granular material, all of a non-cohesive nature, the grading analysis of which shows 100% passing a 9,5 mm sieve and not more than 5% passing a 0,075mm sieve (metric sizes). The Compactability Factor shall not exceed 0,4.

PSLB 3.2 **Selected Fill Blanket**
Where expansive clay is encountered in the trench bottom, the material in the selected fill blanket shall be selected granular material.

PSLB 5 **CONSTRUCTION**

PSLB 5.2.1 **Class A Bedding**
Add the following:
“or a period of 5 days has elapsed after the placing of the concrete in that section, whichever occurs first”

PSLB 5.2.2 **Class B Bedding**
1. The dimension “x” for all rigid and flexible pipes (except for HDPE erf connections) as referred to in drawing LB-1 and LB-2, shall be 150mm.
2. The Dimension “x” for HDPE erf connections shall be 100 mm.

PSLB 5.3 **Placing and Compacting of Flexible Pipes**
b) 200 mm selected fill blanket
Add to the end of the first sentence: “.., or, in the case where the pipeline consists of High Density Polyethylene (HDPE), to a height of 150 mm above the crown of the pipeline”.

PSLC CABLE DUCTS

PSLC 3 MATERIALS

PSLC 3.2 Bedding
Delete Clauses 3.2.1 and 3.2.2 and replace with the following :

"Selected granular material shall be an aggregate, sand or granular material all of a non-cohesive nature, the grading analysis of which shows 100% passing a 13.2mm sieve and not more than 5% passing a 0,075mm sieve (Metric sizes). The Compactability Factor shall not exceed 0,4."

PSLC 5 CONSTRUCTION

PSLC 5.1.1 Excavation of Trenches
Material excavated other than hard rock, will not be separately classified for the purpose of measurement and payment. The unit rate for excavation shall cover excavation in soft and intermediate material.

PSLC 5.8 Road Crossings
Delete the last sentence and replace with :

"The duct(s) shall extend a distance of at least 0,5m beyond the backface of the kerb or the edge of the road, as applicable."

PSLC 5.10 Position to be Marked
Marking is required on both sides of the carraigeway.

Delete in the second line : "..... the letters "GPO or ESC", as applicable, .." and replace with "..... the letters "T" and "E", as applicable."
Add : "The height of the letter shall be at least 100mm."

PSLC 8 MEASUREMENT AND PAYMENT

PSLC 8.2.2 Schedule Items
Delete payment clause 8.2.2(b) and add the following :
"8.2.2(b) **Extra over item (a) above for :**
Hard rock excavation .....Unit m^3

PSLD SEWERS

PSLD 1 **SCOPE**

Add to sub-clause 1.1 : "Drawings Numbered LD-2 to LD-8 are replaced by the PEM Standard Detail Drawings"

PSLD 3 **MATERIALS**

PSLD 3.1.1 **Vitrified Clay Pipes**

Add the following:

“Couplings are to be Polypropylene Vitrosleeve Couplings 150 mm diameter for main pipes unless otherwise specified 100 mm dia for erf connections up to 1m inside erf boundary Polypropylene adaptor coupling for connections from Vitro Clay to PVC”

PSLD 3.1.3 **A.C. Pipes - Now F.C.**

3 ringed Triplex joints shall be used.

Add : "Pipes shall be bitumen dipped or coated externally with a bitumen or other approved material to give a black colour."

PSLD 3.5.1 **Bricks**

Delete in the first line "general purpose (Special) burnt" and replace by "facing (28 MPa min. strength)."

PSLD 3.5.2 **Precast Concrete Sections**

"Dolomitic aggregate shall be used in the manufacture of the chamber sections, leveling rings and roof slabs."

PSLD 3.5.3 **Prefabricated A.C. Manholes**

Delete the contents of sub-clause 3.5.3 and replace with the following :

"These will not be permitted."

PSLD 3.5.4 **Concrete**

Dolomitic aggregate is not required for cast in situ concrete.

PSLD 3.5.7 **Step Irons**

Delete the contents of sub-clause 3.5.7 and replace with the following :

"Step irons in manholes are not required."

PSLD 5 **CONSTRUCTION**

PSLD 5.2.6 **Laying and Bedding of Vitro Clay Pipes**
(New Clause) Add the following:

"For the purpose of constructing sewers using vitrified clay pipes and specials, it is required that the contractor thoroughly acquaint himself and his staff with the necessary installation and handling procedures. It is advised that the responsible persons undertake training courses offered by the manufacturers / suppliers, to ensure that compliance with the stringent approval/acceptance procedures can be achieved."

PSLD 5.4.1 **Connection into Existing Manholes**
(New Clause)

An appropriate item has been allowed in the Schedule of Quantities to cover all costs connected with the making of this connection.

PSLD 5.6.1 **General**

Delete in Sub-clauses (a) and (b) the word "brick" and replace by "cast in situ concrete."

Delete in sub-clause (d) "Drawings LD....." and replace by "Municipal Standard Details Drawings".

PSLD 5.6.2.3 **Benching**

Delete "1:3 cement mortar" and replace by "concrete topping consisting of 1 part cement, 2 parts sand and 3 parts 7 mm concrete stone, by mass. The sand proportion may be varied between 1 1/2 and 2 1/2 to obtain ideal workability."

PSLD 5.6.7 **Cast in Situ Concrete Manholes**

Refer to Municipal Standard Detail Drawings for details.

20 MPa strength concrete shall be used. Aggregate size may be 19 mm or 13 mm to suite Contractor. Dolomitic aggregates are not required.

When the concrete is mixed on site, an approved rotary mixer, suitable in size for a batch containing cement in increments of one sack of 50 kg, shall be used. The Contractor's method of batching of the ingredients shall be to the approval of the Engineer's Representative. Samples of the materials to be used shall be submitted for approval. The proportions of cement, coarse and fine aggregate and water necessary to produce the 20 MPa concrete shall be determined and submitted to the Engineer's Representative together with the results of compressive strength tests, before the Contractor will be allowed to use site mixed concrete in the construction of manholes.

The Contractor shall bear the costs of determining the proportions of the mix and making and testing cubes for this purpose. If the Contractor submits reliable test records of concrete made from the same materials and mix proportions which he proposes to use, then the Engineer may waive all or part of the strength tests required above to verify that the concrete mix design which the Contractor proposes to use is satisfactory.

The Contractor shall carry out his own testing during the construction of the Works to ensure that the concrete being used complies with the Specification. The Engineer's Representative shall carry out such test check testing as he requires and the Contractor shall render any assistance necessary in taking of samples and the carrying out of tests.

All concrete being placed shall be vibrated by means of approved vibrators. Curing shall be by means of the application of a natural resin based liquid curing compound complying with ASTM C309-74. When the surface to be cured is to receive further concrete it shall be cured with water only, by sprinkling, spraying or ponding such as to maintain it in a continuously wet condition.

If the concrete is found to be cracked, honeycombed, soft or defective in any way, or if cube test strength results do not comply with the requirements, then the concrete shall be rejected. Rectification shall be by removal of the defective portion and replacement with sound concrete.

If the manhole is constructed in more than one lift the construction joint formed shall in addition to being prepared as specified in sub- clause 5.4.5.4 of SANS 1200 GA, be reinforced with 8 No 12 mm diam. x 300 mm long mild steel dowel bars, cast in to a depth of 150 mm, placed centrally in the joint face and equally spaced about the circumference.

PSLD 5.6.8 (New Clause) **Finished Cover Levels**

Unless otherwise ordered or dimensioned explicitly on the working drawings, the level of the top surface of the cover shall be

- flush with the final surface of a carriageway, footway or any paved areas
- 50 mm above the surface of a grassed or gravelled verge, or service lane

- 250 mm above the finished ground level for manholes situated at the midblock of private or municipal property.

- 500 mm above ground level in undeveloped open space.

PSLD 5.6.9 **Rectification of Infiltration of Water**

Any infiltration visible in the manhole channels, pipe ends or benching shall be rectified by demolishing the base and rebuilding. Rectification of infiltration through the walls and/or joints may be attempted only by externally applied measures, failing which the manhole shall be demolished and rebuilt.

PSLD 5.9 **CONNECTING SEWERS**

PSLD 5.9.1 **Location and Details**

Delete the words "Drawing LD-7 or Drawing LD-8" as applicable and replace by :
"The relevant Municipal Standard Detail Drawings."

PSLD 5.9.2 **Marker Posts**

Marker posts are not required

PSLD 5.9.3 **Recording Location**

Add : "The information required under this clause shall be shown on form PEM 3849(8/88) obtainable from the Engineer's Representative.

PSLD 5.9.4 **Connection of New to Existing Reticulation**
(New Clause)

The contractor shall under no circumstances connect the new reticulation into the existing without the prior written instruction of the Engineer. This instruction will only be given after acceptance, by the Engineer, of the sewer lines and manholes of the new reticulation upstream of the connection point. Connections will usually be made just prior to the start of the Defects Liability Period.

PSLD 6 **TOLERANCES**

PSLD 6.2 **OVERALL CENTRE-LINE CONTROL AND MANHOLE LOCATION**

Delete in second line " ± 300" and replace by "±100". Manhole positions, as shown on the drawings, are critical. Any required deviation by the Contractor, in excess of the tolerance, must be authorized by the Engineer.

PSLD 6.3 **Manhole Invert Levels**

Delete in second line “±50 mm” and replace by “±25 mm where vitro clay pipes are being used”.

PSLD 6.4 **Alignment and grade between manholes**

Replace “5%” in 6.4(a)(1) with “3%, where vitro clay pipes are being used”.

PSLD 6.6 **AS-BUILT INFORMATION**
(New Clause)

The Contractor shall submit "As-Built" levels, distances between manholes and the grades of pipelines for which he requires payment at the time he submits his monthly payment claim. A sample form is obtainable from the Engineer.

PSLD 7 **TESTING**

PSLD 7.1 **GENERAL**

PSLD 7.1.6 Delete wording of sub-clause (c) and replace by : "A torch and mirror test shall be carried out on all pipe lengths, in both directions".

PSLD 7.2.1 **Air Test**

Delete the table of 7.2.1(a) and replace by :

"The air test shall comply with the requirements of NBRI-X/BOU of April 1976 also described in the Vitrified Clay Pipe Manual of 1978, page 29. For vitrified clay pipes the air test shall be carried out on saturated pipes and shall comply with the requirements of NBRI-X/BOU 2-34 also described in Vitrified Clay Pipe Manual of 1978, page 29, or else the contents of 7.2.1(a) and 7.2.1(b) apply".

PSLD 7.2.6 **Watertightness of Manholes**

Especially in areas where the water table is low a test, as detailed hereafter, to verify the watertightness of any manhole may be requested by the Engineer's Representative.

Infiltration : The excavation surrounding the manhole shall be flooded to approximately the top of wall level and this depth of water maintained for at least 48 hours. The manhole will have satisfied the test requirements provided there is no sign of infiltration of water.

Exfiltration : The manhole shall be filled with water to the top of its wall level and this depth maintained for at least 24 hours. Water may be added to maintain this level.

At the end of the subsequent 24 hour period the drop in water level is to be measured. The manhole will have satisfied the test requirement provided the drop is less than 75 mm per metre in depth of the manhole measured from channel invert to the original height of the water. At the discretion of the Engineer's Representative a shorter testing time, minimum 3 hours, will be allowed in which case a 'drop in level' pro rata to the time tested ,shall be used.

PSLD 7.2.7 (New Clause) **Torch and Mirror Test**

For the pipeline to be acceptable the visibility of the plug/reflector shall be at least 50% of its area.

PSLD 7.2.8 (New Clause) **Acceptance Criteria**

The acceptance of the pipe length or manhole shall depend upon whether it satisfies the criteria set out in SANS 1200 LD clauses 6, 7 and the PS clauses above.

Where pipes other than vitro clay pipes are laid, only tests carried out on the pipelines after completion of the backfilling to ground level (excluding surface restoration) and completion of the construction of manholes to roof height, including benching, will be considered for acceptance purposes.

In the case where vitro clay pipes are being laid, no pipelines are to be covered prior to inspection and approval by the Engineer. Once the pipeline has been laid and bedded in

the compacted bedding cradle (to half pipe) between control points, the Engineer must be called out to inspect the installation. The Contractor is to provide the necessary equipment in order for the Engineer to adequately assess that the pipeline has been laid to the specified tolerances. Further, an air test, in accordance with the specifications, is to be conducted and witnessed by the Engineer prior to the placing of the Fill Blanket.

PSLD 8 **MEASUREMENT AND PAYMENT**

PSLD 8.2.1 **Supply, Lay, Joint, Bed and Test Pipeline**

Add : "The measured quantity of completed pipe length will only be included in the payment certificate when the pipeline has satisfied the test after the completion of the backfill to ground level - See PSLD 7.2.8. Prior to this, payment will be made as materials on site."

PSLD 8.2.3 **Manholes**

Delete : "Separate items will .... of 0,5m" and replace by "Manholes and backdrops will be measured per number of each type of standard depth of 1,5m metres. Extra over or extra under items will be included in the schedules for the cumulative sum of variations in depth from the standard depth.

Delete reference to "short pipes" - the full length of piping is to be measured under the item "Supply, lay and test piping"

The tendered rate shall also provide for the supply, laying, jointing of channels as for a 'through manhole'. An extra over item will be scheduled for additional channels and associated work in branch manhole.

PSLD 8.2.6(a) **Erf Connections (Types stated) .....Unit:..No.**

Replace the contents of clause 8.2.6 with the following:

"Separate items will be scheduled for each type of 2,3 metre long sewer erf connection, as shown on the Municipal Standard Detail Drawings.
The rate shall cover the cost of additional excavation in all materials, backfilling, bedding, disposal of surplus material, and the supply and laying of the Y-junction and the connection pipeline to 1 metre within the erf."

PSLD 8.2.6(b) (New Clause) **Extra-Over Item 8.2.6 for additional length of pipe .....Unit:.m**

Where the length of sewer erf connection exceeds 2,3m, an extra-over item shall be scheduled for each type. The rate shall cover the cost of additional excavation in all materials, backfilling, bedding, disposal of surplus material, and the supply and laying of additional connection pipeline.

PSLD 8.2.13 (New Clause) **Watertightness of Manholes**

Payment will be made on a daywork basis for only those costs of carrying out the initial tests which showed the manhole to be acceptable. The costs of a failed test and the subsequent test/tests to prove watertightness will not be recoverable.

PSLE STORMWATER DRAINAGE

PSLE 3 MATERIALS

PSLE 3.4.1 Bricks

Delete the first sentence, and replace with the following:
"Bricks used in stormwater structures shall be:

Burnt clay engineering bricks, having a nominal compressive strength of 28 MPa, and complying with the requirements of SANS 227.

PSLE 3.5.9 Composite Drainage System
(New Clause)

The fin drain system shall consist of a geonet drainage core and geopipe enclosed within a geotextile filter jacket. The fin drain shall be supplied prefabricated with geopipe for assembly on site. The fin drain shall have a minimum flow capacity of 0,19 ℓ/s per metre (hydraulic gradient of unity and a pressure of 10 KPa) and shall not decrease in thickness by more than 20% under confining pressure of 10 kPa.

(a) Geonet Drainage Core
The core shall be non-coroding, rot-proof and manufactured from low density polyethylene with minimum characteristics as follows:-

Mass	:	822 g/m²
Thickness	:	5mm
Tensile Strength	:	2,4 kN/m
Discharge capacity	:	3,0 ℓ/sec under 100 kPa at a hydraulic gradient of unity

(b) Drainage Pipe
The geopipe to be used in conjunction with the prefabricated fin drain shall be manufactured from high density polyethylene with not less than 60% of the surface perforated.

PSLE 5 CONSTRUCTION

PSLE 5.2.2 Pipe Culverts

Add:"Pipes with ogee joints, where they pass under roads and also on curved pipelines in verges, shall be wrapped with two layers of hessian soaked in cementitious grout. The wrapping shall be 400mm wide and placed centrally over each joint.

Unless otherwise stated in the Schedule of Quantities or indicated on the drawing, pipes with ogee joints shall be used.

Butt ended pipes will not be permitted.

Lifting holes should be suitably closed off to prevent the ingress of soil".

PSLE 5.5.6 Benching

Delete "granolithic plaster" and replace by "concrete topping consisting of a 1:2:3 cement, sand and 7mm stone mix by weight. The sand proportion may be varied between 1,5 and 2,5 to obtain ideal workability.

PSLE 5.8 Installation of Composite Drainage System
(New Clause)

The geopipe shall be placed at the bottom of the geonet with the channel section of the geopipe as the invert of the drain.
The geotextile filter jacket shall then be wrapped around the geopipe and stapled/joined at 300mm intervals. The complete system shall then be placed in the trench ensuring that during backfilling the fin remains vertical.

PSLE 6.6 Pipes into Manholes/Catchpits
(New Clause)

Pipes may protrude up to 300mm into a manhole/catchpit. This relaxation will only be permitted if the pipe does not have to be cut. The "dead space" formed at the end of the manhole is to be suitably benched off to prevent the collection of silt and rubbish.

PSLE 6.7 "**As-Built" Details**
(New Clause)

The Contractor shall submit as-built levels, distances between manholes and the grades of pipelines for which he requires payment, at the time he submits his monthly payment claim. A sample form is obtained from the Engineer.

PSLE 8 MEASUREMENT AND PAYMENT

PSLE 8.2.8 **Supply and Install Manholes, Catchpits, etc.**
Delete the words "but excluding excavation and backfilling, which will be measured separately" and replace with "including dealing with any excavation in all materials (including disposal of surplus) which is additional to that measured under the item for pipe trench excavation (see subclause 8.2.3 of SANS 1200 DB)".

PSLE 8.2.13 **Composite Drainage System** Unit : m
(New Clause)

The composite drain will be measured linearly on slopes overall as laid. No deductions will be made for specials, but deductions will be made for the interrnal length of manholes. Separate items will be scheduled for different diameters of pipes, where relevant.

The rate shall cover the cost of providing the composite drain and the cost of laying, bedding, backfilling, jointing and making connections into manholes.

PSLE 8.2.14 **Breaking into existing manholes**
(New Clause)

The rate shall include for all labour and materials required for breaking into, laying of pipe, benching where necessary and making good around the pipe and all necessary reinstatement around the manhole on completion of the connection.

PSM **ROADS (GENERAL)**

PSM 6 **TOLERANCES**

PSM.6.4 **Level Control of Road Layers**
(New Clause)

The Contractor shall submit at the time of requesting acceptance of a road layer a record of the surface levels of that section, taken at meterage intervals to coincide with the level pegs. A sample form is obtainable from the Engineer.

PSM 7 **TESTING**

PSM 7.1 **General**
Add:" The random sampling method of TMH 5, for the spotting of positions, for field density testing will not necessarily be applied by the Engineer's Representative. Density testing shall be carried out where, in his opinion, the density of the compacted layer is suspect. The Contractor shall present the full width of the layer, between the stated linear stake values, for acceptance. Only in exceptional cases will partial widths of layer be accepted for testing."

PSM 7.3 **Routine Inspection and Testing**
Add to Clause 7.3.2: "The request for acceptance of a layer shall be submitted in writing, specifying the exact location of the section and type of layer. On receipt of all these details the Engineer's Representative will arrange for the necessary inspections and tests to satisfy himself that the road layer complies. Testing will be carried out as expeditiously as possible,

and the results will be available within 48 hours of receipt of test request. The Contractor shall backfill the test holes left in the layer with a similar material to that of the layer tested and compact the material to a similar density. Concrete shall not be used."

PSM 8 MEASUREMENT AND PAYMENT

PSM 8.2 Inspection and Testing of a Road Layer
(New Clause)

The cost of refilling and compacting the density test holes shall be included in the rate tendered for the construction of that layer.

PSME SUBBASE

PSME 3 MATERIALS

PSME 3.2.1 Subbase Material
With reference to Clause d(ii) and d(iii), the regional factor for the Metropole shall be taken as 0,6.

PSME 5 CONSTRUCTION

PSME 5.4.1 Placing
The subbase layer shall be 150mm thick unless shown otherwise on the drawings.

PSME 6 TOLERANCES

PSME 6.1 Dimensions, Levels, etc.

PSME 6.1.1 General
Add the following to Clause 6.1.1:
"For layers, constructed of subbase quality material, on which the bituminous surface will be placed, the tolerance for dimensions and level shall be as set out in SANS 1200 MF Clauses 6.1.2 to 6.1.6 inclusive."

PSMK KERBING AND CHANNELLING

PSMK 3 MATERIALS

PSMK 3.2.1 General
Delete the contents of Clause 3.2.1 and replace with the following:
"Refer to the Municipal Standard Detail Drawings for kerb and channel details."

PSMK 3.8 Curing Compound
Add to Clause 3.8:
"and be a resin based white pigmented type."

PSMK 3.9 Bedding Material
Delete the contents of Clause 3.9 and replace by the following:
"Either a 1:8 cement sand mix shall be used or if the layer is more than 30mm thick a strength concrete of Grade 20."

PSMK 5 CONSTRUCTION

PSMK 5.1 Excavation and Bedding
Delete the first paragraph viz. "Trenches for ..... grade."

PSMK 5.2 Precast Concrete Kerbing and Channelling

Add in second line “10mm to” before “50mm”.
Delete in the last paragraph from “the kerbs shall” to “15 MPa and.”

PSMK 5.2.1 **Precast Concrete Kerbing and Cast-in-situ Concrete Channelling**
(New Clause)

After the precast kerbs have been laid the formwork for the channelling shall be set up. Expansion joints shall be allowed for at approximately 8 metres intervals, i.e. opposite the joint between the kerbs. The principles of Clause 5.4 shall apply to the construction of cast-in-situ channelling.

PSMK 5.8 **Machine-Laid Cast-In-Situ (Extruded) Kerbing and Channelling**

Before commencing kerb laying on the site, the first 50m length of kerb and channel to be constructed shall be regarded as trial kerb and channel. The Contractor shall demonstrate in the trial length the methods he proposes to use for the construction of the kerb and channel, including joints, texturing, the achievement of a smooth surface and dense fully compacted concrete. It may be constructed either in the recognised position in a road or elsewhere on the site in which case it shall be demolished, broken out and removed at the Contractor’s expense.

The trial kerb and channel shall be constructed with the plant and equipment to be used on the works and the equipment’s motion forwards and the handwork carried out on the extruded section shall be so controlled and used as to produce a kerb and channel to the shape, lines and levels specified.

The time taken to lay the test strip shall be recorded, which in the event of acceptance, shall be used to calculate a rate of extrusion which shall not be exceeded without the permission of the Engineer.

If the concrete in the trial strip fails to meet the test requirements, the Contractor may, at his own cost, cut further cores from the kerb and or channel up to a maximum of one core per 100m length. The strengths obtained on such cores, together with those tested on the instruction of the Engineer, shall be used to test compliance with the strength requirements.

The Contractor may, unless advised of any deficiencies in the trial kerb and channel, proceed with kerbing as soon as acceptable core test results are obtained.

In the event of deficiencies in the trial kerb and channel, the Contractor shall, at his own expense, demolish the rejected sections and remove to the designated tip site and repeat the 50m long trial strip. This process shall be continued until the Contractor has produced kerb and channel in accordance with this specification. He may then proceed with kerb and channel construction proper. Any unacceptable trial length shall be broken out and removed to spoil, at the Contractor’s expense before any subsequent trial length is permitted to commence.

Core test holes shall be filled with 30 MPa concrete mixed with a suitable adhesive compound.

No other means of testing the concrete will be considered and any kerb or channel not complying with all the requirements of the specification shall be broken out, removed to spoil and replaced at the Contractor’s own expense.

The Contractor shall ensure that no change of circumstances or conditions is made to jeopardise the quality of the kerb and channel under construction. If, in the opinion of the Engineer, this does occur, he may order the construction of a further trial length of 50m of kerb and channel in accordance with the requirements of this specification. Work on the kerb and channel proper shall not proceed until a trial strip has been constructed in accordance with the requirements of this specification. No claims for delays will be considered by the Engineer on account of further trial lengths of kerbing being ordered.

PSMK 5.8.3 Subbase Preparation (Extruded Kerbing)

Delete in the first line from:"500mm beyond" to "as relevant" and replace by "150mm beyond the back face of the kerb." Note this dimension applies to the compaction width required for the road layer.

PSMK 5.13 Junction with existing Kerb And Channel
(New Clause)

The Engineer's Representative shall state in each case the length of existing kerb and channel to be removed. The exposed road layer surface shall be made good before proceeding.

PSMK 6 TOLERANCES

PSMK 6.1 Concrete Kerbing and Channelling

Delete in Clause (b)(1) the allowance of "0, - 10" and replace by "± 10" and add to wording "provided the layer thicknesses are not prejudiced."

PSMK 7 TESTING

PSMK 7.2.2.2 Alternative Test

Delete in Clause 7.2.2.2 all references to cubes and cube testing.
Add to second line of Clause 7.2.2.2 after "SANS Method 865" the following: "The numerical value of the compressive strength of the core used for adjudication shall be that value determined in accordance with Clause 6.3 of SANS Method 865."
Delete in fourth line of Clause 7.2.2.2: "22 MPa (i.e. less than 25 - 3 MPa)" and replace by: "20 MPa".

PSMK 8 MEASUREMENT AND PAYMENT

PSMK 8.1.1 Basic Principles

Delete the second sentence of Clause 8.1.1 and replace by: "Deduction from the linear length of the kerbing will be made for transition kerb and channel, catchpit structures and motor-slopes. These items will be measured separately.

PSMK 8.2.3 Variation of Tests on Extruded Kerbing

Add: "If the coring and testing is carried out via the Municipal Road Laboratory the Contractor will be debited with the cost of the test when the measured compressive strength is less than 20 MPa."

PSMK 8.2.6.1 Ancillaries

Add to Clause 8.2.6.1: "The unit of measurement of the 2 metre length of kerb and channel transition between mountable and barrier type kerb and channel and between mountable or barrier type and the precast support kerb at the catchpit shall be per number."

PSMK 8.2.13 Junction with Existing Kerb and Channel
(New Clause)

The unit of measurement for tying new kerb and channel into existing shall be per metre and shall include for all labour and materials necessary to comply with Clause PSMK 5.13 and to complete the junction.

PSMK 8.2.15 Motor Slopes
(New Clause)

a) Standard Residential Motorslopes, with 3m ramps, as detailed on Drawing No PSMK 7/6.....No.

b) Extra-over for additional ramp width..... m

The rate shall cover the cost of supplying subbase quality material from commercial sources, placing to the required levels, watering and compacting to 95% Mod. AASHTO density, supplying and placing the concrete, forming of joints, screeding and finishing to the required levels.

PSMK 8.2.16 Pedestrian Ramps
(New Clause)

a) Pedestrian Ramps, with floated concrete finish, as shown on Drawing No PSMK 7/7 .....No

b) Pedestrian Ramps, with "bubble block", as shown on Drawing No PSMK 7/7 & 7/8 .....No

The rate shall cover the cost of supplying subbase quality material from commercial sources, placing to the required levels, watering and compacting to 95% Mod. AASHTO density, supplying and placing the concrete, forming of joints, screeding and finishing to the required levels.

PARTICULAR SPECIFICATION: PAF APPLIED FINISHES

PAF 1 SCREED AND CEMENT PAVINGS

PAF 1.1 Materials

Portland cement: to SANS 471 "Portland Cement and Rapid Hardening Portland Cement."

Coloured cements: to SANS 471 "Portland Cement and Rapid Hardening Portland Cement."

Lime: to SANS 523 "Limes for Use in Building," plastic hydrated Type A2P.

Fine aggregate: to be approved river or pit sand or crushed stone or gravel. To be hard and clean and free from adherent coatings and clay balls or pellets. It shall not contain deleterious matter likely to adversely affect the hardening, strength, durability or appearance of the screed or paving, nor cause corrosion or efflorescence. Otherwise to be to SANS 1083 "Aggregates for Concrete" and in addition at least 97% of any sample measured by mass to pass a 2 360 micron sieve and the percentage that passes a 75 micron sieve when tested in accordance with SANS 1083 not to exceed 7,5%. Where the requirements for fineness modules cannot be met, obtain approval before proceeding.

Water: clean and fresh to B.S. 3148 "Tests for Water for Making Concrete."

PAF 1.2 Mix Proportions

Proportions of mixes given are by volume.

Measure mortar constituents using clean gauge boxes made to size to suit volumes required.

Overfill gauge boxes and strike off excess material with straight edge.

Use plasticers, waterproofing agents, pigments and other additives strictly in accordance with Engineer's instruction or approval, or as stated on the Drawings or described in the Particular or Project Specification.

PAF 1.3 Cement Mix

Unless otherwise shown on the Drawings or stated in the Particular or Project Specification cement and sand screeds and pavings are to be composed of one part cement to three parts of sand.

PAF 1.4 Granolithic Mix

Plain granolithic is to be composed of two parts cement, one part coarse sand and three parts fine crushed clean granite chippings. Limestone or shale chippings are not acceptable.

PAF 1.5 Special Mix

To be as stated on the Drawings or described in the Particular or Project Specification.

PAF 1.6 Mixing

Mix materials by mechanical mixer or by hand on a clean level banker board. Add water only after thoroughly mixing of dry ingredients.

Mix thoroughly so that all individual constituents are incorporated evenly, but do not overmix when using plasticisers.

Keep mixer clean at all times and discharge mortar onto a clean level banker board.

Use mortar within about one hour of discharge from mixer at normal temperatures.

In no case must the mortar be used after the initial set has taken place. Reconstitution of mortar will not be permitted.

PAF 1.7 Workmanship Generally

Operatives must be skilled in laying screeds and pavings.

Lay finishing screeds and pavings when all other internal work is completed as far as possible.

Protect all existing work and approaches with boards, dust sheets, or other suitable means.

Do not lay screeds when air temperature is below 3^{o}C on a falling thermometer of 1^{o}C on a rising thermometer, or while any base surface remains frozen.

After compaction prevent rapid drying out.

Protect freshly laid screeds from damage by rain, sun, wind or any other cause.

PAF 1.8 Surface Preparation

Cut out all cracks and loose or hollow portions of old concrete base and make good.

Clean all background surfaces thoroughly to remove all dirt, dust, rust and oil.

PAF 1.9 Bonding to hardening concrete

Hack concrete base thoroughly to remove all laitance and to expose as much clean coarse aggregate as possible. Wash away all loose concrete and leave clean.

Wet base 24 hours before laying screed or paving and remove surplus water.

Brush neat cement slurry into surface 20 minutes before laying screed or paving, or apply approved bonding agent in accordance with manufacturer's recommendations.

PAF 1.10 Monolithic bonding to green concrete

While still green, brush base with a stiff broom to remove all laitance and loose aggregate and to provide a key.

Lay screed or paving within 3 hours of the laying of the base concrete.

PAF 1.11 Laying screeds and pavings

Where screed is to be laid monolithically on fresh concrete base lay screed within 24 hours of laying base concrete.

Where screed is to be bonded to hardened concrete and is 40mm thick or less lay in one course well bonded to base.

Where screed is to be bonded to hardened concrete and is more than 40mm thick lay screed in two courses, with lower course well bonded to base and thicker than upper course, and neither course less than 20mm thick. Compact lower course immediately before placing upper course.

Form movement joints in screed over movement joints in base, using joint filler placed to full depth and finished flush with surface.

Compact material thoroughly for full depth. Do not bring excessive laitance to the surface, and remove any which appears. Do not wet surface.

Prevent damage to electric conduits or heating cables. Do not wheel barrows over exposed screed pavings, conduits or cables, etc. Tip screed material onto bankers and spread carefully in same direction as cable runs.

PAF 1.12 Tolerances

Tolerances for floor screeds and pavings to be:

Level: ±15mm

Plane: 5mm maximum under a 3m straight edge placed with both ends on the surface of the screed.

Do not leave low spots between drainage outlets.

PAF 1.13 Surface finishes

Trowel or float surface of screeds to be a standard compatible with the finishing material to be laid on them.

Hand trowel skirtings coved to floor, and stair risers, treads and strings to a finish compatible with the adjacent floor.

Finish surface of cement and granolithic pavings with a steel float shortly after compaction is completed. Do not bring excessive laitance to the surface and remove any that appears. Do not wet surface. Repeat trowelling process at least three times at intervals within 10 hours of laying. Do not sprinkle cement onto surface.

Make good all defective work in screeds before applying finishes.

PAF 1.14 Curing and surface treatment

Immediately after laying, protect surface from wind, draughts and strong sunlight.

Cover surface as soon as it is sufficiently hardened with either:

- canvas, straw mats, or a 50mm layer of damp sand, kept damp, or
- waterproof sheeting kept in close contact with surface

Leave for not less than 7 days in normal weather conditions and not less than 14 days when temperature is below 3^{o}C.

Do not heat screed or building artificially during first 4 to 6 weeks after laying; then raise temperature slowly.

Clean surface of finish before application of surface hardener, by wetting with soap-suds and scrubbing with wire brush and fine steel wool 7 to 10 days after laying. Mop up and scrub with fibre brush and clean water. Allow to dry.

Apply proprietary surface hardener or sealer as provided for on the Drawings or in the Particular or Project Specification, in accordance with manufacturer's recommendations.

PARTICULAR SPECIFICATION :PAF APPLIED FINISHES

PAF 2 CEILING AND WALL PLASTERING

PAF 2.1 Materials

Portland cement: to SANS 471 "Portland Cement and Rapid Hardening Portland Cement."

Portland blast furnace cement: to SANS 626 "Portland Blast Furnace Cement."

Coloured cements: to SANS 471 "Portland Cement and Rapid Hardening Portland Cement."

Lime: to SANS 523 "Limes for Use in Building," plastic hydrated Type A2P.

Fine aggregate: to be approved river or pit sand or crushed stone or gravel. To be hard and clean and free from adherent coatings and clay balls or pellets. It shall not contain deleterious matter likely to adversely affect the hardening, strength, durability or appearance of the plastering nor cause corrosion or efflorescence. Otherwise to be in SANS 1083 "Aggregates for Concrete" and in addition at lease 97% of any sample measured by mass to pass a 2 360 micron sieve and the percentage that passes a 75 micron sieve when tested in accordance with SANS 1083 not to exceed 7,5%. Where the requirements for fineness modules cannot be met, obtain approval before proceeding.

Ready-mixed lime and sand: to BS 4721 "Ready-mixed Lime : Sand for Mortar."

Gypsum plaster: to be "Cretestone" or "Glastone" as manufactured by Gypsum Industries or other equal and approved.

Water: clean and fresh to BS 3148 "Tests for Water for Making Concrete."

Precast gypsum cove cornices: to SBAS 622 "Gypsum Cove Cornice."

Expanded steel lathing: to BS 1369 "Metal Lathing for Plastering."

Steel wiring netting: to BS 1485 "Galvanised Wire Netting."

Building paper: to Bs 1521 "Waterproof Building Papers."

Steel clout nails: to SANS 820 "Mild Steel Nails" galvanised to SANS 935 "Hot-dip (galvanised) Zinc Coatings on Steel Wire."

Galvanised steel wire staples: to BS 1494 "Fixing Accessories for Building Purposes."

Tying wire: 1,2mm diameter annealed steel wire, galvanised to SANS 935 "Hot-dip (galvanised) Zinc Coatings on Steel Wire."

Cement, lime and gypsum plasters are to be delivered to the site in the manufacturer's original branded and sealed bags and used immediately after opening.

PAF 2.2 Storage and handling of materials

Store cement, lime and gypsum plaster separately by different types, off the ground, in a dry, well ventilated space.

Ensure that sufficient supplies of sand are available for uniformity of unpainted finishes.

Use cement in rotation within three months of delivery.

Do not use gypsum plaster after three months from date of manufacture unless tested and found in good condition.

Avoid contamination of one type of plaster by another.

PAF 2.3 Mix proportions

Class	Cement	Lime	Sand
E	4	0	
F	3	1	
G	2	2	15 - 20
H	1	3	
J	0	4	
Special	As per Drawings or	Particular or Project	Specification

Proportions of mixes given for cement-lime-sand plasters are by volume.

Bulking of sand has been allowed for.

Measure plaster constituents using clean gauge boxes made to size to suit volumes required.

Overfill gauge boxes and strike off excess material with straight edge.

Use plasticers, waterproofing agents, pigments and other additives strictly in accordance with the Engineer's instruction or approval, or as stated on the Drawings or described in the Particular or project Specification.

Dry admixtures to be dissolved in mixing water for each batch of plaster.

Gypsum plaster to be mixed to the proportions recommended by the manufacturer.

PAF 2.4 Mixing

Mix materials by mechanical mixer or by hand on a clean level banker board. Add water only after thorough mixing of the dry ingredients.

Mix plaster thoroughly so that all individual constituents are incorporated evenly, but do not overmix plaster containing plasticisers.

Keep mixer clean at all times.

Discharge plaster onto a clean level banker board or into barrows.

In no case must the plaster be used after the initial set has taken place. Reconstitution of plaster will not be permitted.

Do not use admixtures without prior approval.

Mix constituents with the minimum amount of water to provide the consistence required.

PAF 2.5 Mixing sequences

Cement-sand plaster: mix cement with dry sand then add water.

Cement-lime putty-sand plaster: mix cement with sand dry and add lime putty and water.

Cement-lime-sand plaster: mix cement with lime and sand, then add water.

White plaster: mix as specified using white cement and sand of approved colour.

Coloured plaster: mix as specified using colouring pigment.

Gypsum plaster: mix in accordance with the manufacturer's recommendations.

PAF 2.6 Workmanship generally

Provide sample panels (minimum one meter square) of coloured and textured coatings and obtain approval of colour and texture before starting work

Approved samples to be the control standard for the remainder of the work.

Do not commence any plastering until all superimposed and dead loads have had time to effect primary settlement of the background structure.

Do not begin coating work until all required openings, chases or other opertures have been cut, all pipes, fixtures, fixing pads and plugs have been fixed and making good has been completed.

Protect all existing work and approaches with boards, dust sheets, etc. All dropping on to finished work to be cleaned off immediately.

Protect all concrete surfaces from contamination by gypsum plaster.

Ensure that all plant and tools are kept clean and free from the previous mixes.

Do not work when air temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer or while any coating material or background remains frozen.

Prevent excessively rapid or localised drying out.

Make good defective or damaged coatings before starting decoration.

Finish surfaces to the following tolerances:

Level: ±15mm.
Plumb in any storey height: 15mm
Plane: 3mm maximum under a straight edge 1800mm long placed with both ends on face of plaster.

PAF 2.7 Background preparation

Hack off excess mortar projections and concrete fins, etc.

Before applying single coat thin wall plasters of less than 2mm thickness, prepare surfaces by filling holes, scratches and voids with finishing plaster.

Remove efflorescence, laitance, dirt and other loose material by thoroughly dry brushing.

Remove all traces of mould oil, paint, grease, dirt and other materials incompatible with plaster work by scrubbing with water containing detergent.

Treat organic growths with fungicide to manufacturer's recommendations and brush off.

Ensure effective key for plaster by one of the following methods:-

Hack surfaces thoroughly and evenly to depth of 3mm for at least a third of the area.
Rake out joints in brickwork to a depth of not less than 15mm.
Apply bonding agent to surfaces in accordance with manufacturer's recommendation.
Flick onto surfaces a spatterdash coating of cement-sand 1:1,5 - 2, and leave rough. Keep wet with fine-waterspray until set and allow to harden before applying undercoat.

PAF 2.8 Dubbing out

If necessary to correct inaccuracies, dub out in thickness' of not more than 10mm in same mix as first coat. Allow to dry out before next coat is applied. Cross scratch surface of each coat immediately after set.

Dubbing out will not be permitted on smooth dense concrete surfaces.

PAF 2.9 Applying internal plaster

Apply one coat cement plaster to a minimum of 12mm thick, and two coats cement plaster to a minimum of 20mm thick.

Apply each coat firmly to achieve good adhesion and rule to even surface.

Apply each coat at full thickness, to each wall and ceiling surface in one continuous operation.

Cross scratch all undercoats to provide key for next coat.

Conduits bedded in undercoat are to be covered with 90mm wide jute scrim bedded in finishing coat mix, pressed flat and trowelled in. Do not lap ends of scrim.

Apply all proprietary and special purpose plasters in accordance with manufacturer's recommendations.

Work undercoat well into interstices of metal mesh to obtain maximum key.

Apply subsequent coats of gypsum and lightweight plasters as soon as undercoat has set, is firmly bonded to background and had developed reasonable suction.

Allow cement based undercoats to dry out thoroughly to ensure that drying shrinkage is substantially complete before applying subsequent coat.

Do not allow coats of anhydrous gypsum plaster to dry out before setting is complete. Do not allow coats to remain damp after setting.

Where angle beads are not specified, form angles with rounded arris.

PAF 2.10 Finishes to internal plaster

Smooth finish: finish to a smooth trowelled surface, free from blemishes. Do not use water brush or excessive trowelling.

Wood float finish: finish with a dry wood float as soon as wet sheen has disappeared from surface to give an even overall texture.

Rough textured finish: finish with a cork or carpet float to provide a rough but even open-textured surface.

PAF 2.11 Moulded work

Fix prefabricated gypsum plaster mouldings to solid background by drilling, plugging and nailing with 38mm small headed galvanised clout nails at 300mm centres.

Fix prefabricated gypsum plaster mouldings to rigid sheet backgrounds with approved adhesive.

Mitre prefabricated gypsum plaster mouldings to required angles using a fine-toothed saw. Finish cut edges by lightly sand-papering to a smooth finish.

Do not plaster over prefabricated gypsum plaster mouldings.

Form skirtings in cement-sand 1:3, true to line and level to approved contours.

Bed plaster ventilator grilles level in finish coat and fix true to line.

PAF 2.12 Applying external plaster

Applying External Plaster

Work undercoat well into interstices of metal mesh to obtain maximum key.

Apply undercoats to uniform thickness. If thickness is greater than 15mm, apply in two coats of equal thickness.

Apply undercoats with trowel by throwing. Leave rough and open, and cross scratch without penetrating coat, to provide key for hand applied finishing coat.

Level undercoats to receive stipple finish with straight edge and rub lightly with wood float. Do not scratch.

Wet undercoat thoroughly while applying stipple finish.

Leave each coat for at least 24 hours, or longer in cold, wet conditions before applying next coat.

Prevent each coat from drying out too rapidly. If necessary spray with water in hot weather.

Brush down each undercoat to remove dust and loose particles and wet thoroughly before application of next coat.

Apply finishing coat from top to bottom to give surfaces without joints. If joints are unavoidable position to approval.

PAF 2.13 Finishes to external plaster

Plain Finish:

Apply to a uniform thickness with laying trowel.

Finish with wood or other suitable faced float to give an even texture.

Do not overwork surface or use steel trowel to finish. Do not apply water to final coat while working up. Do not draw excessive laitance to surface.

Scraped Finish:

Apply to a uniform thickness with a laying trowel. After coat has set but before it is too hard, expose aggregate by scraping surface skin to approved texture.

Rough Stipple Finish:

Spatter onto undercoat a 1:3 cement-sand mortar with block brush or stippling machine to an even texture and leave as cast.

Smooth Stipple Finish:

Spatter onto undercoat a 1:3 cement-sand mortar with block brush or stippling machine to an even texure and trowel with wood float to produce smoothed stipples.

PARTICULAR SPECIFICATION: PPS PLASTIC SHEETING

PPS 1. EMBEDDED MEMBRANES

PPS 1.1 Materials

Polyethylene sheets: to S.A.B.S. 952 “Polyethylene Sheet.”

P.V.C. sheets: to be as stated on the drawings, specified in the Project Specification or described in the Schedule of Quantities and to be obtained from an approved manufacturer.

PPS 1.2 Storage

Store sheets under cover on end on a clean, dry and level surface.

PPS 1.3 Laying

Lay sheets on clean, dry base.

Protect sheets and prevent puncturing before or during laying of subsequent covering.

Ensure that permanent covering is laid as soon as possible after laying sheets.

PARTICULAR SPECIFICATION: PW WATERPROOFING

PW 1 WATERSTOPS

PW 1.1 Materials

Waterstops are to comply with the following Standard Specifications :

Rubber Waterstops: to CKS 388 "Rubber waterstops".

PVC waterstops: to CKS 389 "Flexible polyvinyl chloride waterstops".

Rubber waterstops shall be manufactured by the moulding of a high grade virgin natural rubber compound which will meet the specified performance requirements.

PVC waterstops shall be manufactured by the extrusion of an elastomeric plastic compound consisting of virgin polyvinylchloride and additional resins, plasticisers, stabilisers or other materials needed to ensure that the material, when compounded, will meet the specified performance requirements.

The amount of filler in the PVC waterstop shall not exceed 20% by mass.

The name of the waterstop supplier and full details of the waterstops that it is proposed will be installed, shall be submitted to the Engineer for approval at time of tender.

Submit to the Engineer for approval prior to its use anywhere on the Contract all available details of the physical and chemical properties of the materials, together with the results of performance tests done by an independent testing laboratory.

Waterstops must comply in every respect with the Engineer's requirements in regard to type, material, minimum dimensions, tolerances, number of lobes, etc.

PW 1.2 Storage

Waterstops must be stored under cover to provide protection against possible damage from UV radiation.

PW 1.3 Factory made inserts

Install all necessary factory made intersection pieces so as to create a fully continuous seal. Provide full continuity of lobes by mitreing in preformed intersection pieces for rubber waterstops and where intersection pieces are available for PVC waterstops or by hot vulcanising where special intersection pieces have to be made in the factory for PVC waterstops.

PW 1.4 Jointing

Weld joints in running lengths and between straight lengths and intersection pieces by hot vulcanising in accordance with the manufacturer's instructions. Limit the number of joints to the absolute minimum and, as far as possible, vulcanise joints at the factory. Site hot vulcanisation will be permitted only when authorised by the Engineer for butt joints between straight lengths of

waterstops of similar type. Jointing other than by hot vulcanising will not be permitted. Ensure that hot vulcanised joints are not brittle and that they are capable of achieving not less than 50% of the tensile strength properties of the finished waterstop.

PW 1.5 Fixing

Clean all waterstops before casting into concrete and ensure that they are not contaminated with anything likely to interfere with the quality and curing of the concrete in contact with them.

Unless otherwise shown, place waterstops symmetrically about the centre line of the construction or movement joints.

Firmly fix waterstops in their correct positions by approved means to ensure that they are accurately cast in and not displaced during concreting.

PW 1.6 Protection

Exercise particular care not to damage waterstops left projecting from construction, contraction and movement joints prior to being finally cast in.

Where PVC rearguard waterstops will be left exposed for a period in excess of 60 days, make provision for protecting them from UV radiation by painting.

PARTICULAR SPECIFICATION: PX SEALANTS

PX 1 Materials

Sealants are to comply with the following Standard Specifications:

Two Component Manganese Cured Polysulphide (gun grade): to SANS 110 "Sealing compounds for the building industry, two component, polysulphide base".

Two Component Polyurethane (gun grade, Ether or approved equivalent cured): to SANS 1077 "Sealing compounds for the building and construction industry, two component, polyurethane base."

Hot Applied Joint Sealants: to BS 2499 "Hot applied joint sealants for concrete pavements".

PX 2 Bond Breaker

Use adhesive backed PVC bond breaking tape suitable for use with polysulphide and polyurethane sealants.

Use adhesive backed heat resistant tape suitable for use with hot applied joint sealants.

PX 3 Back-up Material

Back-up material and preformed joint filler shall be non-staining and compatible with the sealant and primer and of suitable density and elasticity to support the sealant according to joint configuration, water pressure and other conditions to which the sealant will be subjected.

Back-up material shall be a non-absorbent material.

PX 4 Primer

Use a two-component primer compatible with the polysulphide or polyurethane sealant specified.

Use a single-component primer compatible with the hot applied joint sealant specified.

PX 5 Approval

Submit full details of the sealant system proposed to the Engineer for approval, which approval must be obtained in writing prior to any component of the system being installed.

PX 6 Sealant Applicator

The sealant applicator shall be defined as the party responsible for sealant installation.

Polysulphide and polyurethane sealant shall only be installed by a sealant applicator who is a specialist sub-contractor approved by the Engineer based on his qualifications to execute the work, previous experience and demonstrated performance on similar applications.

Where the sealant applicator is a sub-contractor he shall inspect all joints and sealant grooves to be sealed and shall furnish the Contractor with written acceptance of each section of the work prepared for sealing if he has not carried out such preparatory work himself. In the absence of this written acceptance, commencement of sealant installation by the sealant applicator shall similarly bind him as though written acceptance of the preparatory work had been furnished.

PX 7 Preparation

Prepare all joints to receive sealant as indicated on the drawings or to configuration and detail as specified by the Engineer. Install joint sealants only when the Engineer has inspected the sealant grooves and has confirmed approval in writing that the concrete at the joints has been adequately cured, is clean and dry and that the joint and sealant groove has been properly prepared for sealant installation.

Follow the manufacturer's instructions regarding preparation for sealant grooves, priming and installation. Ensure that grooves are free from dust, oil, grease, water, etc, before applying primer and sealant. Clean grooves by sand-blasting to provide a sharp firm key on the surfaces to which the sealant will be bonded. Compressed air used for sand-blasting, blowing out of dust, drying, etc, shall be completely oil-free.

Proceed with sealant installation immediately after sand-blasting.

Ensure that each batch of sealant arriving on site is accompanied by a manufacturer's certificate confirming that the batch complies with the SANS specification for polysulphide and polyurethane sealants or complies with the British Standard Specification for Hot Applied Joint Sealants.

Strictly observe the manufacturer's instructions for priming and sealant installation particularly with regard to times for drying, curing and pot life for the particular product. Observe correct heating temperatures for Hot Applied Joint Sealants.

Install sealant after the insertion of back-up material, if required, bond breaker tape, priming and the mixing or heating of the sealant in the prescribed manner. Install polysulphide and polyurethane sealants under pressure with a suitable sealant gun. The equipment used shall provide sufficient pressure to completely fill the sealant groove.

Use suitable melting/pouring equipment for installing Hot Applied Joint Sealants.

If required, tool the sealant to ensure an air-free seal and to provide maximum bond to the adhesion surface to which the sealant is applied. When tooling sealants use tooling solution recommended by the manufacturer.

Clean adjacent surfaces of sealant or other soiling arising from sealant installation as the work progresses. Use the solvent or cleaning materials and methods recommended by the sealant manufacturer.

Scrap hot poured sealant material that has been heated and allowed to cool below an acceptable level.

Retain wet samples of polysulphide and polyurethane sealants in sealed tins for testing and keep check lists of all completed work in detail including sealant and primer batch numbers and location of sealant and primer batches installed in the structure as directed by the Engineer.

Protect completed joints likely to be damaged by further construction operations in a manner approved by the Engineer.

Any completed sealing work that is to be concealed by further work shall be inspected by the Engineer and approved by him before it is covered or before further work is commenced.

PX 8 Testing

Where so instructed by the Engineer, submit samples of the sealant and primer batches as installed to an approved independent authority. If required, obtain samples of sealant and primer representative of the batches of material designated for installation sufficiently early so that they can be forwarded and tested and the test results can be made available prior to sealant installation.

PWA 2 WATER TEST

PWA 2.2 Water Test

Final certification for the completion of the work will be subject to the Engineer's approval of the results of water tests conducted on the reinforced concrete structures and the observed performance of the structure under the conditions specified, all as described in this Particular Specification.

The quality of concrete, surface finishings and jointing in the structure shall be of such a standard that the structure shall be completely watertight on completion of the Works. No specialised treatment of concrete surfaces or other remedial work of any description deemed necessary to waterproof the structure will be permitted without the Engineer's prior written consent.

For the purpose of inspection during the water test a restriction is placed on the Contractor in respect of backfilling adjacent to the structure. No backfilling above the top of the reservoir's perimeter wall base may be undertaken before the Engineer has certified in writing that the water test has passed in respect of the requirements of the visual inspections for leakage.

Both visual inspections and water loss tests will be required to establish the structure's watertightness.

Where water loss tests have to be carried out, construct an accurate device for measuring the true water level inside the structure and securely fix it at a point easily accessible for taking readings. Obtain the Engineer's approval of the proposed construction, fixing and location prior to manufacture.

Incorporate the following features in the measuring device:

i) A stilling basin effectively restricting and damping movement of the water at point of measurement in relation to the main body of water.

ii) A scale for taking direct readings of water level.

iii) A reference surface on top of the stilling basin constructed so that direct measurements can be taken of fluctuations in water level using a vernier caliper.

Make all preparations for the water test and obtain the Engineer's approval for the test.

Carry out the water tests as follows for the water retaining structures.

i) Fill the water retaining structures to the normal top water level indicated on the Engineer's drawings. Maintain this water level, if necessary by filling from time to time, for an absorption period to be agreed with the Engineer. The absorption period shall not exceed 7 days.

ii) Effectively seal all ventilators and manholes except as required for temporary access for measuring water level.

iii) At the end of absorption period adjust the water level and, at a time convenient to all parties, record the level on the measuring apparatus. Record the water loss at 24 hour intervals over a test period of four days. Check that there is no ingress of water from the inlet pipes or from any other source. Also check that there is no leakage from the scour/inlet/outlet pipe because valve seals are not seating snugly.

During the period of monitoring water losses for the water test also measure evaporation losses at two representative measuring points at the water surfaces inside the water retaining structures. The apparatus used for measuring evaporation must comprise an evaporation drum with a minimum water depth of 1.0 m securely fixed inside the structure with its water level within 25 mm of the water level of the structure to be tested and a freeboard to the rim of the drum not greater than 50 mm above the water level of the structure to be tested. The means employed to measure changes in the water level inside the evaporation drum must be the same as those specified for the measuring device for the water test itself. The details of the evaporation apparatus and methods of fixing and taking readings must be approved by the Engineer.

If there is no ground water present, the Engineer may also instruct that the flow from the underdrains be monitored to establish the total water loss over the 96 hour period of the water tests. This measurement shall then be included as a further criterion to determine whether the water test has been successful according to the 96 hour water loss permitted.

PWA 2.3 Water Test Acceptance Criteria

A water test shall be considered successful if:

i) After 96 hours the recorded total water loss does not exceed a value of 4.0 mm;

ii) No visual signs of dampness or leakage are evident on the exposed surfaces of the containing walls of the structure or at the joint between its wall and wall base on completion of the test.

Evaporation losses will be taken into account in establishing the total water loss.

PWA 2.4 Remedial Measures

In the event of leakage occurring, as determined by the Engineer from a visual inspection or from the losses recorded during the water test, define the defects causing leakage and empty the structure. Immediately remedy these defects in order to effectively waterproof the structure.

The remedial measures applied must be approved by the Engineer who shall have the right to reject any repair procedure he considers incompatible with the standards set out in this specification.

Acceptance of a repaired structure shall be dependent on the Engineer's approval of the remedial works and the final success of a repeated watertest.

PWA 2.8 Availability of Water for Testing

The Contractor must make provision for the supply and the cost of the water for the water testing.

PWA 2.9 Payment

All of the above requirements will be paid under a single payment item to undertake a successful watertightness test.

PARTICULAR SPECIFICATION: FENCING

PPA FENCING

PPA.1 SCOPE

This Specification covers all work concerned with the construction and erection of various types of fences, including accessories and erection requirements for material. Fences are required for the Borehole Pump Stations.

PPA.2 MATERIAL

PPA.2.1 Posts, stays, standards and droppers

Posts, stays, standards and droppers shall be of the type and size as indicated on the drawings. Where steel sections are shown, these shall comply with the requirements of CKS 82. All posts, stays, standards and droppers shall be medium duty hot dipped galvanised. Standards shall be 2,50kg/m Y-sections. Droppers shall be 0,56kg/m ridge back pattern. All tubular sections shall be provided with a footplate and pressed steel cap.

PPA.2.2 Bolts for stays

All the necessary bolts, together with nuts and washers shall be supplied with each post and the coating and corrosion protection will be similar than that specified for the posts.

PPA.2.3 Wire

- **Smooth wire** shall comply to SANS 675 and shall be of the types specified below.
- **Straining wire** shall 4.00mm diameter heavy duty galvanised wire.
- **Fencing wire** shall be high tensile grade 2.24mm diameter wire heavy duty galvanised.
- **Tying wire** shall be 2.50mm diameter steel heavy duty galvanised wire for tying fencing to standards and droppers and 1.6mm steel heavy duty galvanised wire for tying netting and mesh to fencing wire.

PPA.2.4 Diamond mesh

Diamond mesh (chain link fencing) shall comply with the requirements of CKS 229. The width shall be as shown on the drawings and the edge finish shall be both clinched or barbed. The nominal diameter of the wire shall be 2.5mm and the mesh shall be 64mm x 64mm. The wire shall be galvanised to SANS 675 Class Medium Duty.

PPA.2.5 Gates

Gates shall be manufactured to the dimensions shown on the drawings. Gates shall be complete in every respect including hinges, washers, bolts and locking chain attached to gate.

PPA.2.6 General requirements

The completed fence shall be plumb, taut true to line and the ground contour, with all posts, standards and stays firmly set. The height of the lower fence wire above the ground at posts and standards shall not vary by more than 25mm. Other fencing wires shall not vary from that by more than 10mm from their prescribed relative vertical positions.

All work specified on the drawings or in the Schedule of Quantities will form part of the rates so specified. This will imply that excavation of holes for poles, etc. and the supply, mixing and placement of concrete will form part the rate for that particular item as specified in the Schedule of Quantities.

The Contractor shall, on completion of the each section of the fence, remove all cut-offs and other loose material, netting or wire so as not to create a hazard to grazing animals or a nuisance to land owners.

PARTICULAR SPECIFICATION: PPC PAINTING AND PROTECTIVE COATINGS

PPC.1 Paintwork

PPC.1.1 Materials

The paints to be used shall be of an approved manufacturer and brand and shall comply with the relevant SANS Specification.

All coats to be compatible and from the same manufacturer and applied in accordance with the manufacturer's instructions. Barrier coat(s) to be generally of a different colour from the primer and finishing coats.

PPC.1.2 Workmanship

PPC.1.2.1 Preparation, Application and Handling

After sand blasting and before steelwork is delivered to site it must be inspected and approved by the Engineer. The Contractor must notify the Engineer in writing when the steelwork is ready for inspection.

(i) Surface Preparation: Paint shall not be applied over any surface containing traces of grit, grease, oil, etc, loose rust, loose millscale or corrosion products of any kind.

- The grades of surface preparation viz blast-cleaning and wire brushing mentioned in this specification refer to the Swedish Code of Practice SIS 055900-1967. This latter code is accepted by SANS as a South African standard for surface preparation.
- All air used for blast-cleaning or spraying shall be free from all traces of water and oil.
- When blast-cleaning, a satisfactory blast profile (i e anchor pattern) shall be achieved. A maximum profile of 75 micro-metres shall be allowed. If the abrasive used for blast-cleaning is sand, then it shall be free of clay.

(ii) Coating Application:

All metal surfaces to which paint is applied shall be moisture dry. Paint surfaces which are to be over-coated shall be hard dry before over-coating, unless the specification states otherwise.

- Prior to painting all traces of soluble salts and corrosive air-borne contaminants shall be thoroughly washed from the surface. Once dried the surface shall be immediately repainted.
- Unless otherwise stated, no paint shall be applied within 50 mm of areas which are to be welded.
- Welds and adjacent parent metal shall be deslagged, , inspected and approved and all spatter shall be removed prior to painting.

- The weld area shall be abrasive blasted and / or ground and all contaminants, such as flux, weld spatter, etc, shall be removed prior to painting. It is recommended that the weld area then be flushed with fresh water and be allowed to dry before receiving the full specified paint system.
- Surfaces which are to rest on concrete or other floors shall receive the full paint system prior to erection.
- Areas where the paint coating has been damaged during transportation, erection or by any means whatever, shall be repaired as follows:

Rust spots shall be removed from damaged areas by means of wire brush or emery paper and the surrounding paint to damaged areas which is still intact shall be feathered for a distance of 20 mm beyond the damaged area.

Spot priming shall consist of all of the coats previously applied, and shall overlap the damaged area by 20 mm.

NOTE: THE ABOVE METHOD OF REPAIRING DAMAGED AREAS DOES NOT APPLY TO SOLVENTLESS EPOXY COATINGS

- Where the shop coat is allowed to age for a few months before painting, light sanding or rubbing with steel wool or scrubbing with clean water, using a bristle brush, is strongly recommend.
- Mating or contact surfaces shall be protected from corrosion by ensuring that the two surfaces brought into contact with each other shall be prepared and primed in accordance with the specification. The primed surfaces shall be brought together while the paint is still wet.
- Areas which will be inaccessible after erection shall receive the full specified coating system. This applies particularly to back-to-back angles, purlins, flange faces, etc.
- Where specified, steel embedded within concrete shall not be oiled or painted except to within 50 mm of the concrete / air interface.
- All sharp edges and cut ends shall receive the specified dry film thickness of paint.
- The Contractor shall ensure that the manufacturer's recommended thinners are used for any particular paint.
- The Contractor shall satisfy himself that the final finishing coat obliterates (i e hides) the previous coat. Should he have any objections, these, together with his recommendations, shall be submitted to the Engineer in writing.
- Paint dry film thicknesses shall be measured using a non-destructive thickness gauge such as the MIKROTEST or equivalent.
- The Engineer shall use his discretion in deciding on the tolerances to be allowed.
- The paint manufacturer's instructions shall be strictly adhered to.

PPC.2 Hot Dip Galvanising

PPC.2.1 Generally

Where hot dip galvanising is specified, indicate all necessary vent and drain-holes on shop drawings submitted for approval. Pre-clean welds to remove all slag, spatter and other deposits. Mask contact surfaces to H T F G connections during galvanising, or grit blast after galvanising.

Make good damage to metal coatings using zinc rich primers, such that the original thickness of metal coating is restored.

Clean steelwork of all scale, rust, slag, paint, oil, grease, moisture and other impurities by immersion in a hot sulphuric acid bath following local blast cleaning where necessary. Thereafter wash the steel and dip in a strong solution of zinc-ammonium chloride.

Dip steelwork in a hot zinc bath as per SANS 763-1966 and /or 934-1969. The minimum zinc coating as specified by this standard is to be deposited unless the Engineer specifically requires otherwise.

Carry out subsequent etching, painting, handling, storage and bolt treatment in compliance with SANS 763-1966 and / or 934-1969.

PPC.3 Paint and Coating Systems

PPC.3.1 Painting and Galvanised Steelwork

Preliminary Requirements:
All fabrication, drilling of holes and deburring shall be completed before galvanising. Welds on flanges shall be cleaned of all splatter, slag, etc.

Galvanising:
The steelwork shall be pretreated and galvanised in accordance with specification SANS 763-1967 and / or 934-1969.

Painting:
Thoroughly degrease the galvanised surfaces by means of a suitable degreaser applied with a bristle brush. Hose down with fresh water and allow to dry.

Apply preferably by spray, one coat of SELF ETCHING ZINC CHROMATE WASH PRIMER to a dry film thickness of 8 – 13 micrometers.

Apply by brush, flow or dipping 3 coats of EPOXY TAR coating (Black or Brown) to give a minimum dry film thickness of 100 micrometers per coat. Black shall be the final coating. Consecutive coats shall be applied within 24 hours of each other, but the minimum over-coating time will be dependent on the ambient temperature, humidity, etc.

PARTICULAR SPECIFICATION: PPB BUILDING WORK

PPB.1 GENERAL

Refer any discrepancies to the Engineer in writing prior to commencement of work. Obtain the Engineer's written authorization for all amendments prior to commencement of work.

No drawing is to be scaled. Figured Dimensions to be used at all times.

Unless otherwise stated Permissible Deviation (PD) will be to Degree of Accuracy II in terms of the relevant section of SANS 1200 Standard Specifications.

The Contractor is to locate and identify existing services on site and to protect them throughout the duration of the works.

The Contractor shall at all times observe proper and adequate safety precautions on the Site.

PPB.2 EARTHWORKS

Earthworks to be in accordance with SANS 1200 D.

Approved selected cohesionless backfill around columns and walls, above bases and beneath surface beds, must be compacted to a minimum density of 100% Mod AASHTO in layers not exceeding 200 mm thick unless noted otherwise.

PPB.3 CONCRETE

Concrete, formwork and reinforcement to be in accordance with SANS 1200 G.
Cement to comply with the requirements of SANS ENV 197-1. Use CEM 1 32,5 or higher.

For exposed concrete, and concrete on or below ground, the total alkall content (i.e. the product of the Na O-equivalent of the cement and the cement content of the concrete) must be limited to a maximum 2,1 kg/m of concrete, if such concrete is made with alkall-reactive aggregates.

Required characteristic concrete strength at 28 days (unless noted otherwise):

- Unreinforced concrete (e.g. mass concrete, blinding & strip footings) …….15MPa/25 Aggregare, except if otherwise specified
- Bases and foundation beams (Non-aggressive soil) ..... 25MPa/25 Agg.
- Concrete surface beds ..... 30MPa/19 Agg.
- Columns ..... 30MPa/19 Agg.
- Suspended beams and slabs ..... 30MPa/19 Agg.
- Maximum free water/cement ratio for durability purposes:
- Exposed concrete & concrete on ground 0.46
- Protected concrete 0.62

The Contractor is to submit his proposed mix designs to the Engineer for approval prior to construction commencement.

Ground slabs to be cast on selected clean cohesionless material, compacted to 100% Modified AASHTO density. Slabs to be cast in approximately square panels not exceeding 12 m² in area. All joints to be positioned and formed in accordance with detail drawings.

Final founding levels of strip footings and bases to be determined on site by the Engineer.

Minimum concrete cover to any reinforcing bar, including links, to be as tabulated below unless noted otherwise:

- Concrete in contact with the ground ..... 50 mm
- Slab top surfaces:
- External, unplastered ..... 40 mm
- External, plastered ..... 30 mm
- Internal ..... 20 mm
- Slab soffits ..... 20 mm

Beams, columns and walls:
External, unplastered…….…… 40 mm
External, plastered ..... 30 mm
Internal..... 20 mm

Provide all exposed concrete corners with 25 mm x 25 mm chamfers.

All concrete to be cured by an approved method for at least 7 days after final set of concrete.

The Engineer may adjust the curing period depending on weather conditions.

Shutter removal and propping procedures to be discussed with and approved by the Engineer.

PARTICULAR SPECIFICATION: PPBK BRICKWORK AND MASONRY

PPBK.1 Bricks and Blocks

Clay Bricks: to SANS 227 “Burnt Clay Masonry Units”.
Calcium silicate bricks: to SANS 285 “Calcium Silicate Masonry Units”.
Cement bricks: to SANS 987 “Cement Bricks”.
Concrete bricks: to SANS 527 “Concrete Building Blocks”.

Excluding clauses 4.1 (dimensions) and 4.6 (strength).

Dimensions to clause 3.2 of SANS 285 “Calcium Silicate Masonry Units” and minimum strength as in the table below.

Class	Compressive strength (MPa)	
	Average of 12 units	Individual
A	7	5,5
B	10,5	8,5
C	14	11,0
D	21	17,0

Clay fibre bricks: to SANS 35 “Fire Clay and Silica Refractories”.
Silica bricks: to SANS 35 “Fire Clay and Silica Refractories”.
Fixing bricks to C K S 175 “Fixing Bricks”.
Concrete blocks (precast solid or hollow, high or low density aggregated, aerated): to SANS 527 “Concrete Building Blocks”.
Calcium silicate blocks: to SANS 285 “Calcium Silicate Masonry Units”.
Gypsum blocks: to SANS 52 “Gypsum Blocks”.
Hollow clay blocks: to SANS 52 “Hollow Clay Building Blocks”.
Airbricks: to BS 493 “Air Bricks and Gratings for Wall Ventilation”.

PPBK.2 Pipes

Concrete pipes for refuse chutes: to SANS 677 “Concrete Non-Pressure Pipes”.
Concrete pipes for refuse chutes: to SANS 559 “Vitrified Clay Sewer Pipes and Fittings.”
Clay flue Linings and terminals: to BS 1181 “Clay Flue Linings and Flue Terminals”.

PPBK.3 Bricks and Blocks Reinforcement

Reinforcement: Wire mesh to SANS 1024 “Welded Steel Fabric for Concrete Reinforcement”, galvanized to SANS 935 “Hot Dip (galvanized) Zinc Coatings on Steel Wire”.

PPBK.4 Damp-Proof Courses

Bitumen damp-proof course: to SANS 248 “Bitumen Damp-proof Courses”.
Polyethylene damp-proof course: to SANS 952 “Polyethylene Sheet”.
Copper damp-proof course: to BS 743 “Materials for Damp-proof Courses”, coated with bitumen both sides.
Lead damp-proof course: to BS 743 “Materials for Damp-proof Courses”, coated with bitumen both sides.

PPBK.5 Wall Ties

Metal ties for cavity walls: to SANS 28 “Metal ties for Cavity walls”.

PPBK.6 Mortars

Portland cement: to SANS 471 “Portland Cement and Rapid Hardening Portland Cement”.
Portland blast furnace cement: to SANS 626 “Portland Blast Furnace Cement”.
Lime: to SANS 523 “Limes for Use in Building”.
Fine aggregate: to SANS 1083 “Aggregate for Concrete” and in addition at least 97% of any sample measured by mass to pass a 2360 micron sieve and the percentage that passes a 75 micron sieve when tested in accordance with SANS 1083 not to exceed 7,5%. Where the requirements for fineness modulus cannot be met, obtain approval before proceeding.
Water: clean and fresh to BS 3148 “Tests for Water for Making Concrete”.

PPBK.7 Mortar Mixes

Mortar shall be one of the following classes as specified in Chapter 8, Regulation 13 of the Standard Building Regulations published by the SANS, and shall comply with the requirements relating to its classes:
Class A – Minimum compressive strength 10,5 MN /m² at 28 days

Class B – Minimum compressive strength 4,9 MN /m² at 28 days
Class C – Minimum compressive strength 1,4 MN /m² at 28 days
Class D – Minimum compressive strength 0,5 MN /m² at 28 days

Unless otherwise stated on the drawings or provided for in the Particular or Project Specification the respective classes shall be used in accordance with Clause 5 of the above Regulation.

Measure mortar constituents using clean gauge boxes made to size to suit volumes required.

Overfill gauge boxes and strike off excess material with straight edge.
Use plasticisers, waterproofing agents, pigments and other additives strictly in accordance with Engineer's instruction or approval or as stated on the Drawings or described in the Particular or Project Specification.

Dry admixtures to be dissolved in mixing water for each batch of mortar.

PPBK.8 Mortar Mix Consistencies

Mortar generally: mix constituents with the minimum amount of water to provide the consistence required.
Semi-dry mortar: mix constituents and add sufficient water to form a crumbly consistence.
Slurry: mix constituents and add water to form a slurry of creamy consistence.
Grout: mix constituents and add water to form a liquid grout.

PPBK.9 Mortar Mix Sequences

Cement-sand mortar: mix cement with dry sand then add water.
Cement-lime putty-sand mortar: mix cement with sand dry and add lime putty and water.
Cement-lime sand mortar: mix cement with lime and sand then add water.
White mortar: mix as specified using white cement and sand of approved colour.
Coloured mortar: mix as specified using colouring pigment. Do not use admixtures without prior approval.

PPBK.10 Mortar Mixing

Mix mortar by mechanical mixer or by hand on a clean level banker board.

Mix mortar thoroughly so that all individual constituents are incorporated evenly, but do not overmix mortars containing plasticisers.

Keep mixer clean at all times and discharge mortar onto a clean level banker board.

Use mortar within about one hour of discharge from mixer at normal temperatures.

In no case must the mortar be used after the initial set has taken place. Reconstitution of mortar will not be permitted.

PPBK.11 Samples and Panels

Submit 6 samples of each type of brick and block and obtain approval before placing orders with suppliers.

Prepare sample panels 1 m x 1 m approximately for each type of facing brickwork including jointing or pointing, and obtain approval before proceeding.

PPBK.12 Handling of Bricks etc.

Unload and handle bricks or blocks without soiling, chipping or other damage.

Unload and handle packaged bricks with proper mechanical plant damage.

Stack bricks and blocks on level hardstanding. Protect from inclement weather.

Wet clay bricks and blocks to the minimum necessary to prevent mortar drying out prematurely. Calcium cilicate and concrete bricks or blocks should not be wetted.

PPBK.13 Protection

Protect freshly laid work during interruption through rain, and at the completion of each day's work.

Keep facework clean during construction and until practical completion. Turn back scaffold boards at night and during heavy rain. Rubbing to remove stains will not be permitted.

PPBK.14 Laying

Do not use clay bricks, which are less than 6 weeks old from the kiln.

Distribute facing bricks of varying colour evenly throughout the work so that no patches appear. Mix different deliveries, which vary in colour to avoid horizontal stripes.

In all load bearing walls lay single frog bricks with frog uppermost, double frog bricks with deeper frog upper-most and fill all frogs with mortar.

Carry up work including both skins of cavity work with no portion more than 1,5m above another at any time, raking back between levels.

Lay bricks on a full bed or mortar and fill all joints. Make bed and vertical joints of equal consistent thickness.

Gourge brick courses as shown on the drawings or as per instructions of the Engineer.

Lay solid blocks on a full bed of mortar with joints filled solid to a consistent thickness not more than 12 mm.

Lay hollow blocks on a full bed of mortar but do not fill hollows in blocks. Joints to be of a consistent thickness not more than 12 mm.

Build brickwork and blockwork to the following tolerances:
Setting out dimension: ± 15 mm
Level of bed joints: ± 15 mm
Plumb of walls in any storey height: 15 mm

Use templates for forming openings in facework where doors and windows are not to be built in.

Use templates for forming lift shafts accurately at each floor level.

Fill between joints and rafters at floor levels and eaves.

For treatment between brickwork/blockwork and structural soffits refer to drawings.

For fair-faced work select bricks and blocks with perfect arises and flat surfaces and lay with faces in line.

Build in necessary fixing bricks, blocks, lugs or cramps etc for trims and for components.

PPBK.15 Bonding

Lay bricks throughout the work with the cross joints in any course not less than a quarter of a brick from those in the course below.

Block bonding: bond new brickwork to existing work in blocks not more than 300 mm high.
English bond: lay with alternate courses of headers and stretchers.
Flemish bond: lay in staggered courses with alternate headers and stretchers in each course.

English garden wall bond: lay with 3 courses of stretchers with a half brick lap and 1 course of headers.
Heading bond: lay with headers only each course with a quarter brick lap.
Stretcher bond: lay with stretchers only in each course and half brick lap. Except in the case of a half brick wall provide ties as for "Cavity Work".

PPBK.16 Cavity Work

Keep cavity and ties free from mortar and debris with battens or other suitable means.

Clean the bottom of the cavity through holes as necessary. Make good all holes.

Seal with 1,6 mm shaped galvanized mild steel sheet all cavities, which are to be spanned with in-situ concrete.

Cavities filled with concrete to levels shown on drawings to have top surface sloping to the exterior.

Provide wall ties of the type and material stated on the drawings or described in the Particular or Project Specifications and spaced as per the following Table:

Cavity width	Horizontally	Vertically
50 – 75 mm	900 mm	450 mm
76 – 100 mm	750 mm	450 mm
101 – 150 mm	450 mm	450 mm

Provide additional ties around openings every 300mm vertically. Unless otherwise shown, close jambs and sills to openings in cavity walls with solid brickwork, and provide damp-proof course.

Form weep holes in vertical joints at approximately 800 mm intervals at the base of the cavity and over external openings.

PPBK.17 Jointing and Pointing

Joints, which are not to be visible in the finished work to be struck off with a trowel as the work proceeds.

Flush joints: finish joints as the work proceeds with all voids filled to provide a smooth surface flush with the brick or block face.
Weathered joints: finish mortar joints to a trowelled weathered joint as the work proceeds.
Keyed joints: finish mortar joints to a keyed joint of approved profile as the work proceeds.
Flush pointing: rake out joints to a depth of 20 mm as the work proceeds. Point to a flush finish with mortar of approved colour in a continuous operation as scaffolding is taken down.
Weather pointing: rake out joints to a depth of 20 mm as the work proceeds. Point to a weathered profile with mortar of approved colour in a continuous operation as scaffolding is taken down.
Keyed pointing: rake out joints to a depth of 20 mm as the work proceeds. Point to a keyed finish with mortar of approved colour in a continuous operation as scaffolding is taken down.

Rake out mortar joints to a depth of 12 mm in brickwork to be plastered.

Strike off and leave rough joints in blockwork to be plastered.

PPBK.18 Bagging

Bagged finish: rub down to an even surface with net sacking adding mortar as in wall to fill joints and crevices.

PPBK.19 Brick Reinforcement

Flush up brickwork with mortar to an even bed with frogs filled and lay reinforcement where shown on drawings. Keep back 20 mm from face of brickwork and complete mortar joint to normal thickness.

PPBK.20 Arches

Turn arches over timber centres using special shaped bricks on facework.

PPBK.21 Fire Bricks

Lay fire bricks in accordance with the manufacturer's recommendations.

PPBK.22 Building In

Components: build in sills, copings, lintels, steps and other components using mortar similar to that in adjacent walls.
Flues: build in throat units, flue linings and terminals free from voids and restrictions parged to provide a smooth and even flow for the flue gases.
Refuse chutes: build in as the work proceeds to provide a smooth and even interior surface free from voids and restrictions.
Doors and windows: build in doors and window frames as the work proceeds and bed in mortar similar to that in adjacent work.
Padstones: bed padstones in mortar similar to that in adjacent walls to give level top surface.
Wall plates: bed solid in mortar.
Airbricks: build in necessary air bricks complete with insect proof screen.

PPBK.23 Damp-proof Courses

Fill frogs and flush up brick-work to an even bed using mortar, as for brickwork, to receive horizontal flexible damp-proof courses. Lay damp-proof course horizontally stepped up to the interior in continuous strip with 150 mm laps in length and full laps at angles. Complete joint to normal thickness.

Keep leading edge of flexible damp-proof course in facing work 10 mm back from face of brickwork.

Provide flexible damp-proof course extending 100 mm beyond end of lintels and sloping to weepholes over all openings in cavity walls.

Provide flexible damp-proof course to jambs of openings in cavity walls fully lapped with horizontal damp-proof courses at head and sill. Provide flexible damp-proof course under jointed sills turned up at back and ends.

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/ 2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

C3.5 : MANAGEMENT

C3.5.1 MANAGEMENT OF THE WORKS

C3.5.1.1 Applicable SANS and SANS standards

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 DK	- GABIONS & PITCHING
SANS 1200 DM	- EARTHWORKS (ROADS, SUBGRADE)
SANS 1200 G	- CONCRETE (STRUCTURAL)
SANS 1200 GB	- CONCRETE (Ordinary building work)
SANS 1200 GE	- PRE-CAST CONCRETE
SANS 1200 H	- STRUCTURAL STEELWORK
SANS 1200 HA	- STRUCTURAL STEELWORK (ANCILLARY WORKS)
SANS 1200 L	- PIPELINES
SANS 1200 LB	- BEDDING (PIPES)
SANS 1200 LC	- CABLE DUCTS
SANS 1200 LE	- STORMWATER DRAINAGE
SANS 1200 M	- ROADS (GENERAL)
SANS 1200 ME	- SUBBASE
SANS 1200 MK	- KERBS AND CHANNELS
SANS 4427	- HDPE PIPE
SANS 966-1	- UPVC PIPE
SANS 966-2	- MPVC PIPE
SANS 62-1 AND 2	- GMS PIPE
SANS 664	- BALL VALVES
SANS 664-2	- GATE VALVES
SANS 664-3	- RESILIENT SEAL VALVES
SANS 1123	- PIPE FLANGES
SANS 10100	– The Structural Use of Concrete.
SANS 10155	– Accuracy in Buildings
SANS 10164	– The Structural Use of Masonry.
SANS 10163	– The Structural Use of Timber.
SANS 10162	– The Structural Use of Steel.

Statutory Regulations: SANS 0400: National Building Regulations

a) The following SANS 1921 Construction Works standards and associated specification data are applicable:
   i) SANS 1921-1, General
   ii) SANS 1921-2, Accommodation of traffic on public roads occupied by the contractor
   iii) SANS 1921-3, Structural steelwork
   iv) SANS 1921-4, Third party management support
   v) SANS 1921-5, Earthworks activities which are to be performed by hand
   vi) SANS 1921-6, HIV/AIDS Awareness

b) The specification data applicable to the SANS 1921 standards referred to in a) are as follows:

Standard	**Clause**	**Specification Data**
SANS 1921-1	**Essential Data:**	
	4.1.7	
	4.2.1	
	4.6.3	
	4.6.6	
	4.9.3	
	4.14	
	Variations:	

Standard	**Clause**	**Specification Data**
SANS 1921-2	**Essential Data:**	
	4.6.1	
	4.10.1	
	Variations:	

Standard	**Clause**	**Specification Data**
SANS 1921-3	**Essential Data:**	
	4.2.1	
	4.2.2	
	4.3.1.1	
	Variations:	

Standard	Clause	Specification Data
SANS 1921-4	**Essential Data:**	
	5.1.1(b)	
	5.1.1(l)	
	5.2.1(b)	
	Variations:	

Standard	Clause	Specification Data
SANS 1921-5	**Essential Data:**	
	5.1	
	Variations:	
	5.2	

Standard	Clause	Specification Data
SANS 1921-6	**Essential Data:**	
	5.2.1(a)	
	Variations:	

C3.5.1.2 Particular / Generic Specifications

The following Particular Specifications are applicable:

PAA: GEOMEMBRANE SHEETING
PAB: NON-WOVEN PROTECTION GEOTEXTILES
PAF: APPLIED FINISHES
PPS: EMBEDDED MEMBRANES
PW: WATERSTOPS
PX: SEALANTS
PWA: WATER TEST
PPB: BUILDING WORK
PPBK: BRICKWORK AND MASONRY
PPBP: PAINTING
PPB.W: APPLIED FINISHES: SCREEDS AND CEMENT PAVINGS
PPA: FENCING
PPC: PAINTING AND PROTECTIVE COATINGS
PLIC: GUIDELINES FOR THE IMPLEMENTATION OF LABOUR INTENSIVE INFRASTRUCTURE PROJECT UNDER EXPANDED PUBLIC WORKS PROGRAMME (LABOUR INTENSIVE ACTIVITIES)

C3.5.1.3 Labour Intensive Construction:

Guideline for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP), second edition, July 2005.

Labour-intensive works

Labour-intensive works comprise the activities described in the Labour-Intensive Specification. Such works shall be constructed using local workers who are temporarily employed in terms of this scope of work.

LABOUR INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF

Established contractors shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2005, are registered for training towards, the skills programme outlined in Table 1.

Emerging contractors shall have personally completed, or for the period 1 April 2004 to 30 June 2005 be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or for the period 1 April 2004 to 30 June 2005 be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e the contractor's most senior representative that is resident on the site)	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard

Details of these skills programmes may be obtained from the CETA ETQA manager (e mail:gerard@ceta.co.za , tel: 011-265 5900)

EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

1.2 Requirements for the Sourcing and Engagement of Labour.

1.2.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

1.1.3 The rate of pay set for the SPWP is R ….. per task or per day.
(Insert value determined by public body in terms of clause 2.2 of these Guidelines)

1.1.4 Tasks established by the contractor must be such that:

d) the average worker completes 5 tasks per week in 40 hours or less; and
e) the weakest worker completes 5 tasks per week in 55 hours or less.

1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.

1.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:
a) where the head of the household has less than a primary school education;
b) that have less than one full time person earning an income;
f) where subsistence agriculture is the source of income.
d) those who are not in receipt of any social security pension income

1.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:
a) 60 % women;
b) 20% youth who are between the ages of 18 and 35; and
c) 2% on persons with disabilities.

1.2 Specific Provisions Pertaining to SANS 1914-5

1.2.1 Definitions

Targeted Labour: Unemployed persons who are employed as local labour on the project.

1.2.3 Contract Participation Goals

1.2.3.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

1.2.3.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

1.2.4 Terms and Conditions for the Engagement of Targeted Labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into

with targeted labour.

1.2.5 Variations to SANS 1914-5

1.2.5.1 The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

1.2.5.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

1.3 Training of Targeted Labour

1.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

1.3.2 The cost of the formal training of targeted labour, will be funded by the local office of the Department of Labour. This training will take place as close to the project site as practically possible. The contractor must access this training by informing the relevant regional office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The Employer and the Department of Public Works (Fax: 012 3258625/ EPWP Unit, Private Bag X65, Pretoria 0001) must be furnished with a copy of this request.

1.3.6 The contractor shall do nothing to dissuade targeted labour from participating in training programmes and shall take all reasonable steps to ensure that each beneficiary is provided with two days of formal training for every 22 days worked.

1.3.7 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 1.3.3 above.

1.3.8 Proof of compliance with the requirements of 1.3.2 to 1.3.4.must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

GENERIC LABOUR INTENSIVE SPECIFICATION

Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

h) Excavation of foundation trenches having a depth of less than 1.5 metres
i) Removal of existing fence
j) Placing bedding, selected and main fill to pipe trenches;
k) Gabion work;
l) Mixing of concrete
m) Masonry work
n) Site clearing and levelling

Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

Hand Excavateable Material

Hand excavateable material is material:

a) Granular Materials:
i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) Cohesive Materials:
i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate100mm;

Note: 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with resepect to the horizontal) into the material being used.

Table 1: Consistency of Materials when Profiled

GRANULAR MATERIALS		**COHESIVE MATERIALS**	
CONSISTENCY	**DESCRIPTION**	**CONSISTENCY**	**DESCRIPTION**
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in upto 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation.	Stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by

			fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

Trench Excavation

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

Compaction of Backfilling to Trenches (Areas not Subject to Traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers

d) to 90% Proctor density;
e) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
f) 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.

Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and Grubbing

Grass and small bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand, regardless of the method of haulage.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

Offloading

All material, however transported, is to be off- loaded by hand, unless tipper-trucks are utilised for haulage

Spreading

All material shall be spread by hand.

Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

Grassing

All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

Stone Pitching and Rubble Concrete Masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them.

C3.5.1.4 Planning and Programming

It is a prerequisite of this contract that minimal disruption to the public is ensured and the Contractor shall take this into account when drawing up his programme.

The Contractor shall submit to the Engineer within seven (7) days of the date of the instruction to commence work, a detailed construction programme and method statement as well as a list of the resources available for each works order.

This contract runs for a period of 1***2 (twelve) MONTHS*** and as such all work must be completed within this period.

The Contractor shall execute the Works in the following specified sequence:

(Start of Week no 1 is the Commencement Date):

- Access road to WWTW site;
- Fencing of WWTW;
- Inlet Works;
- Relining of Ponds
- Emergency pond and related pipe work;
- Construction work associated with the existing pond;
- Control and administration Building;
- Chlorination channels and chlorine storage and dosing building;
- Potable Water Supply
- Generator Building at the existing Raw Sewage Pump Station site;

Regular meetings will be held at the Waste Water Treatment Plant site. The Engineer, will decide on the dates, will chair these meetings and arrange for minutes to be recorded. The main purpose of the meetings is to ensure proper contract administration and good liaison between the various Municipal Departments, the Contractor, and the Division staff who administer the Contract. The Contractor / the Consultant must attend the meetings and send a suitable representative.

C3.5.1.5 Environment

The Contractor must compile an Environmental Management Plan and must appoint suitably qualified staff to implement, monitor and manage this plan.

The Contractor shall, for the duration of the contract, take appropriate measures to fully comply with the Environmental Management requirements stipulated under the Environmental Scoping Report and ROD.

C3.5.1.6 Accommodation of Traffic on Public Roads occupied by the Contractor

The Contractor shall carry out, erect and maintain such temporary works and provide all temporary road signs, pipe, deviations, warning boards, barricades, signs, lighting and demarcations and the like, as are necessary to maintain and safeguard the normal flow of public and private vehicular and pedestrian traffic.

Work shall be undertaken in accordance with the S.A. Road Traffic Signs Manual and Road Signs Note No. 13, Roadworks (CSRA-CUTA Road Traffic Signs Sub- Committee)

Should the Contractor require a road to be closed, he shall obtain provisional permission from the Engineer at least three weeks prior to the work being undertaken and shall only proceed with the work once the final permission has been obtained from the Engineer.

C3.5.1.7 Recording of Weather

The Contractor shall record all rainy and windy weather that may adversely affect the contractual time for completion.

C3.5.1.8 Format of Communications and Reporting

All communication shall be channelled through the Engineer or his duly appointed representative.

Throughout the construction period the Contractor shall supply and maintain the following documentation that shall be kept on site, accessible to both the Contractor and the Engineer at all times:

a) Site Instruction Book: For the Contractor to provide the Engineer or Engineer's Representative with information required, The Contractor shall, for the duration of the contract, take appropriate measures to the Contractor.

b) Safety File containing the site and safety hierarchy, contact details, safety plan, audits, safety equipment and all other relevant safety data.

c) Quality Control File containing Quality Assurance and Quality Control Forms to be operated and maintained by the Contractor.

d) Environmental Management Plan Monitoring and Quality Control Forms to be operated and maintained by the Contractor.

e) Measurement File containing records of work measurement and calculations.

e) Daily Register of labour and plant status.

f) Daily Traffic Accommodation inspection, maintenance and incident register.

g) Construction Programme.

The Contractor shall prepare and submit monthly reports in the EPWP formats. These reports shall contain specific information as required under the EPWP Programme and shall be presented in the format required by the Employer. The Contractor shall submit this documentation on dates as specified by the Employer.

C3.5.1.9 Key Personnel

Senior personnel such as the site agent and assistant site agent shall be on site at all times to control and supervise the site activities.

C.3.5.1.10 Daily Records

The Contractor shall submit to the Engineer daily written records of pipe lengths replaced, volume of material removed and other information. This information shall be typed in the format as set out as required by the Engineer. No payment certificate will be issued if these forms are NOT properly completed and signed by the Engineer. The Contractor shall supply this information in an electronic format to the satisfaction of the Engineer.

C3.5.1.11 Payment Certificates

Payment will only be authorised by the Engineer when complete records of the project have been submitted to him and when the records have been certified to represent the actual work done as verified by the Engineer or his duly appointed representative on site.

Payment for Preliminary & General will be paid for as the percentage tendered of the total cost of the work certified per works order.

Payment for removal and establishment costs will only be allowed where the time lapse between the completion of a works order and the issue of a new works order is greater than seven (7) calendar days.

Proof of cost incurred for each occasion is submitted to the Engineer.

The Engineer is satisfied that the removal and re-establishment is warranted.

C3.5.1.12 Insurance Provided by the Contractor

The Contractor must arrange and pay for Contract Works and Public Liability Insurance and for Riot Insurance / Special Risk Insurance of the Works.

C3.5.2 HEALTH AND SAFETY

C3.5.2.1 Health and Safety Requirements and Procedures

The Contractor must compile an OHS Plan and must appoint suitably qualified staff to implement, monitor and manage this plan.

The Contractor shall, for the duration of the contract, take appropriate measures to fully comply with the OHS requirements.

Payment items are included in the Bill of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned regulations.

C3.5.2.2 Protection of the Public

The Contractor shall at all times ensure that his operations do not endanger any member of the public.

As the area is adjacent to residential areas the Contractor shall take special precautions to prevent public access to any danger areas on the Works, e.g. by temporary barricades and/or fencing.

C3.5.2.3 Barricades and Lighting

The requirements for barricades and lighting are set out in PSA 5.2 of this document.

ADD:

The Contractor is to erect Euromesh barricading adjacent to graves where the works is taking place to protect the graves from any damage.

SIYANCUMA LOCAL MUNICIPALITY

CONTRACT: SIYA –T03/2025/26

REFURBISHMENT OF GRIEKWASTAD WASTEWATER TREATMENT WORKS

CONTRACT
PART 4 (OF 4): SITE INFORMATION

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C4 SITE INFORMATION

C4.1 GENERAL

This section describes the site conditions at the time of tender to enable the Tenderer to price the works appropriately, plan construction methods, and assess associated risks.

C4.2 SITE LOCATION

The site is located directly south of Griekwastad Town, within the Siyancuma Local Municipality, Northern Cape Province. It lies approximately 150 km west of Kimberley, along the main route connecting Kimberley and Upington.

C4.3 ACCESS TO SITE AND RESTRICTIONS

Access to the Griekwastad Wastewater Treatment Works is via an existing municipal gravel road, which connects to the provincial road network. This road currently serves local agricultural and municipal operations and shall be upgraded under this contract.

The site is located on municipal land designated for wastewater treatment purposes. The Contractor shall adhere to any access conditions imposed by the Employer or relevant authorities and ensure that the site is restored to its original condition upon completion of the works.

C4.4 EXISTING SERVICES, SERVITUDES AND WAYLEAVES

The site contains existing oxidation ponds, damaged infrastructure, and three groundwater monitoring boreholes. The Contractor shall take all necessary precautions to protect these services during construction.

All permits, wayleaves, and approvals required for working near or over existing services shall be obtained by the Contractor. Reference must be made to the relevant project specifications for detailed requirements.

C4.5 SECURITY

The Contractor shall be fully responsible for the security of personnel, materials, equipment, and plant on and around the site. The Employer shall not be held liable for any losses or damages incurred due to theft, vandalism, or other security-related incidents.

C4.6 NATURE OF GROUND AND SUBSOIL CONDITIONS

A preliminary geotechnical assessment was conducted as part of the site investigations for the refurbishment of the Griekwastad Wastewater Treatment Works.
Key observations include:

- The site is relatively flat, which is favourable for gravity-driven wastewater treatment processes.
- However, poor drainage and variable soil conditions were noted, which may affect construction activities, particularly the installation of Geosynthetic Clay Liners (GCLs) in the oxidation ponds.
- The existing oxidation ponds have experienced embankment erosion, and the lining membranes are damaged, indicating potential subsoil instability or inadequate compaction.
- The report recommends that the Contractor conduct further detailed geotechnical investigations prior to construction to confirm:
    - Soil bearing capacity for foundations and structures.

- Suitability of in-situ materials for reuse.
- Requirements for subgrade preparation and compaction.
- Potential for differential settlement or seepage.

The Contractor shall make provision in their tender for working in variable and potentially challenging ground conditions and shall be responsible for any additional investigations required to finalise design and construction methods.

C4.7 GEOTECHNICAL REPORT AND BOREHOLE CORES

A geotechnical investigation has been conducted for the Griekwastad Wastewater Treatment Works site. The findings are summarised below:

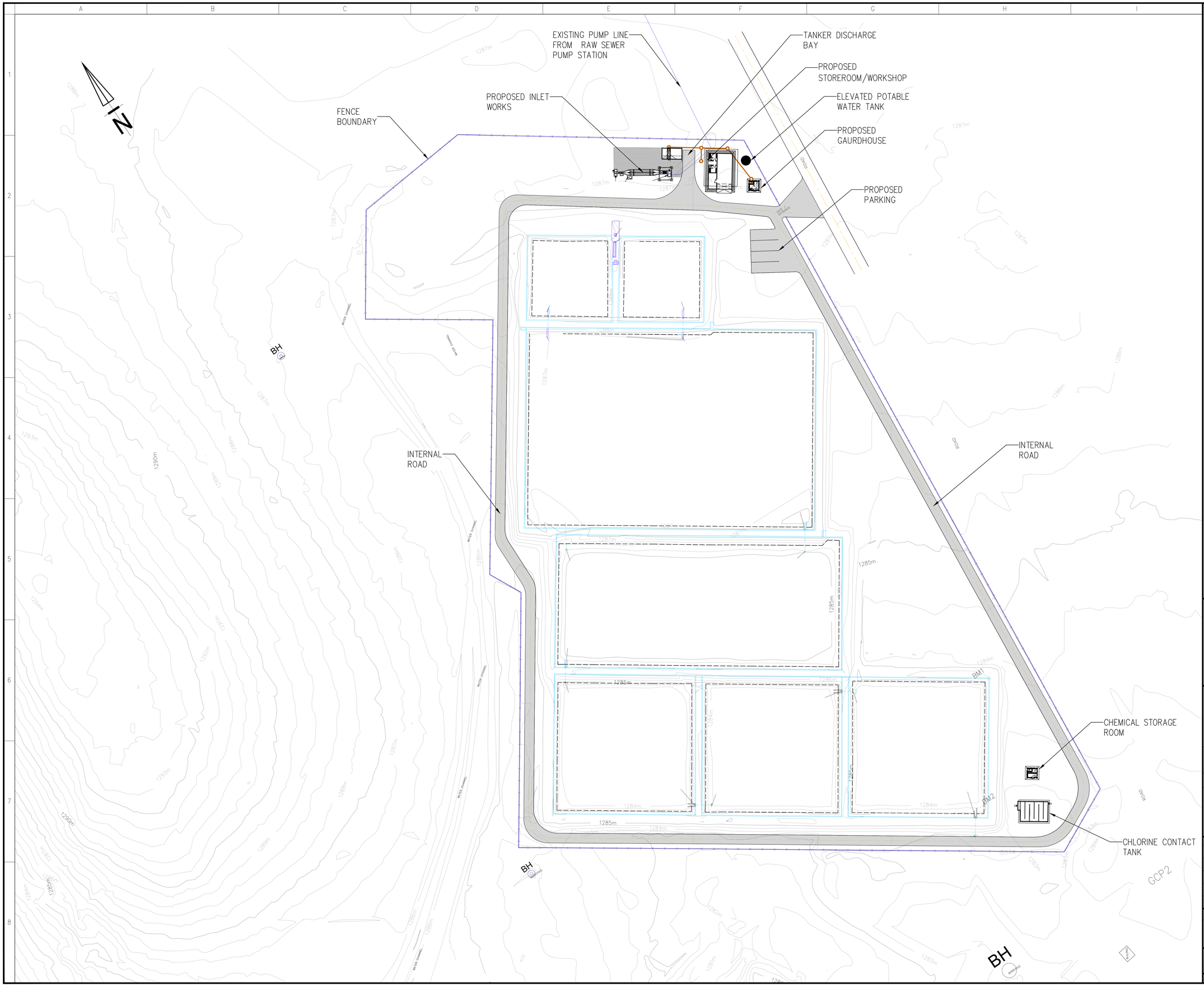
- The site is generally flat, which is favourable for wastewater treatment operations.
- However, poor drainage and variable soil conditions were observed, which may pose challenges for construction, particularly for the installation of Geosynthetic Clay Liners (GCLs) in the oxidation ponds.
- The report recommends a detailed geotechnical assessment prior to final design and construction to confirm soil stability and bearing capacity.
- Three groundwater monitoring boreholes are located on-site. These must be protected throughout the construction period and considered in the final design to ensure compliance with environmental regulations.

The geotechnical findings should be used to inform foundation design, pond lining specifications, and any excavation or earthworks planning.

C4.8 HYDROLOGICAL REPORT

No hydrological reports are available for the site. The Contractor shall consider local rainfall patterns, surface runoff, and groundwater conditions when planning construction activities.

DRAWINGS



CLIENT

SIYANCUMA
LOCAL MUNICIPALITY

P.O BOX 27

DOUGLAS

TEL: (053) 298 1810

www.siyancuma.co.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED

CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: OVERALL PLANT LAYOUT PLAN

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

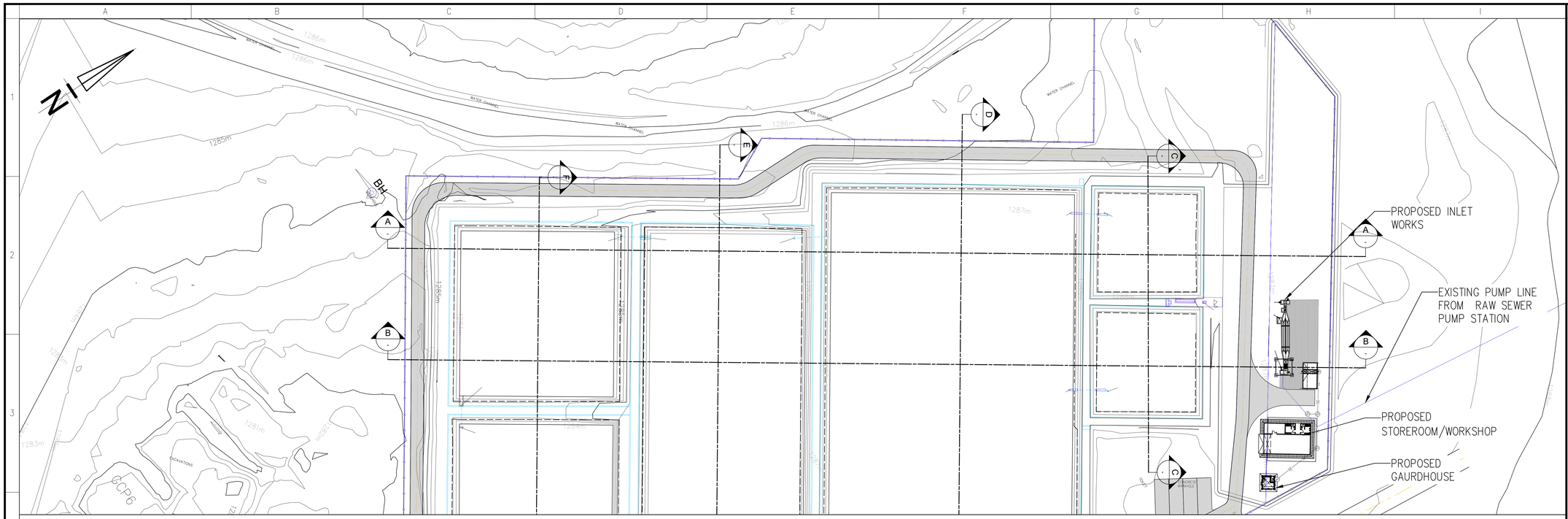
SAMEX DRAWING NUMBER

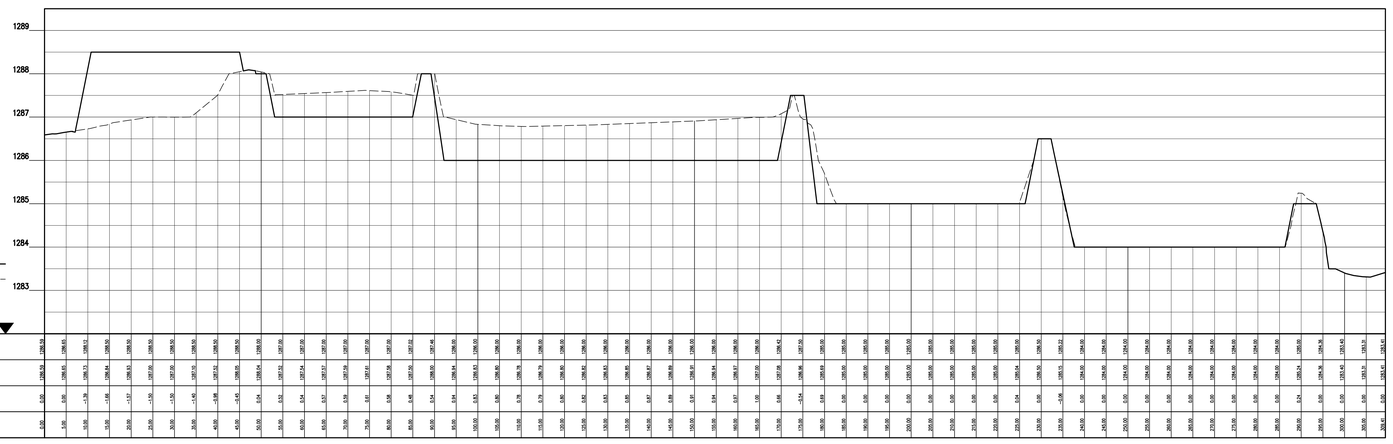
SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323	- 01	- GA	- 001	- T	- 00

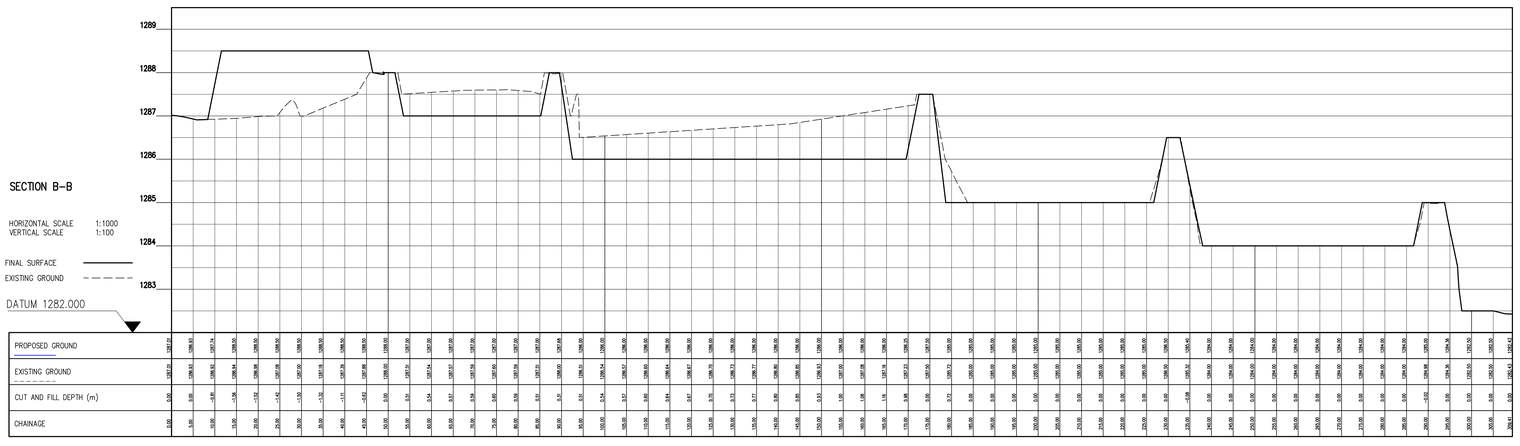
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: 1:500

SHEET SIZE: A0







CLIENT

SIYANCUMA
LOCAL MUNICIPALITY
P.O BOX 27
DOUGLAS
TEL: (053) 298 1810
www.siyancuma.co.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED

CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: EXISTING PONDS LAYOUT AND LONG SECTION DETAILS (SHEET 1 OF 2)

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

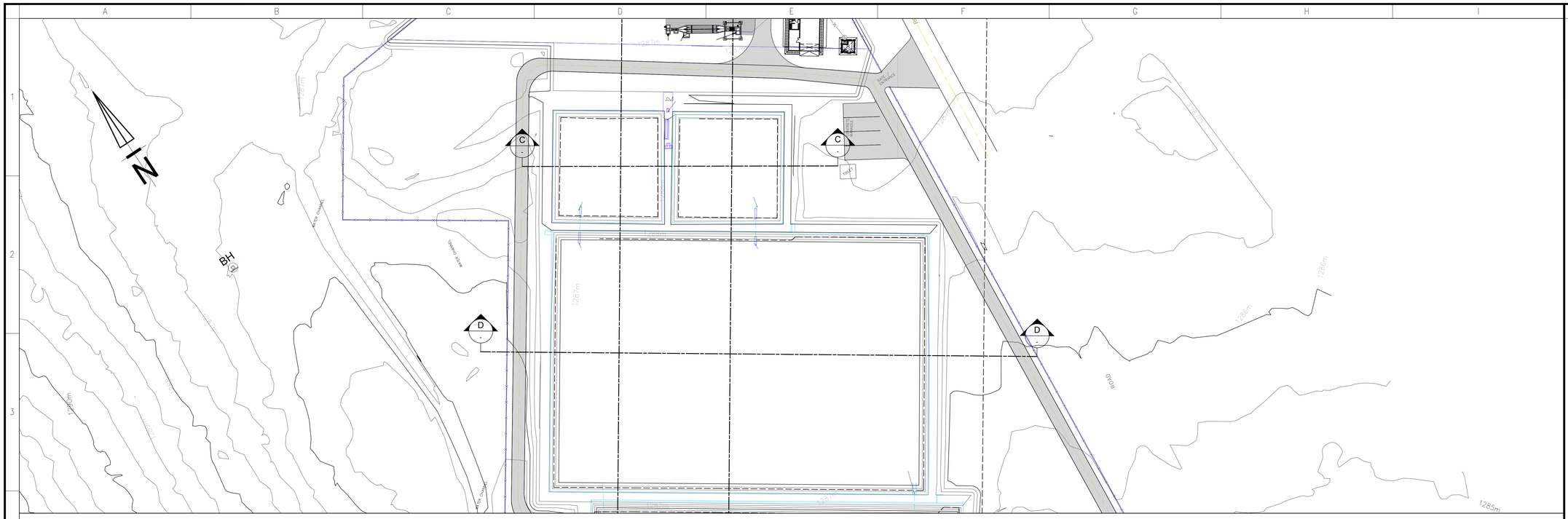
SAMEX DRAWING NUMBER

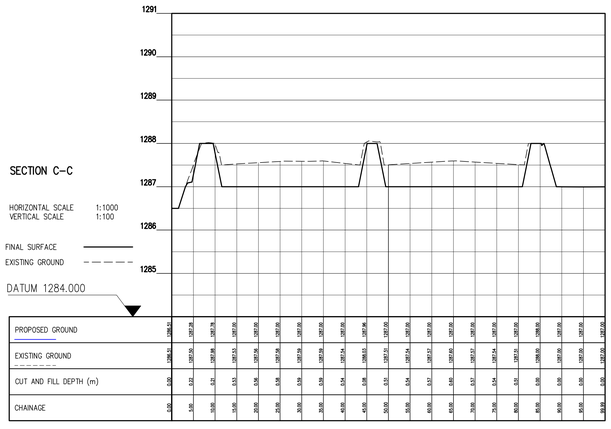
SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 –	01 –	PDLL –	001	– T –	00

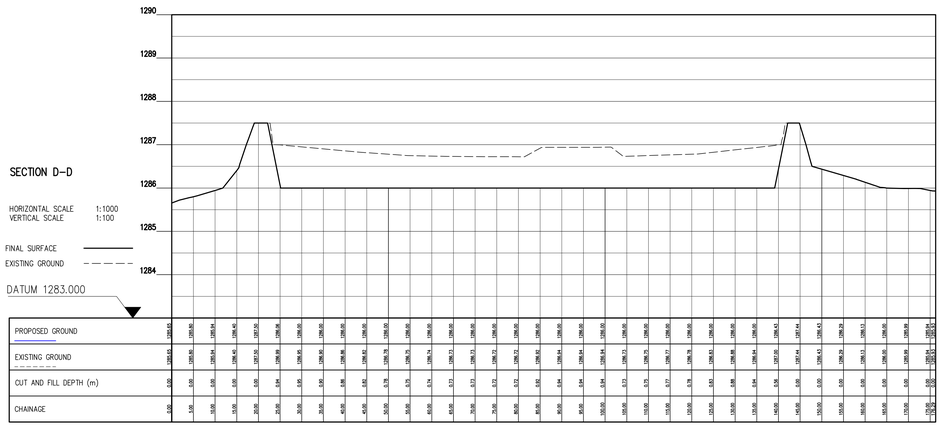
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: 1:500

SHEET SIZE: A0







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PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: EXISTING PONDS LAYOUT AND LONG SECTION DETAILS (SHEET 2 OF 2)

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	PDLL -	002	- T -	00

DRAWING STATUS CODES :
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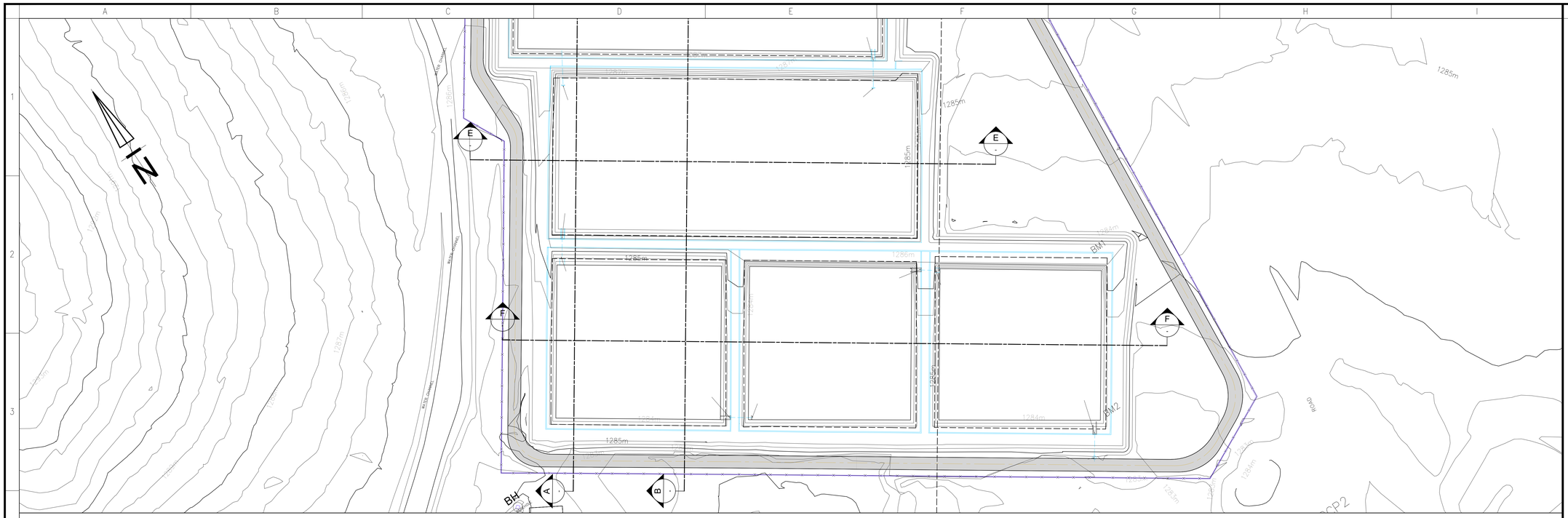
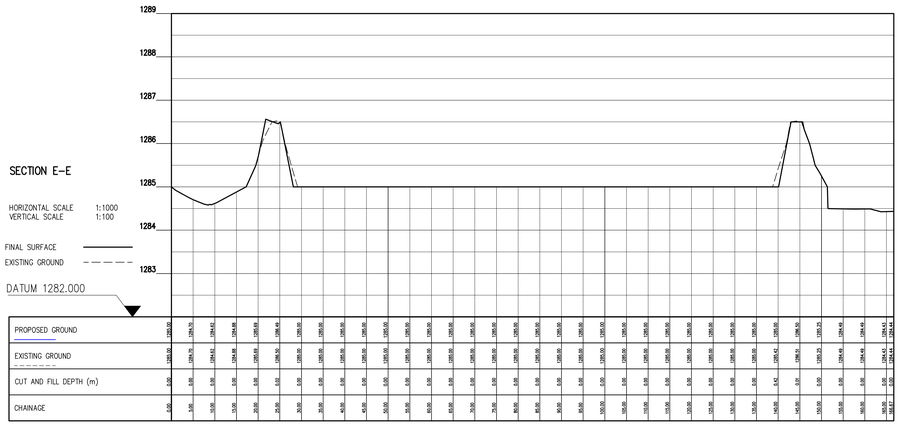
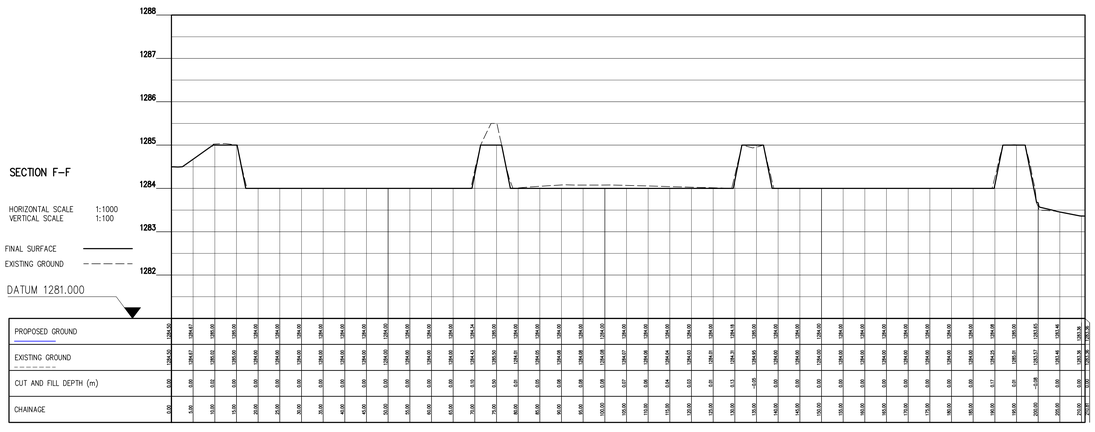
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: 1:500

SHEET SIZE: A0







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6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
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PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: EXISTING PONDS LAYOUT AND LONG SECTION DETAILS (SHEET 3 OF 3)

	RESPONSIBLE PERSON	DATE
DRAW	LN	10/2025
CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	NQ	10/2025
PROJECT MANAGER		
APPROVED		

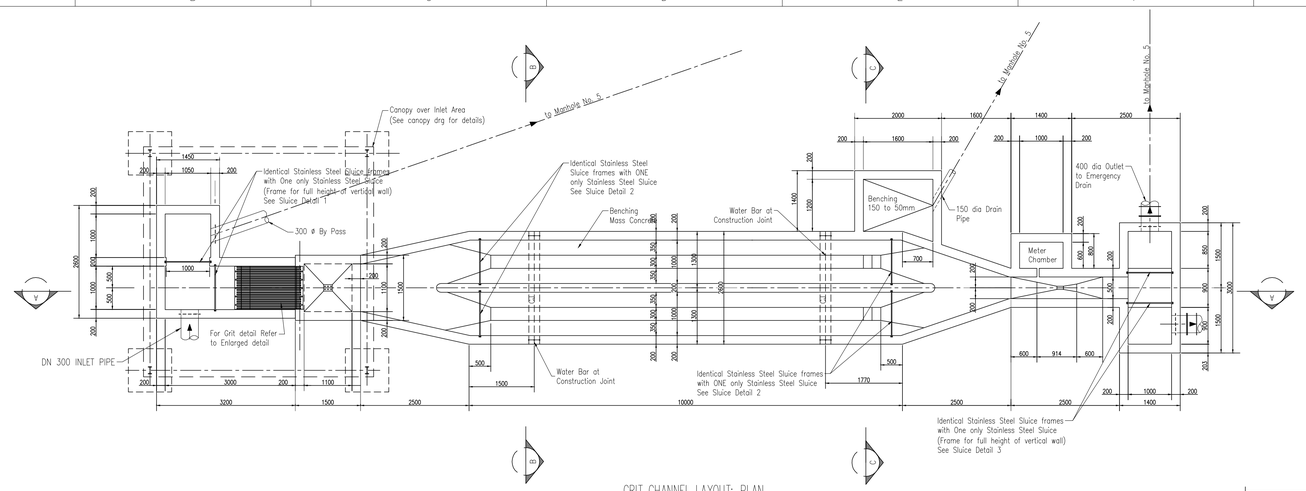
SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323	01	PDLL	003	T	00

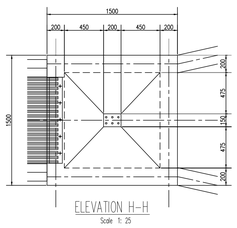
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: 1:500

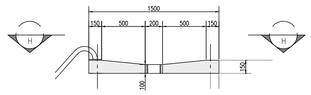
SHEET SIZE: A0



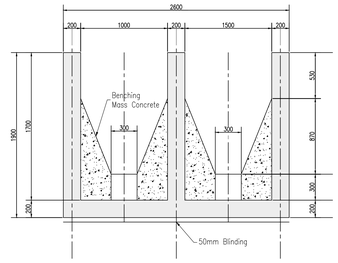
GRIT CHANNEL LAYOUT: PLAN
Scale 1: 50



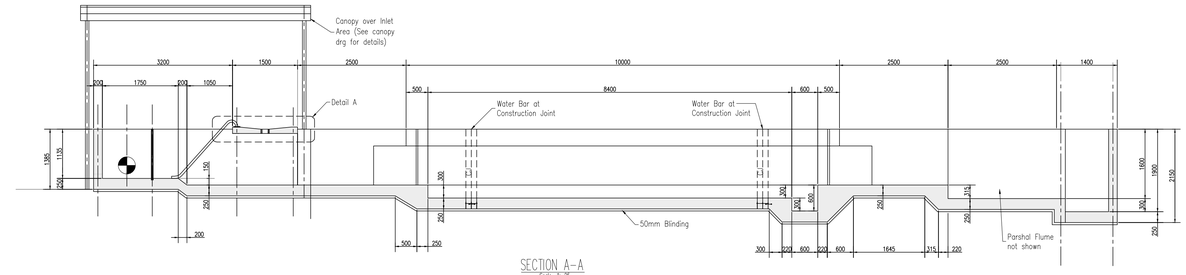
ELEVATION H-H
Scale 1: 25



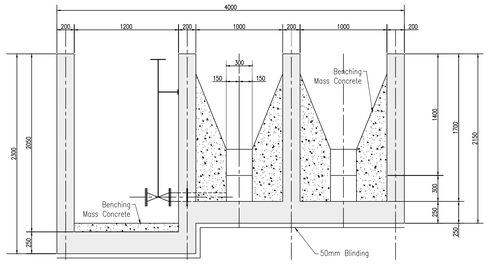
ENLARGED DETAIL A
Scale 1: 25



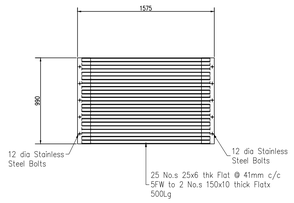
SECTION B-B
Scale 1: 25



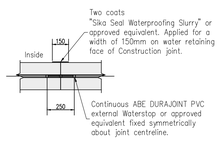
SECTION A-A
Scale 1: 25



SECTION C-C
Scale 1: 25

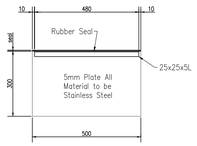


GRID LAYOUT: ELEVATION DETAIL
Scale 1: 25

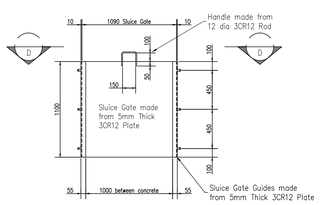


CONSTRUCTION JOINT (CJ) LAYOUT
SECTION DETAIL IN WALL & BASE
Scale 1:10

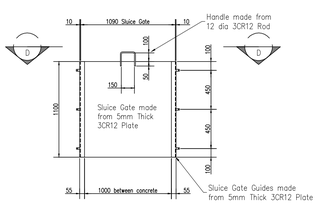
PLAN ON STOP LOCK
Scale 1: 5



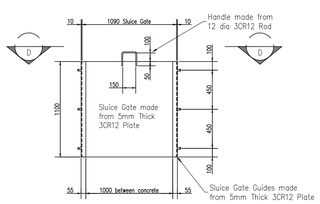
STOP LOCK DETAIL
Scale 1: 10



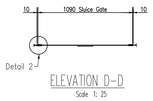
SLUICE GATE DETAIL 1
Scale 1: 25



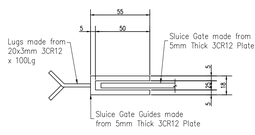
SLUICE GATE DETAIL 2
Scale 1: 25



SLUICE GATE DETAIL 3
Scale 1: 25



ELEVATION D-D
Scale 1: 25



ENLARGED DETAIL 2
Scale 1: 2

NOTES

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4. ALL CONCRETE SIZES DO NOT INCLUDE FINISHES U.N.O
5. CONCRETE FINISHES AS SPECIFIED IN THE CONTRACT DOCUMENTS OR AS SHOWN.
6. PROVIDE 150mm KICKERS FOR COLUMNS AND WALLS. THESE ARE TO BE CAST WITH SAME STRENGTH AS AND MONOLITHIC WITH CONCRETE ELEMENTS BELOW THEM.
7. FOR DESCRIPTIVE NOTES AND PROCEDURES REFER TO DRAWING No.

CLIENT

SIYANCUMA LOCAL MUNICIPALITY
PO BOX 27
DOUGLAS, 8730
TEL: (053) 298 1810
www.siyancuma.gov.za

CONSULTANT

SAMEX CONSULTING ENGINEERING DEFINED
CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: PROPOSED INLET WORKS

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	HWST -	001	- T -	00

DRAWING STATUS CODES :
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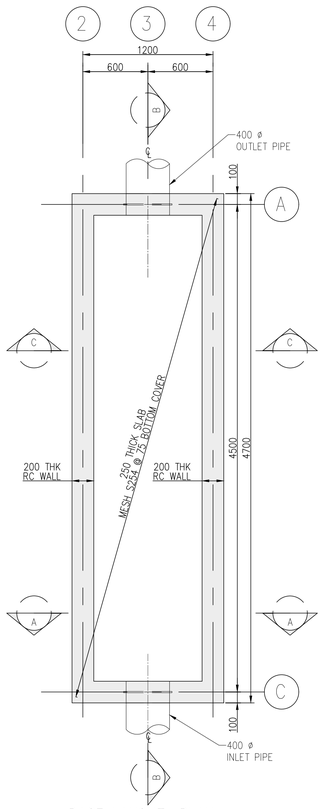
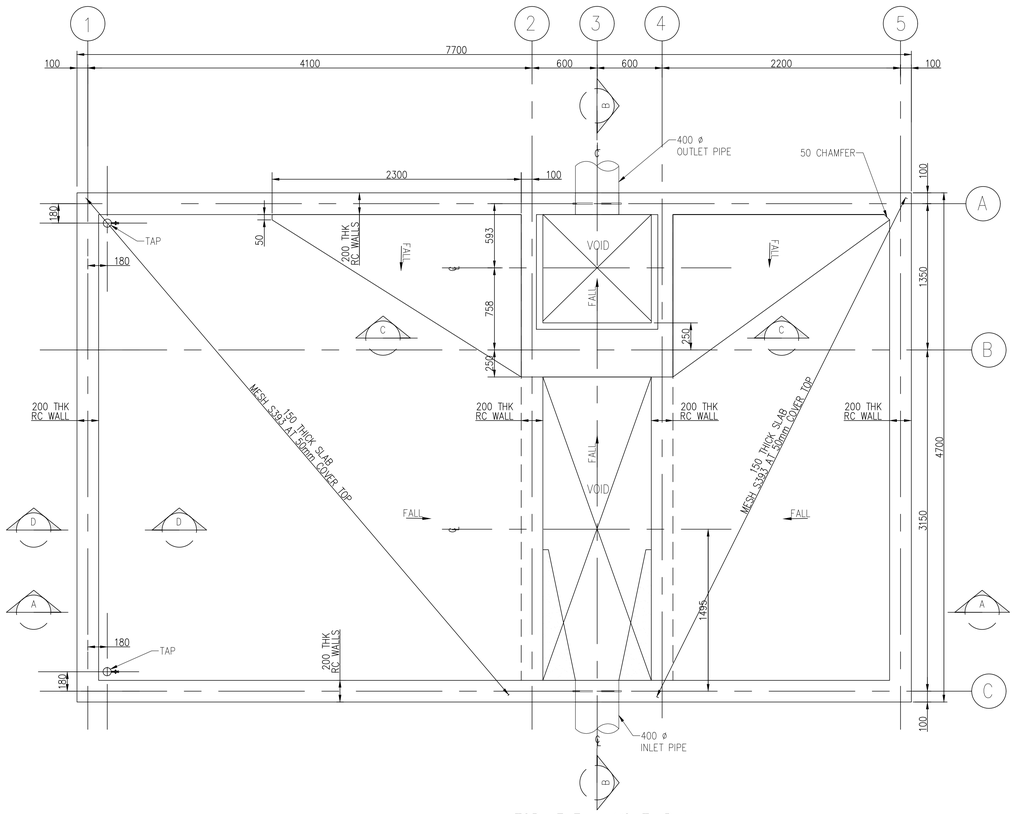
SCALE: AS SHOWN

SHEET SIZE: A0



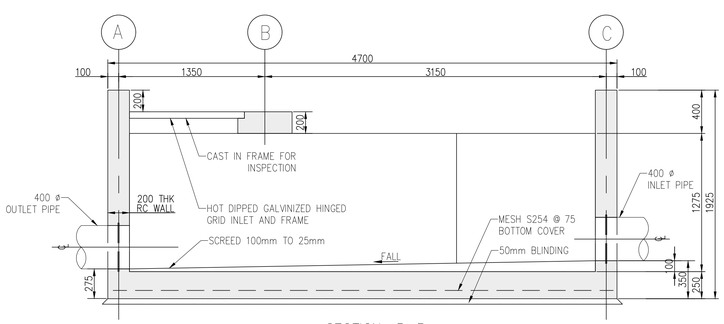
BASE LAYOUT: PLAN

SCALE: 1:25



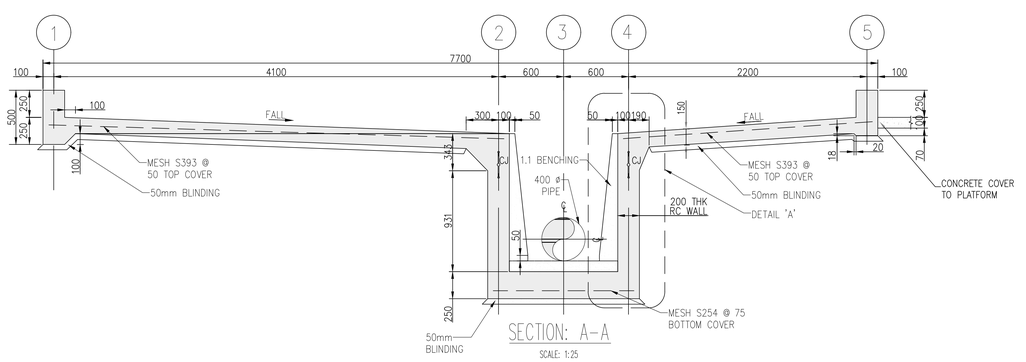
TOP LEVEL LAYOUT: PLAN

SCALE: 1:25



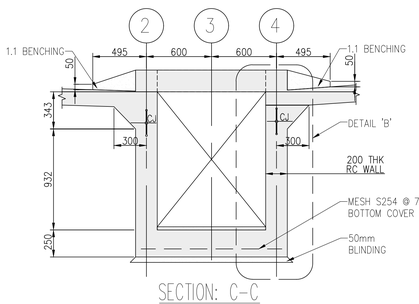
SECTION: B-B

SCALE: 1:25



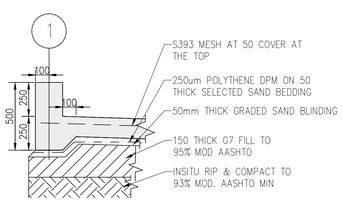
SECTION: A-A

SCALE: 1:25



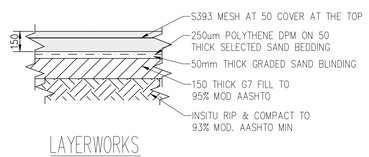
SECTION: C-C

SCALE: 1:25



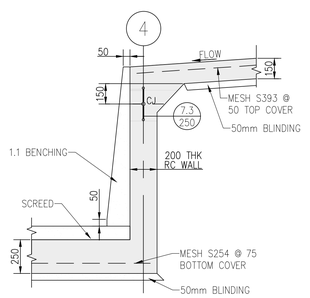
SECTION: D-D

SCALE: 1:20



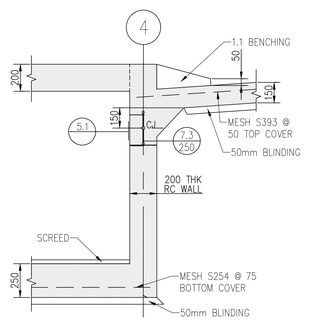
LAYERWORKS
UNDER THE SLAB

Scale 1: 10



DETAIL 'A'

SCALE: 1:20



DETAIL 'B'

SCALE: 1:20

NOTES

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TEL: (053) 298 1810

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PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: GRIT REMOVAL CHANNEL DISPOSAL FACILTY FOR NIGHT SOIL BUCKETS

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

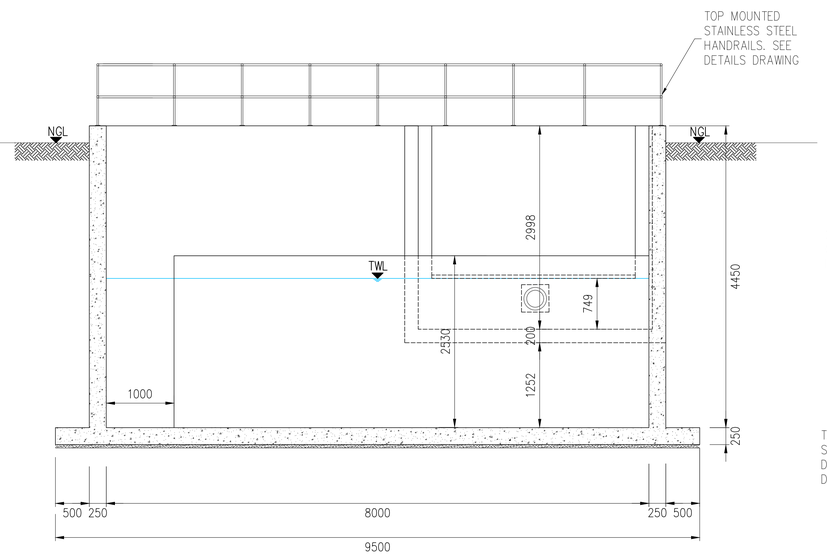
SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	HWST -	002	- T	- 00

DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

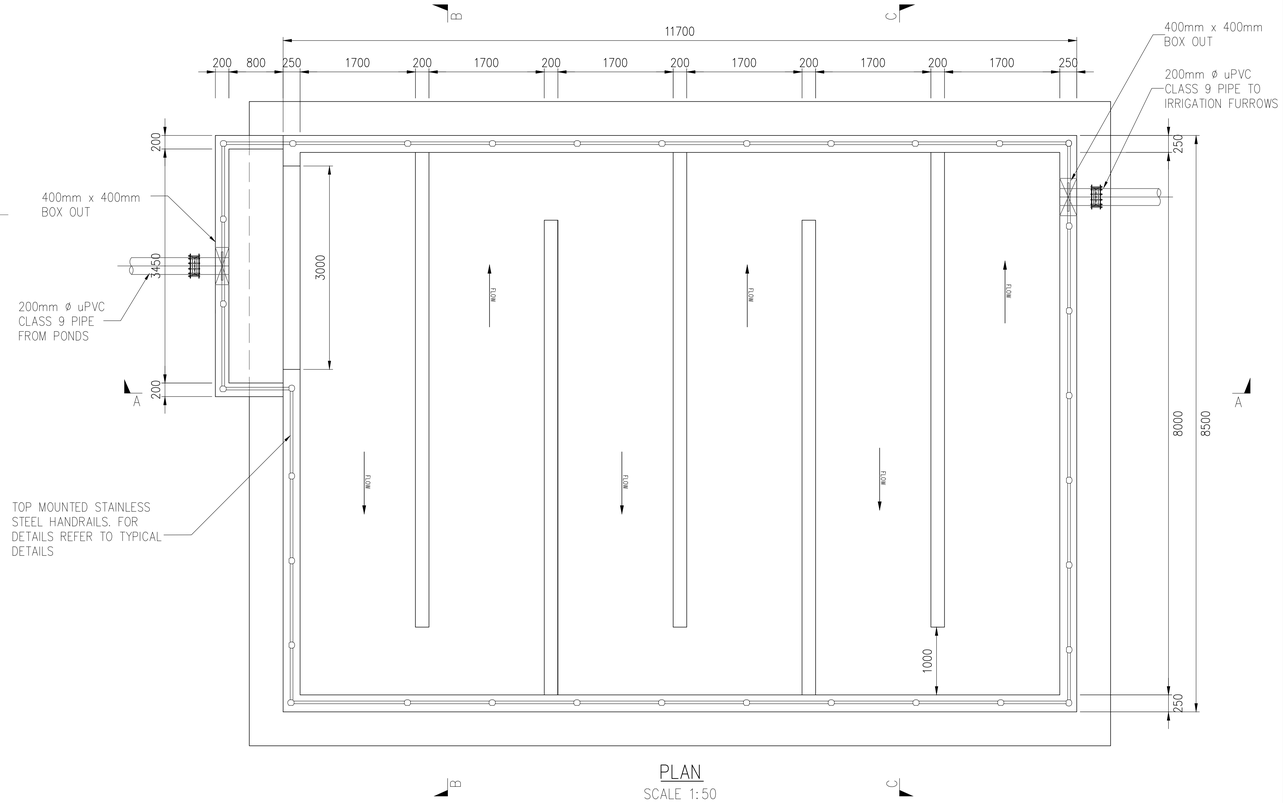
SCALE: AS SHOWN

SHEET SIZE: A0



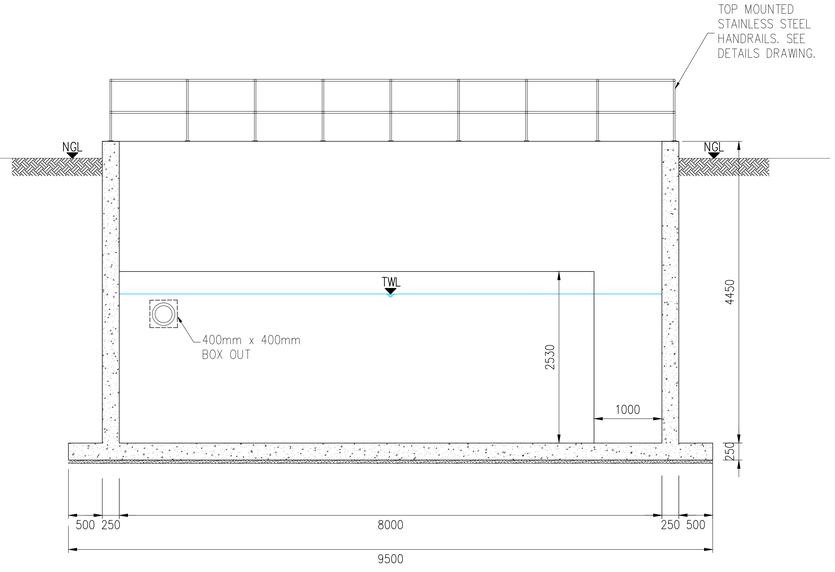
SECTION B – B

SCALE 1:50



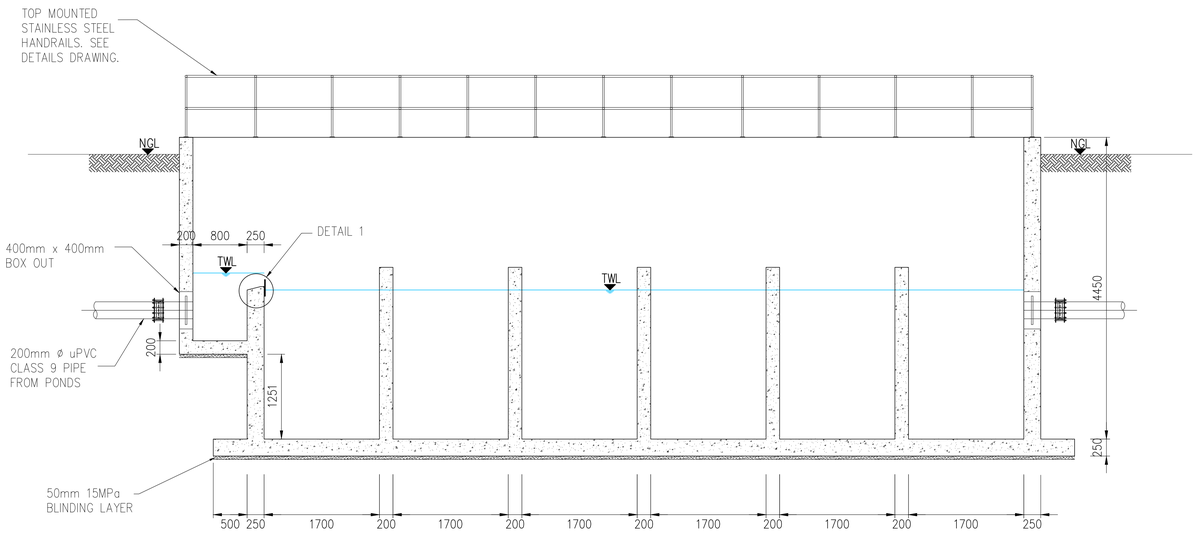
PLAN

SCALE 1:50



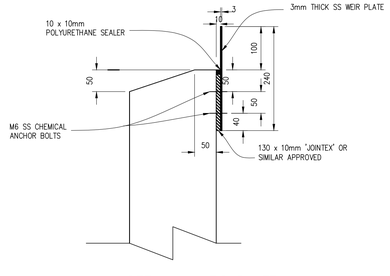
SECTION C–C

SCALE 1:50



SECTION A–A

SCALE 1:50



DETAIL 1: WEIR PLATE

SCALE 1:5

GENERAL NOTES:

1) ALL DIMENSIONS AND LEVELS ON THE DRAWINGS ARE SUBJECT TO CONFIRMATION BEFORE CONSTRUCTION COMMENCES AND ANY DISCREPANCIES ARE TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
2) ALL EXCAVATIONS AND FOUNDATIONS TO BE CHECKED AND APPROVED BY THE ENGINEER OR HIS DELEGATED SPECIALIST GEOTECHNICAL ENGINEER BEFORE ANY CONCRETE IS CAST.
3) CONCRETE CHARACTERISTICS (AT 28 DAYS):

STRUCTURAL (ALL REINF. CONCRETE)	25MPa/19mm
WATER RETAINING	35MPa/19mm
BENCHING	20MPa/19mm
WALL FOOTINGS	15MPa/19mm
THRUST BLOCKS	15MPa/19mm
ENCASEMENT	20MPa/19mm
SCREEDS	20MPa/13mm
BLINDING	15MPa/19mm
NO-FINES	15MPa/19mm

4) MINIMUM CONCRETE COVER TO REINFORCEMENT IS 50mm.
5) MINIMUM THICKNESS OF SCREEDS TO BE 25mm

CLIENT

SIYANCUMA LOCAL MUNICIPALITY

PO BOX 27

DOUGLAS, 8730

TEL: (053) 298 1810

www.siyancuma.gov.za

CONSULTANT

SAMEX CONSULTING ENGINEERING DEFINED

CNR JACOBUS SMITH AND WATERWORKS, 6 URBAN CORNER, NEW PARK, KIMBERLEY, 8301

TEL : (053) 285 0222

www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: CHLORINE CONTACT TANK: LAYOUT SECTIONS AND DETAILS

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	CCST -	001	- T -	00

DRAWING STATUS CODES :

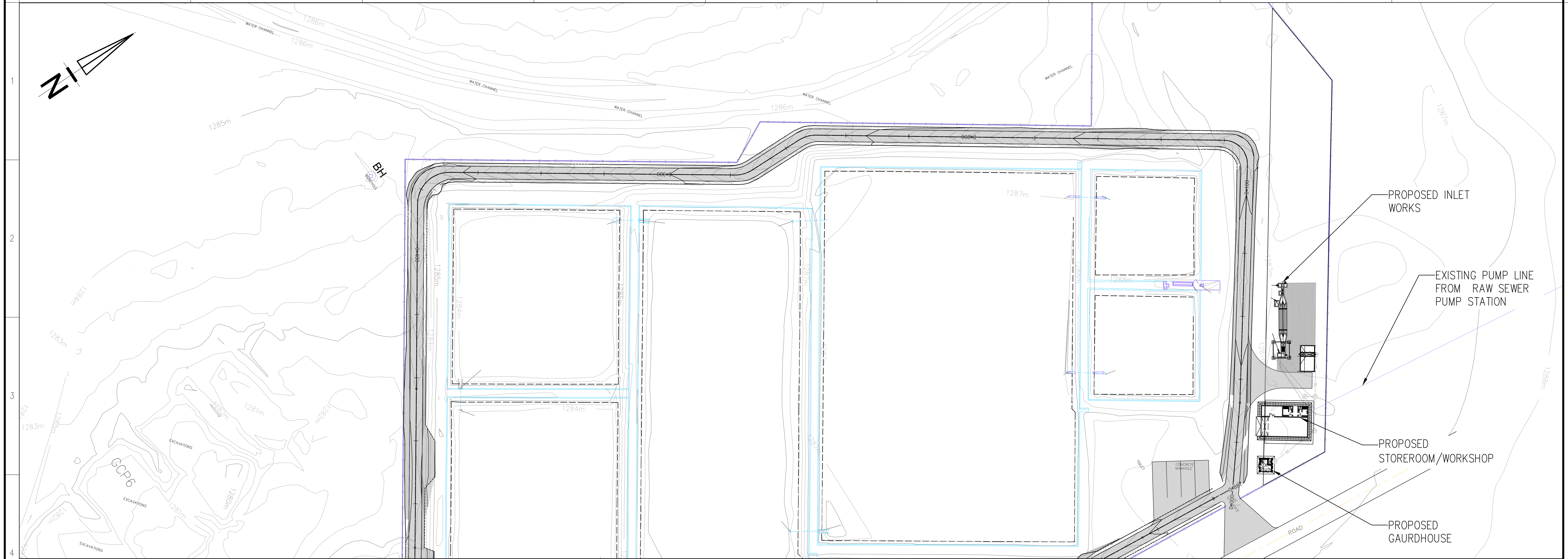
R = REPORT T = TENDER C = CONSTRUCTION

D = DRAFT P = PRELIMINARY A = AS BUILT

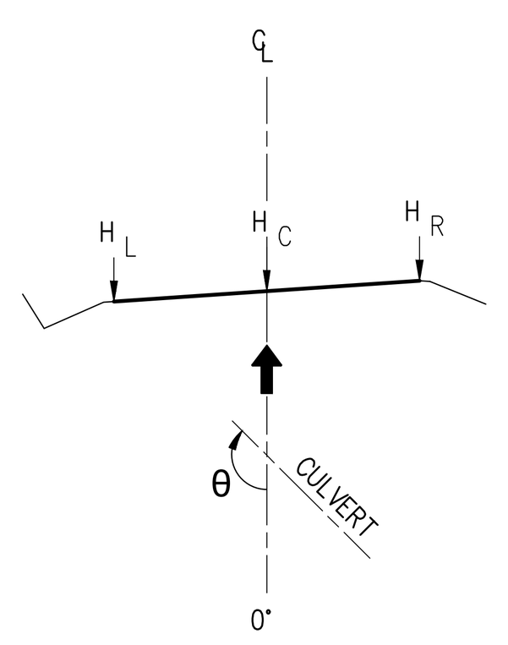
SCALE: AS SHOWN

SHEET SIZE: A0

A | B | C | D | E | F | G | H | I | J

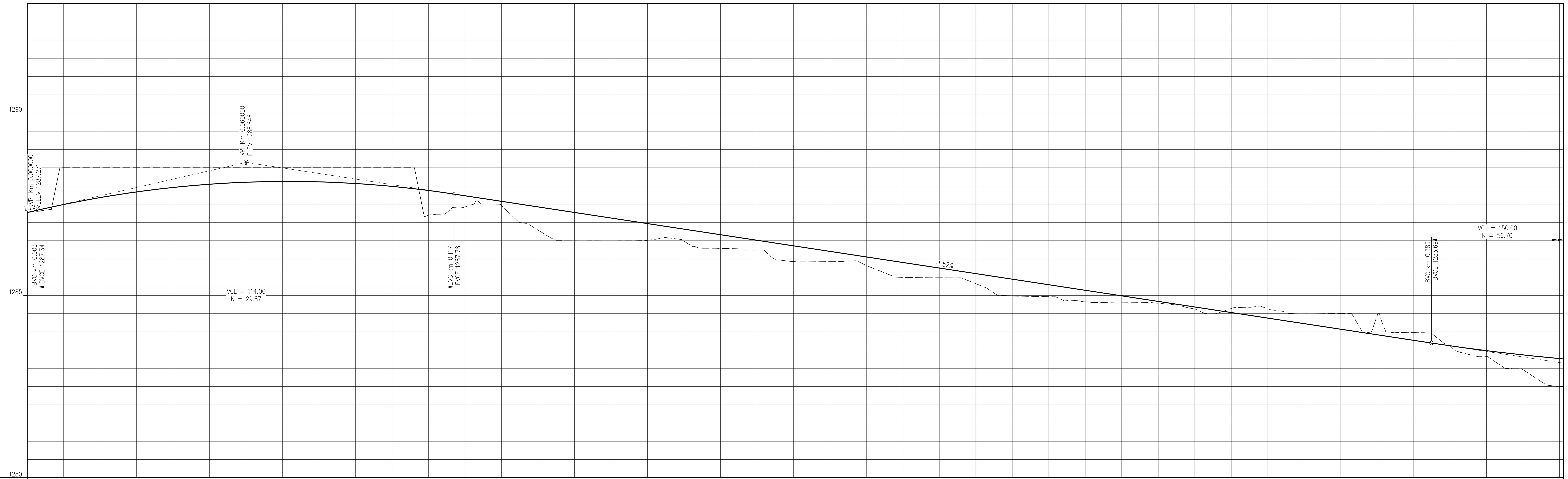


PROPOSED ROAD



PROFILE OF GRADE LINE

SCALE:
HORIZONTAL 1:1000
VERTICAL 1:100



DATUM 1280.000

VERTICAL CURVES / GRADE: VCL=114.0 m, K=29.87; 2.29%; −1.52%; VCL=150.0 m, K=56.70

KILOMETER DISTANCE	0.000	0.010	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.090	0.100
FINAL ROAD LEVELS H_L LEFT		1287.434	1287.621	1287.775	1287.897	1287.985	1288.040	1288.086	1288.074	1288.005	1287.926
FINAL ROAD LEVELS H_C ON CL	1287.271	1287.492	1287.681	1287.836	1287.959	1288.047	1288.102	1288.124	1288.112	1288.067	1287.988
FINAL ROAD LEVELS H_R RIGHT		1287.430	1287.619	1287.798	1287.921	1287.985	1288.064	1288.062	1288.050	1288.029	1287.926
GROUND LEVELS AT GRADE LINE	1287.271	1288.500	1288.500	1288.500	1288.500	1288.500	1288.500	1288.500	1288.500	1288.500	1288.500

KILOMETER DISTANCE	0.110	0.120	0.130	0.140	0.150	0.160	0.170	0.180	0.190	0.200	0.210
FINAL ROAD LEVELS H_L LEFT	1287.820	1287.693	1287.541	1287.389	1287.212	1287.060	1286.931	1286.779	1286.603	1286.450	1286.298
FINAL ROAD LEVELS H_C ON CL	1287.876	1287.731	1287.579	1287.427	1287.274	1287.122	1286.969	1286.817	1286.664	1286.512	1286.359
FINAL ROAD LEVELS H_R RIGHT	1287.837	1287.670	1287.517	1287.365	1287.212	1287.084	1286.907	1286.755	1286.603	1286.474	1286.321
GROUND LEVELS AT GRADE LINE	1287.201	1287.425	1287.465	1286.791	1286.497	1286.496	1286.511	1286.489	1286.289	1286.239	1285.927

KILOMETER DISTANCE	0.220	0.230	0.240	0.250	0.260	0.270	0.280	0.290	0.300	0.310	0.320
FINAL ROAD LEVELS H_L LEFT	1286.145	1286.017	1285.840	1285.689	1285.539	1285.386	1285.231	1285.078	1284.926	1284.797	1284.621
FINAL ROAD LEVELS H_C ON CL	1286.207	1286.055	1285.902	1285.750	1285.597	1285.445	1285.292	1285.140	1284.988	1284.835	1284.683
FINAL ROAD LEVELS H_R RIGHT	1286.169	1285.993	1285.840	1285.709	1285.559	1285.386	1285.231	1285.078	1284.926	1284.773	1284.645
GROUND LEVELS AT GRADE LINE	1285.924	1285.819	1285.495	1285.484	1285.321	1284.982	1284.965	1284.820	1284.795	1284.784	1284.626

KILOMETER DISTANCE	0.330	0.340	0.350	0.360	0.370	0.380	0.390	0.400	0.410	0.420	0.421
FINAL ROAD LEVELS H_L LEFT	1284.469	1284.316	1284.164	1284.011	1283.882	1283.730	1283.556	1283.422	1283.305	1283.205	1283.197
FINAL ROAD LEVELS H_C ON CL	1284.530	1284.378	1284.225	1284.073	1283.921	1283.768	1283.618	1283.483	1283.366	1283.267	1283.258
FINAL ROAD LEVELS H_R RIGHT	1284.492	1284.340	1284.187	1284.035	1283.863	1283.712	1283.556	1283.422	1283.305	1283.205	1283.197
GROUND LEVELS AT GRADE LINE	1284.640	1284.634	1284.492	1284.502	1284.443	1283.979	1283.600	1283.320	1282.960	1282.500	1282.502

HORIZONTAL ALIGNMENT:

From	Element
km 0.000	STRAIGHT L=32.571m 129° 41' 11"
km 0.033	STRAIGHT L=75.557m 126° 42' 34"
km 0.108	R=7.50m L=11.93m Δ=91°06'00"
km 0.120	STRAIGHT L=129.314m 35° 37' 03"
km 0.249	R=10.00m L=5.84m Δ=33°27'20"
km 0.255	STRAIGHT L=17.508m 2° 09' 07"
km 0.273	R=10.00m L=5.81m Δ=33°16'40"
km 0.279	STRAIGHT L=90.534m 35° 25' 46"
km 0.369	R=10.00m L=15.74m Δ=90°10'20"
km 0.385	STRAIGHT L=58.734m 305° 15' 24"

CLIENT

SIYANCUMA LOCAL MUNICIPALITY
P.O BOX 27
DOUGLAS
TEL: (053) 298 1810
www.siyancuma.co.za

CONSULTANT

SAMEX CONSULTING ENGINEERING DEFINED
CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: PROPOSED INTERNAL ROAD LAYOUT AND LONG SECTION DETAIL (SHEET 1 OF 2)

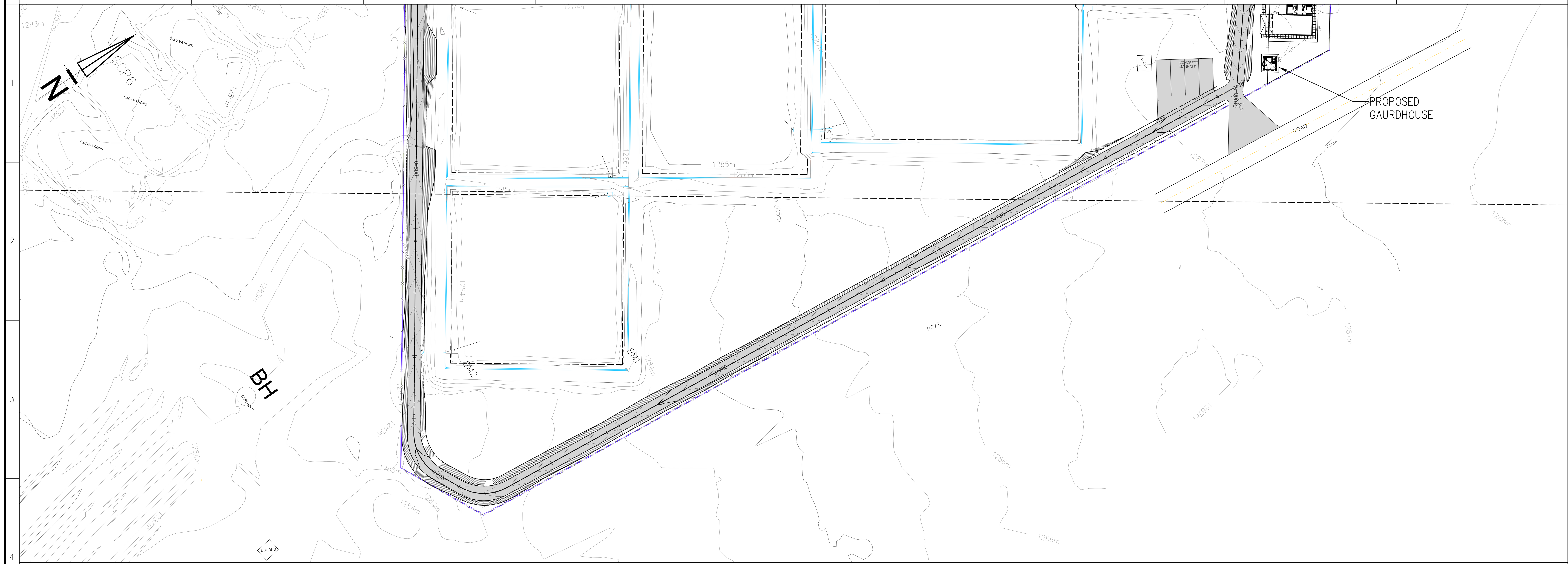
	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

SAMEX DRAWING NUMBER

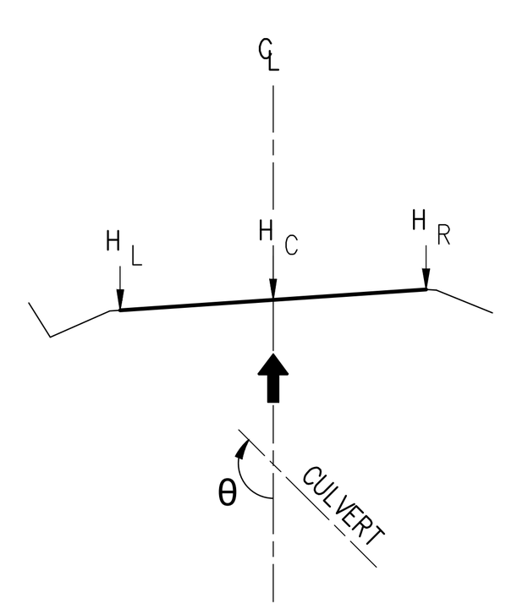
SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323	01	RDLL	001	T	00

DRAWING STATUS CODES : R = REPORT T = TENDER C = CONSTRUCTION D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: AS SHOWN | SHEET SIZE: A0



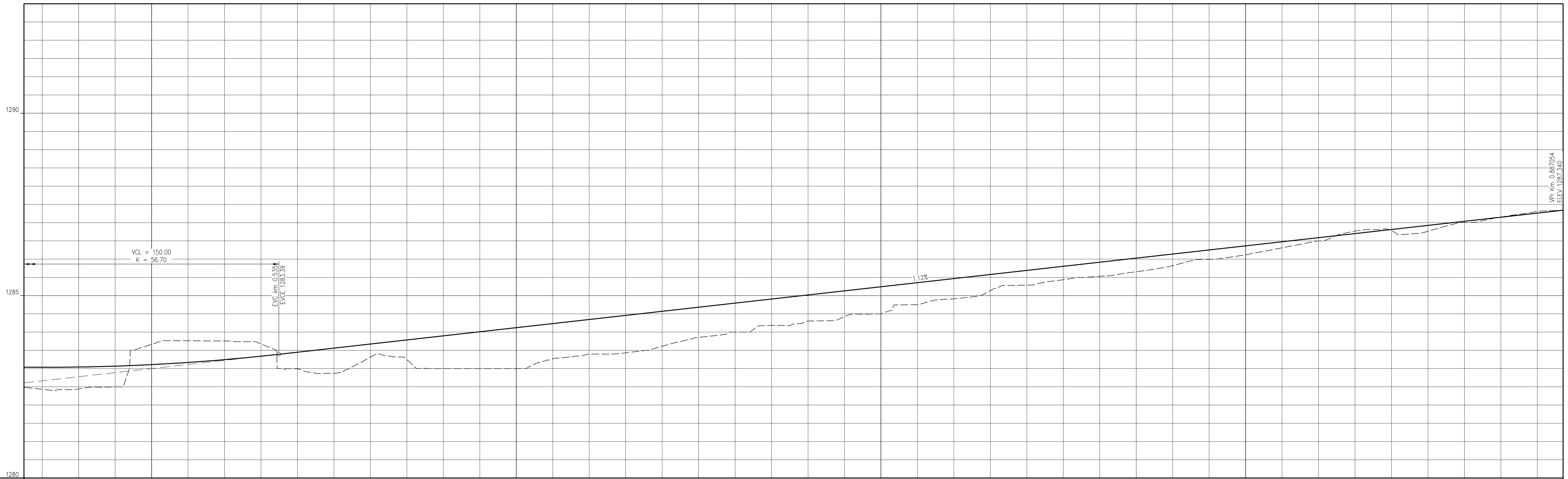
PROPOSED ROAD



PROFILE OF GRADE LINE

SCALE:
HORIZONTAL 1:1000
VERTICAL 1:100

DATUM 1280.000



VERTICAL CURVES / GRADE: VCL=150.0 m, K=56.70; 1.12%

KILOMETER DISTANCE	0.465	0.470	0.480	0.490	0.500	0.510	0.520	0.530	0.540	0.550	0.560
FINAL ROAD LEVELS H_L LEFT	1283.000	1282.997	1283.004	1283.028	1283.046	1283.129	1283.182	1283.277	1283.387	1283.499	1283.611
FINAL ROAD LEVELS H_C ON CL	1283.038	1283.035	1283.042	1283.066	1283.108	1283.167	1283.244	1283.339	1283.449	1283.561	1283.673
FINAL ROAD LEVELS H_R RIGHT	1282.977	1282.973	1282.980	1283.004	1283.046	1283.105	1283.206	1283.301	1283.411	1283.523	1283.635
GROUND LEVELS AT GRADE LINE	1282.487	1282.431	1282.441	1282.499	1283.664	1283.762	1283.756	1283.676	1282.992	1282.874	1283.316

KILOMETER DISTANCE	0.570	0.580	0.590	0.600	0.610	0.620	0.630	0.640	0.650	0.660	0.670
FINAL ROAD LEVELS H_L LEFT	1283.723	1283.836	1283.951	1284.061	1284.175	1284.291	1284.396	1284.508	1284.620	1284.732	1284.868
FINAL ROAD LEVELS H_C ON CL	1283.785	1283.897	1284.009	1284.122	1284.234	1284.346	1284.458	1284.570	1284.682	1284.794	1284.906
FINAL ROAD LEVELS H_R RIGHT	1283.747	1283.836	1283.968	1284.067	1284.181	1284.285	1284.396	1284.508	1284.620	1284.756	1284.845
GROUND LEVELS AT GRADE LINE	1283.243	1283.000	1283.000	1283.000	1283.268	1283.396	1283.432	1283.611	1283.855	1284.000	1284.181

KILOMETER DISTANCE	0.680	0.690	0.700	0.710	0.720	0.730	0.740	0.750	0.760	0.770	0.780
FINAL ROAD LEVELS H_L LEFT	1284.957	1285.093	1285.181	1285.317	1285.405	1285.541	1285.629	1285.742	1285.854	1285.966	1286.102
FINAL ROAD LEVELS H_C ON CL	1285.018	1285.131	1285.243	1285.355	1285.467	1285.579	1285.691	1285.803	1285.915	1286.028	1286.140
FINAL ROAD LEVELS H_R RIGHT	1284.957	1285.069	1285.181	1285.293	1285.405	1285.517	1285.653	1285.742	1285.877	1285.990	1286.078
GROUND LEVELS AT GRADE LINE	1284.304	1284.422	1284.500	1284.751	1284.912	1285.138	1285.287	1285.436	1285.531	1285.653	1285.820

KILOMETER DISTANCE	0.790	0.800	0.810	0.820	0.830	0.840	0.850	0.860	0.870	0.880	0.887
FINAL ROAD LEVELS H_L LEFT	1286.214	1286.302	1286.414	1286.526	1286.639	1286.774	1286.863	1286.975	1287.111	1287.199	
FINAL ROAD LEVELS H_C ON CL	1286.252	1286.364	1286.476	1286.588	1286.700	1286.812	1286.925	1287.037	1287.149	1287.261	1287.340
FINAL ROAD LEVELS H_R RIGHT	1286.190	1286.302	1286.438	1286.526	1286.639	1286.751	1286.863	1286.999	1287.087	1287.199	
GROUND LEVELS AT GRADE LINE	1285.995	1286.117	1286.310	1286.497	1286.770	1286.786	1286.764	1287.003	1287.154	1287.310	1287.340

HORIZONTAL ALIGNMENT

Element	Length / Radius	Bearing / Δ	Start
STRAIGHT	L=50.352m	305° 24' 50"	km 0.444
STRAIGHT	L=30.036m	305° 27' 07"	km 0.494
STRAIGHT	L=36.737m	305° 20' 48"	km 0.524
STRAIGHT	L=18.289m	305° 33' 38"	km 0.561
STRAIGHT	L=5.513m	305° 12' 06"	km 0.579
R=15.00m	L=15.85m	Δ=60°32'00"	
STRAIGHT	L=8.227m	244° 40' 05"	km 0.600
R=15.00m	L=15.35m	Δ=58°37'20"	
STRAIGHT	L=40.368m	186° 02' 48"	km 0.624
STRAIGHT	L=99.974m	186° 04' 26"	km 0.664
STRAIGHT	L=45.498m	186° 03' 38"	km 0.764
STRAIGHT	L=44.728m	186° 15' 51"	km 0.810
STRAIGHT	L=25.796m	186° 09' 23"	km 0.854
STRAIGHT	L=6.814m	186° 38' 41"	km 0.880

CLIENT

SIYANCUMA LOCAL MUNICIPALITY
P.O BOX 27
DOUGLAS
TEL: (053) 298 1810
www.siyancuma.co.za

CONSULTANT

SAMEX CONSULTING — ENGINEERING DEFINED
CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: PROPOSED INTERNAL ROAD LAYOUT AND LONG SECTION DETAIL (SHEET 2 OF 2)

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

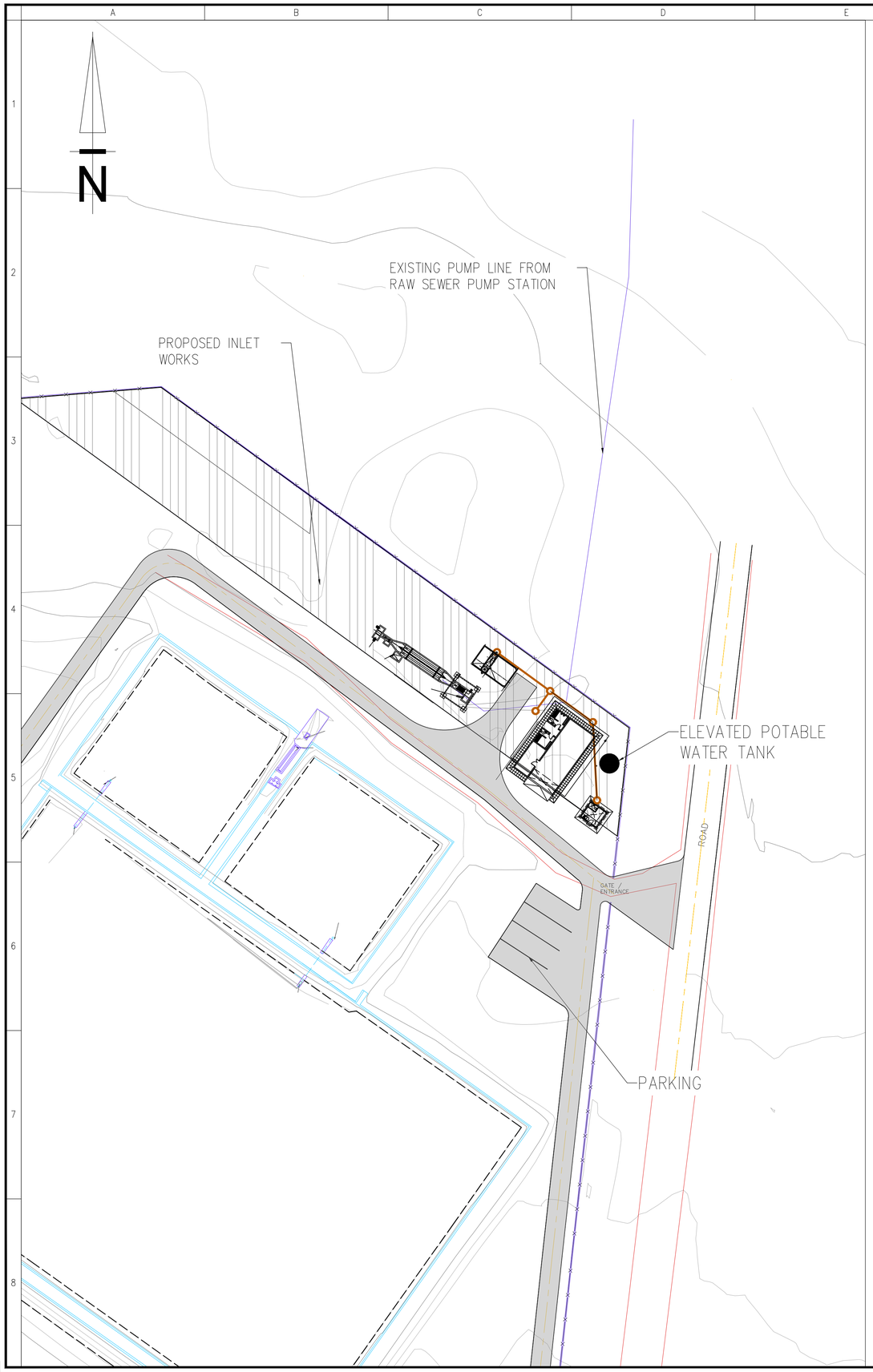
SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	RDLL -	002 -	T -	00

DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: AS SHOWN

SHEET SIZE: A0

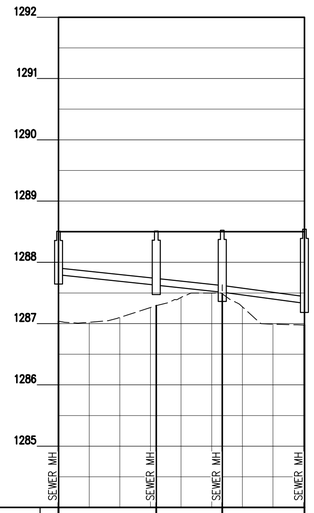


SEWER RETICULATION
LS–BRANCH 15

HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:100

FINAL SURFACE
EXISTING GROUND

DATUM 1284.000



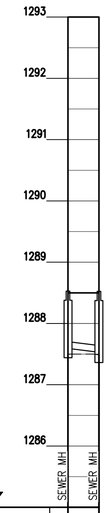
STRUCTURE NAME	MH1	MH2	MH4	MH5
INVERT LEVELS	1287.797	1287.627	1287.513	1287.332
COVER TO PIPE	0.598	0.771	0.900	1.097
GROUND LEVEL	1288.507	1288.511	1288.524	1288.541
CHAINAGE (m)	0.000	15.953	26.721	40.128
PIPE DATA		15.953m 1: 93.92 1.065%	10.769m 1: 93.92 1.065%	13.407m 1: 74.39 1.344%
PIPE DETAILS		P1: 110 ø uPVC CLASS 'B' BEDDING	P2: 110 ø uPVC CLASS 'B' BEDDING	P4: 110 ø uPVC CLASS 'B' BEDDING

SEWER RETICULATION
LS–BRANCH 16

HORIZONTAL SCALE 1:1000
VERTICAL SCALE 1:100

FINAL SURFACE
EXISTING GROUND

DATUM 1285.000



STRUCTURE NAME	MH3	MH4
INVERT LEVELS	1287.594	1287.529
COVER TO PIPE	0.822	0.883
GROUND LEVEL	1288.528	1288.524
CHAINAGE (m)	0.000	5.046
PIPE DATA		5.046m 1: 77.96 1.283%
PIPE DETAILS		P3: 110 ø uPVC CLASS 'B' BEDDING

NOTES

CLIENT

SIYANCUMA
LOCAL MUNICIPALITY
PO BOX 27
DOUGLAS, 8730
TEL: (053) 298 1810
www.siyancuma.gov.za

CONSULTANT

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PROJECT
GRIEKWASTAD WASTEWATER
TREATMENT WORKS

DISCIPLINE
WASTE WATER MANAGEMENT

DRAWING TITLE
SITE
SEWER

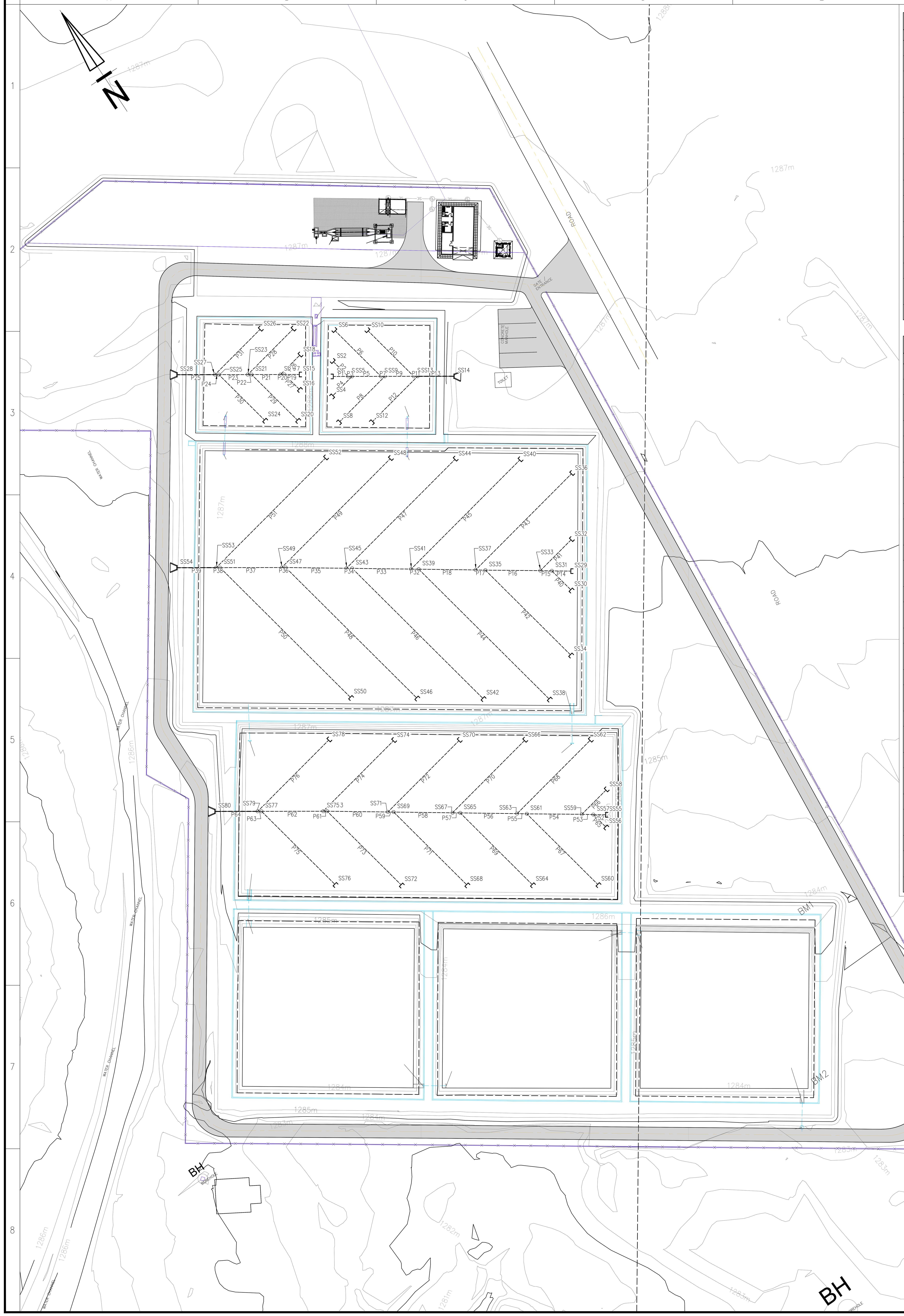
	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	07/2025
DESIGN	LN	07/2025
DESIGN CONTROL	LN	07/2025
PROJECT MANAGER	NQ	07/2025
APPROVED		

SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 –	01 –	SELL –	001	– R –	00

DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: AS SHOWN
SHEET SIZE: A1



STRUCTURE DATA: SUBSOIL

NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
SS1	SUBSOIL END CAP	-24140.400	3194728.135	DEPTH = 0.500m P1 INV OUT = 1286.500
SS2	SUBSOIL END CAP	-24143.036	3194724.489	DEPTH = 0.494m P2 INV OUT = 1286.506
SS3	SUBSOIL NODE	-24144.164	3194730.749	DEPTH = 0.325m P1 INV IN = 1286.485 P2 INV IN = 1286.485 P3 INV OUT = 1286.485
SS4	SUBSOIL END CAP	-24136.956	3194732.899	DEPTH = 0.491m P4 INV OUT = 1286.509
SS5	SUBSOIL NODE	-24145.137	3194731.424	DEPTH = 0.325m P3 INV IN = 1286.481 P4 INV IN = 1286.481 P5 INV OUT = 1286.481
SS6	SUBSOIL END CAP	-24148.879	3194717.026	DEPTH = 0.483m P6 INV OUT = 1286.517
SS7	SUBSOIL NODE	-24152.382	3194736.456	DEPTH = 0.325m P5 INV IN = 1286.451 P6 INV IN = 1286.451 P7 INV OUT = 1286.451
SS8	SUBSOIL END CAP	-24134.151	3194740.593	DEPTH = 0.488m P8 INV OUT = 1286.512
SS9	SUBSOIL NODE	-24153.358	3194737.130	DEPTH = 0.325m P7 INV IN = 1286.447 P8 INV IN = 1286.447 P9 INV OUT = 1286.447
SS10	SUBSOIL END CAP	-24157.111	3194722.820	DEPTH = 0.516m P10 INV OUT = 1286.484
SS11	SUBSOIL NODE	-24160.599	3194742.163	DEPTH = 0.325m P9 INV IN = 1286.418 P10 INV IN = 1286.418 P11 INV OUT = 1286.418
SS12	SUBSOIL END CAP	-24142.377	3194746.298	DEPTH = 0.521m P12 INV OUT = 1286.479
SS13	SUBSOIL NODE	-24161.570	3194742.838	DEPTH = 0.325m P11 INV IN = 1286.414 P12 INV IN = 1286.414 P13 INV OUT = 1286.414
SS14	HEADWALL	-24170.774	3194749.241	DEPTH = 0.310m P13 INV IN = 1286.377

PIPE DATA: SUBSOIL

NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P1	110 ø	HDPE SLOTTED DRAINAGE PIPE	4.6 m	SS1 - SS3
P2	110 ø	HDPE SLOTTED DRAINAGE PIPE	6.4 m	SS2 - SS3
P4	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.3 m	SS4 - SS5
P5	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.8 m	SS5 - SS7
P6	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.7 m	SS6 - SS7
P8	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.5 m	SS8 - SS9
P9	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.8 m	SS9 - SS11
P10	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.7 m	SS10 - SS11
P12	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.5 m	SS12 - SS13
P13	110 ø	uPVC CLASS 6	11.2 m	SS13 - SS14

STRUCTURE DATA: SUBSOIL

NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
SS15	SUBSOIL END CAP	-24132.303	3194721.747	DEPTH = 0.500m P19 INV OUT = 1286.500
SS16	SUBSOIL END CAP	-24129.668	3194725.393	DEPTH = 0.494m P27 INV OUT = 1286.506
SS17	SUBSOIL NODE	-24128.539	3194719.133	DEPTH = 0.325m P19 INV IN = 1286.485 P27 INV IN = 1286.485 P20 INV OUT = 1286.485
SS18	SUBSOIL END CAP	-24135.747	3194716.983	DEPTH = 0.491m P26 INV OUT = 1286.509
SS19	SUBSOIL NODE	-24127.567	3194718.458	DEPTH = 0.325m P20 INV IN = 1286.481 P26 INV IN = 1286.481 P21 INV OUT = 1286.481
SS20	SUBSOIL END CAP	-24123.825	3194732.856	DEPTH = 0.483m P29 INV OUT = 1286.517
SS22	SUBSOIL END CAP	-24138.552	3194709.289	DEPTH = 0.488m P28 INV OUT = 1286.512
SS24	SUBSOIL END CAP	-24115.592	3194727.062	DEPTH = 0.517m P30 INV OUT = 1286.483
SS25	SUBSOIL NODE	-24112.105	3194707.719	DEPTH = 0.325m P23 INV IN = 1286.418 P30 INV IN = 1286.418 P24 INV OUT = 1286.418
SS26	SUBSOIL END CAP	-24130.326	3194703.584	DEPTH = 0.521m P31 INV OUT = 1286.479
SS27	SUBSOIL NODE	-24111.132	3194707.044	DEPTH = 0.310m P24 INV IN = 1286.414 P31 INV IN = 1286.414 P25 INV OUT = 1286.414
SS28	HEADWALL	-24101.530	3194700.375	DEPTH = 0.325m P25 INV IN = 1286.375

PIPE DATA: SUBSOIL

NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P19	110 ø	HDPE SLOTTED DRAINAGE PIPE	4.6 m	SS15 - SS17
P20	110 ø	HDPE SLOTTED DRAINAGE PIPE	1.2 m	SS17 - SS19
P21	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.8 m	SS19 - SS21
P23	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.8 m	SS23 - SS25
P25	110 ø	uPVC CLASS 6	11.7 m	SS27 - SS28
P26	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.3 m	SS18 - SS19
P27	110 ø	HDPE SLOTTED DRAINAGE PIPE	6.4 m	SS16 - SS17
P28	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.5 m	SS22 - SS23
P29	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.7 m	SS20 - SS21
P30	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.7 m	SS24 - SS25
P31	110 ø	HDPE SLOTTED DRAINAGE PIPE	19.5 m	SS26 - SS27

STRUCTURE DATA: SUBSOIL

NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
SS29	SUBSOIL END CAP	-24165.897	3194818.417	DEPTH = 0.500m P14 INV OUT = 1285.500
SS30	SUBSOIL END CAP	-24162.611	3194823.071	DEPTH = 0.492m P40 INV OUT = 1285.508
SS31	SUBSOIL NODE	-24161.159	3194815.022	DEPTH = 0.325m P14 INV IN = 1285.481 P40 INV IN = 1285.481 P15 INV OUT = 1285.481
SS32	SUBSOIL END CAP	-24171.422	3194810.594	DEPTH = 0.487m P41 INV OUT = 1285.513
SS33	SUBSOIL NODE	-24158.334	3194812.954	DEPTH = 0.325m P15 INV IN = 1285.469 P41 INV IN = 1285.469 P16 INV OUT = 1285.469
SS34	SUBSOIL END CAP	-24151.158	3194839.288	DEPTH = 0.465m P42 INV OUT = 1285.535
SS35	SUBSOIL NODE	-24144.658	3194803.233	DEPTH = 0.325m P16 INV IN = 1285.413 P42 INV IN = 1285.413 P17 INV OUT = 1285.413
SS36	SUBSOIL END CAP	-24183.056	3194794.120	DEPTH = 0.459m P43 INV OUT = 1285.541
SS37	SUBSOIL NODE	-24142.258	3194801.475	DEPTH = 0.325m P17 INV IN = 1285.403 P43 INV IN = 1285.403 P18 INV OUT = 1285.403
SS38	SUBSOIL END CAP	-24138.100	3194846.600	DEPTH = 0.468m P44 INV OUT = 1285.532
SS39	SUBSOIL NODE	-24128.140	3194791.358	DEPTH = 0.325m P18 INV IN = 1285.345 P44 INV IN = 1285.345 P32 INV OUT = 1285.345
SS40	SUBSOIL END CAP	-24172.525	3194781.642	DEPTH = 0.506m P45 INV OUT = 1285.494
SS41	SUBSOIL NODE	-24126.229	3194789.988	DEPTH = 0.325m P32 INV IN = 1285.337 P45 INV IN = 1285.337 P33 INV OUT = 1285.337
SS42	SUBSOIL END CAP	-24121.614	3194834.901	DEPTH = 0.535m P46 INV OUT = 1285.465
SS43	SUBSOIL NODE	-24111.630	3194779.526	DEPTH = 0.325m P33 INV IN = 1285.278 P46 INV IN = 1285.278 P34 INV OUT = 1285.278
SS44	SUBSOIL END CAP	-24156.406	3194770.171	DEPTH = 0.572m P47 INV OUT = 1285.428
SS45	SUBSOIL NODE	-24110.201	3194778.502	DEPTH = 0.325m P34 INV IN = 1285.272 P47 INV IN = 1285.272 P35 INV OUT = 1285.272
SS46	SUBSOIL END CAP	-24105.128	3194823.202	DEPTH = 0.602m P48 INV OUT = 1285.398
SS47	SUBSOIL NODE	-24095.120	3194767.694	DEPTH = 0.805m P35 INV IN = 1285.210 P48 INV IN = 1285.210 P36 INV OUT = 1285.210
SS48	SUBSOIL END CAP	-24140.287	3194758.701	DEPTH = 0.638m P49 INV OUT = 1285.362
SS49	SUBSOIL NODE	-24094.148	3194767.019	DEPTH = 0.809m P36 INV IN = 1285.206 P49 INV IN = 1285.206 P37 INV OUT = 1285.206
SS50	SUBSOIL END CAP	-24088.642	3194811.503	DEPTH = 0.670m P50 INV OUT = 1285.330
SS51	SUBSOIL NODE	-24078.686	3194756.280	DEPTH = 0.872m P37 INV IN = 1285.143 P50 INV IN = 1285.143 P38 INV OUT = 1285.143
SS52	SUBSOIL END CAP	-24124.168	3194747.230	DEPTH = 0.704m P51 INV OUT = 1285.296
SS53	SUBSOIL NODE	-24077.715	3194755.605	DEPTH = 0.876m P38 INV IN = 1285.139 P51 INV IN = 1285.139 P39 INV OUT = 1285.139
SS54	HEADWALL	-24067.799	3194748.707	DEPTH = 0.324m P39 INV IN = 1285.099

PIPE DATA: SUBSOIL

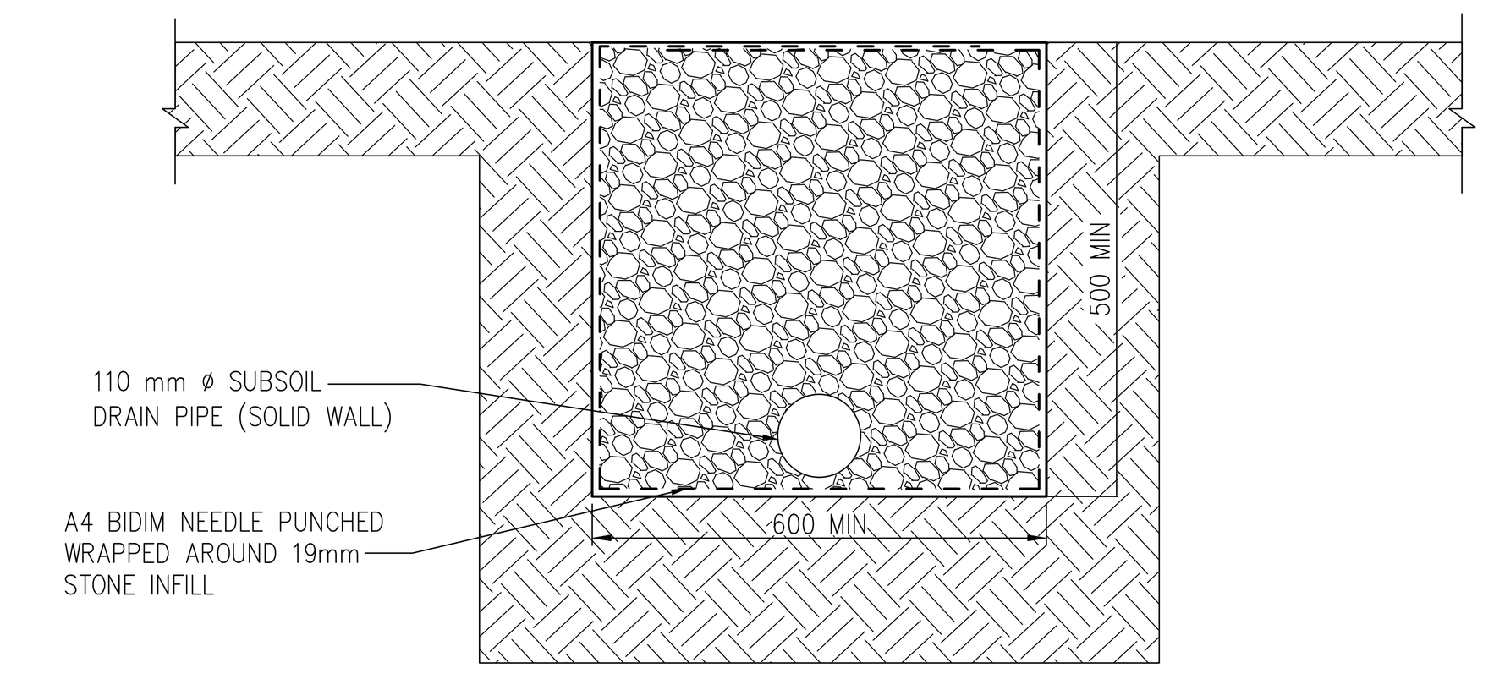
NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P14	110 ø	HDPE SLOTTED DRAINAGE PIPE	5.8 m	SS29 - SS31
P15	110 ø	HDPE SLOTTED DRAINAGE PIPE	3.5 m	SS31 - SS33
P16	110 ø	HDPE SLOTTED DRAINAGE PIPE	16.8 m	SS33 - SS35
P17	110 ø	HDPE SLOTTED DRAINAGE PIPE	3.0 m	SS35 - SS37
P18	110 ø	HDPE SLOTTED DRAINAGE PIPE	17.4 m	SS37 - SS39
P32	110 ø	HDPE SLOTTED DRAINAGE PIPE	2.4 m	SS39 - SS41
P33	110 ø	HDPE SLOTTED DRAINAGE PIPE	18.0 m	SS41 - SS43
P34	110 ø	HDPE SLOTTED DRAINAGE PIPE	1.8 m	SS43 - SS45
P35	110 ø	HDPE SLOTTED DRAINAGE PIPE	18.6 m	SS45 - SS47
P36	110 ø	HDPE SLOTTED DRAINAGE PIPE	1.2 m	SS47 - SS49
P37	110 ø	HDPE SLOTTED DRAINAGE PIPE	18.8 m	SS49 - SS51
P38	110 ø	HDPE SLOTTED DRAINAGE PIPE	1.2 m	SS51 - SS53
P39	110 ø	uPVC CLASS 6	12.1 m	SS53 - SS54
P40	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.2 m	SS30 - SS31
P41	110 ø	HDPE SLOTTED DRAINAGE PIPE	13.3 m	SS32 - SS33
P42	110 ø	HDPE SLOTTED DRAINAGE PIPE	36.6 m	SS34 - SS35
P43	110 ø	HDPE SLOTTED DRAINAGE PIPE	41.5 m	SS36 - SS37
P44	110 ø	HDPE SLOTTED DRAINAGE PIPE	56.1 m	SS38 - SS39
P45	110 ø	HDPE SLOTTED DRAINAGE PIPE	47.0 m	SS40 - SS41
P46	110 ø	HDPE SLOTTED DRAINAGE PIPE	56.3 m	SS42 - SS43
P47	110 ø	HDPE SLOTTED DRAINAGE PIPE	47.0 m	SS44 - SS45
P48	110 ø	HDPE SLOTTED DRAINAGE PIPE	56.4 m	SS46 - SS47
P49	110 ø	HDPE SLOTTED DRAINAGE PIPE	46.9 m	SS48 - SS49
P50	110 ø	HDPE SLOTTED DRAINAGE PIPE	56.1 m	SS50 - SS51
P51	110 ø	HDPE SLOTTED DRAINAGE PIPE	47.2 m	SS52 - SS53

STRUCTURE DATA: SUBSOIL

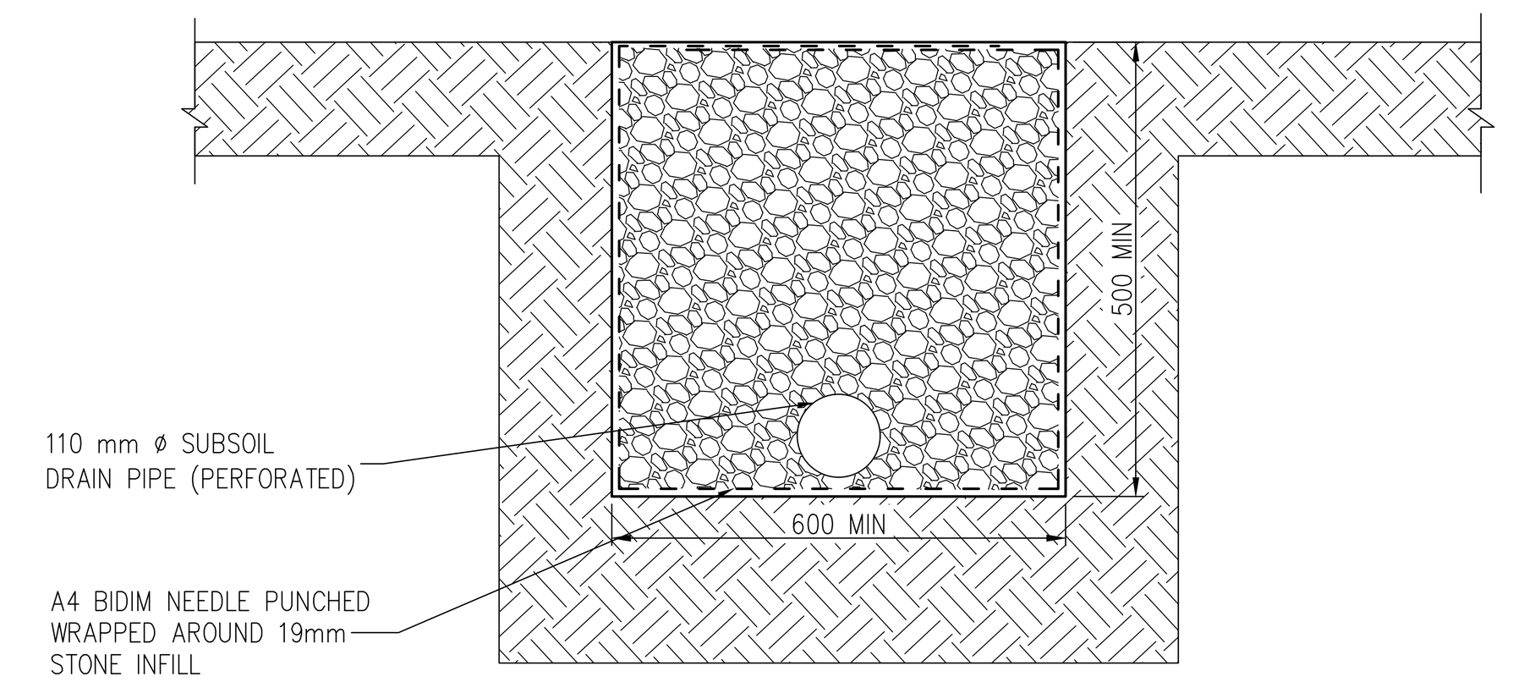
NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
SS55	SUBSOIL END CAP	-24132.034	3194885.515	DEPTH = 0.500m P52 INV OUT = 1284.500
SS56	SUBSOIL END CAP	-24129.890	3194888.515	DEPTH = 0.495m P65 INV OUT = 1284.505
SS57	SUBSOIL NODE	-24128.951	3194883.306	DEPTH = 0.325m P52 INV IN = 1284.487 P65 INV IN = 1284.487 P53 INV OUT = 1284.487
SS58	SUBSOIL END CAP	-24136.415	3194879.383	DEPTH = 0.489m P66 INV OUT = 1284.511
SS59	SUBSOIL NODE	-24126.136	3194881.236	DEPTH = 0.325m P53 INV IN = 1284.476 P66 INV IN = 1284.476 P54 INV OUT = 1284.476
SS60	SUBSOIL END CAP	-24117.869	3194901.580	DEPTH = 0.478m P67 INV OUT = 1284.522
SS61	SUBSOIL NODE	-24112.449	3194871.518	DEPTH = 0.595m P54 INV IN = 1284.420 P67 INV IN = 1284.420 P55 INV OUT = 1284.420
SS62	SUBSOIL END CAP	-24141.123	3194864.157	DEPTH = 0.485m P68 INV OUT = 1284.515
SS63	SUBSOIL NODE	-24110.049	3194869.760	DEPTH = 0.605m P55 INV IN = 1284.410 P68 INV IN = 1284.410 P56 INV OUT = 1284.410
SS64	SUBSOIL END CAP	-24101.435	3194890.167	DEPTH = 0.545m P69 INV OUT = 1284.455
SS65	SUBSOIL NODE	-24095.931	3194859.642	DEPTH = 0.325m P56 INV IN = 1284.352 P69 INV IN = 1284.352 P57 INV OUT = 1284.352
SS66	SUBSOIL END CAP	-24124.689	3194852.743	DEPTH = 0.552m P70 INV OUT = 1284.448
SS67	SUBSOIL NODE	-24094.021	3194858.273	DEPTH = 0.325m P57 INV IN = 1284.344 P70 INV IN = 1284.344 P58 INV OUT = 1284.344
SS68	SUBSOIL END CAP	-24085.000	3194878.753	DEPTH = 0.611m P71 INV OUT = 1284.389
SS69	SUBSOIL NODE	-24079.422	3194847.810	DEPTH = 0.325m P58 INV IN = 1284.284 P71 INV IN = 1284.284 P59 INV OUT = 1284.284
SS70	SUBSOIL END CAP	-24108.254	3194841.330	DEPTH = 0.619m P72 INV OUT = 1284.381
SS71	SUBSOIL NODE	-24077.992	3194846.786	DEPTH = 0.325m P59 INV IN = 1284.279 P72 INV IN = 1284.279 P60 INV OUT = 1284.279
SS72	SUBSOIL END CAP	-24068.566	3194867.339	DEPTH = 0.677m P73 INV OUT = 1284.323
SS73	SUBSOIL NODE	-24062.912	3194835.978	DEPTH = 0.325m P60 INV IN = 1284.217 P73 INV IN = 1284.217 P61 INV OUT = 1284.217
SS74	SUBSOIL END CAP	-24091.820	3194829.916	DEPTH = 0.686m P74 INV OUT = 1284.314
SS75	SUBSOIL NODE	-24061.940	3194835.303	DEPTH = 0.325m P61 INV IN = 1284.213 P74 INV IN = 1284.213 P62 INV OUT = 1284.213
SS76	SUBSOIL END CAP	-24052.076	3194855.619	DEPTH = 0.745m P75 INV OUT = 1284.255
SS77	SUBSOIL NODE	-24046.478	3194824.565	DEPTH = 0.865m P62 INV IN = 1284.150 P75 INV IN = 1284.150 P63 INV OUT = 1284.150
SS78	SUBSOIL END CAP	-24075.723	3194818.441	DEPTH = 0.752m P76 INV OUT = 1284.248
SS79	SUBSOIL NODE	-24045.501	3194823.890	DEPTH = 0.869m P63 INV IN = 1284.146 P76 INV IN = 1284.146 P64 INV OUT = 1284.146
SS80	HEADWALL	-24034.741	3194816.400	DEPTH = 0.325m P64 INV IN = 1284.103

PIPE DATA: SUBSOIL

NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P52	110 ø	HDPE SLOTTED DRAINAGE PIPE	3.8 m	SS55 - SS57
P53	110 ø	HDPE SLOTTED DRAINAGE PIPE	3.5 m	SS57 - SS59
P54	110 ø	HDPE SLOTTED DRAINAGE PIPE	16.8 m	SS59 - SS61
P55	110 ø	HDPE SLOTTED DRAINAGE PIPE	3.0 m	SS61 - SS63
P56	110 ø	HDPE SLOTTED DRAINAGE PIPE	17.4 m	SS63 - SS65
P57	110 ø	HDPE SLOTTED DRAINAGE PIPE	2.4 m	SS65 - SS67
P58	110 ø	HDPE SLOTTED DRAINAGE PIPE	18.0 m	SS67 - SS69
P59	110 ø	HDPE SLOTTED DRAINAGE PIPE	1.8 m	SS69 - SS71
P60	110 ø	HDPE SLOTTED DRAINAGE PIPE	18.6 m	SS71 - SS73
P61	110 ø	HDPE SLOTTED DRAINAGE PIPE	1.2 m	SS73 - SS75
P62	110 ø	HDPE SLOTTED DRAINAGE PIPE	18.8 m	SS75 - SS77
P63	110 ø	HDPE SLOTTED DRAINAGE PIPE	1.2 m	SS77 - SS79
P64	110 ø	uPVC CLASS 6	13.1 m	SS79 - SS80
P65	110 ø	HDPE SLOTTED DRAINAGE PIPE	5.3 m	SS56 - SS57
P66	110 ø	HDPE SLOTTED DRAINAGE PIPE	10.4 m	SS58 - SS59
P67	110 ø	HDPE SLOTTED DRAINAGE PIPE	30.5 m	SS60 - SS61
P68	110 ø	HDPE SLOTTED DRAINAGE PIPE	31.6 m	SS62 - SS63
P69	110 ø	HDPE SLOTTED DRAINAGE PIPE	31.0 m	SS64 - SS65
P70	110 ø	HDPE SLOTTED DRAINAGE PIPE	31.2 m	SS66 - SS67
P71	110 ø	HDPE SLOTTED DRAINAGE PIPE	31.4 m	SS68 - SS69
P72	110 ø	HDPE SLOTTED DRAINAGE PIPE	30.7 m	SS70 - SS71
P73	110 ø	HDPE SLOTTED DRAINAGE PIPE	31.9 m	SS72 - SS73
P74	110 ø	HDPE SLOTTED DRAINAGE PIPE	30.4 m	SS74 - SS75
P75	110 ø	HDPE SLOTTED DRAINAGE PIPE	31.6 m	SS76 - SS77
P76	110 ø	HDPE SLOTTED DRAINAGE PIPE	30.7 m	SS78 - SS79



PROPOSED SUBSOIL SECTION THROUGH EMBANKMENT WALL COLLECTOR DETAIL
SCALE 1: 100



PROPOSED SUBSOIL DRAINAGE COLLECTOR DETAIL
SCALE 1: 100

CLIENT

SIYANCUMA LOCAL MUNICIPALITY
P.O BOX 27
DOUGLAS
TEL: (053) 298 1810
www.siyancuma.co.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED
CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE:

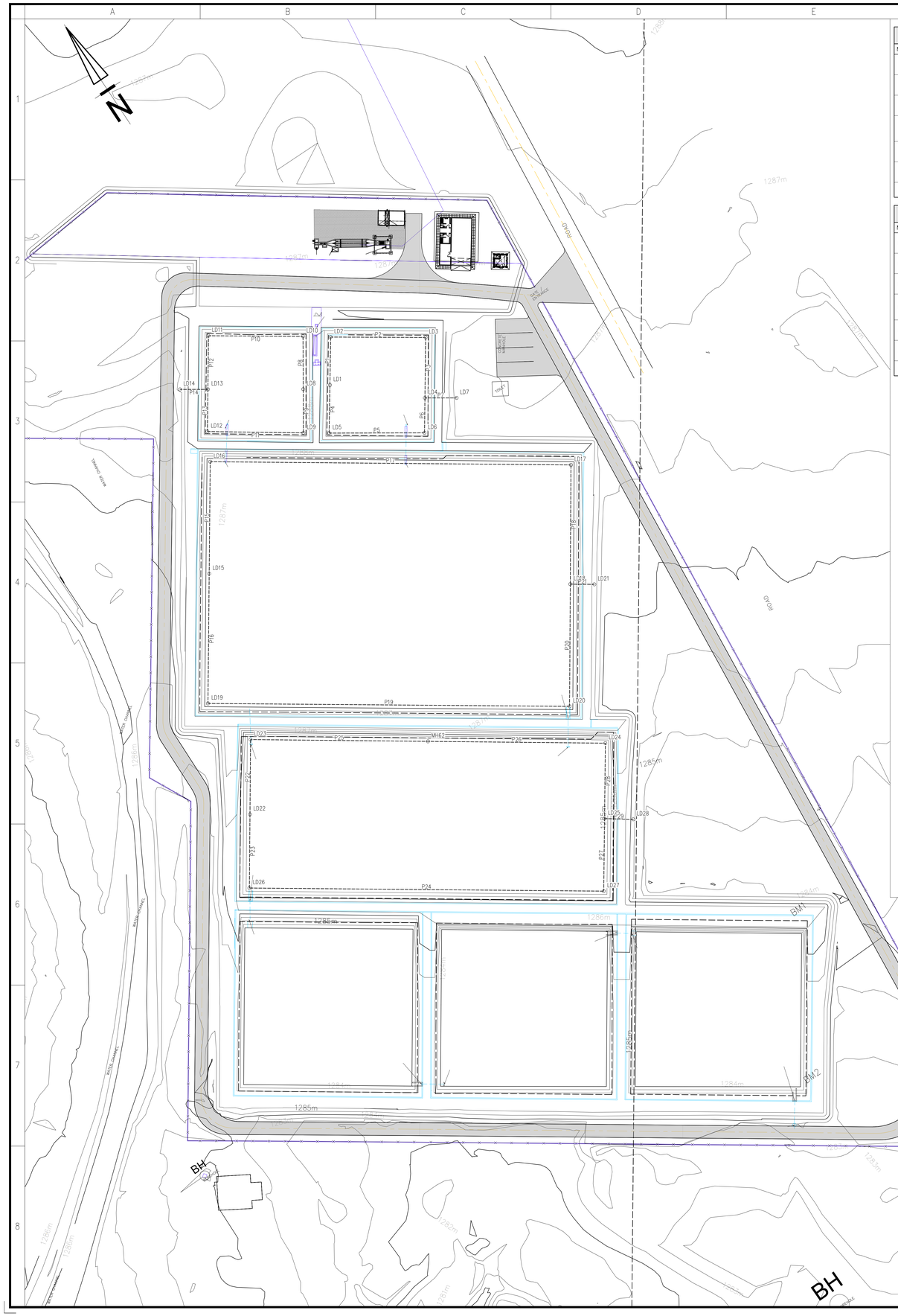
LAYOUT PLAN & DETAILS: SUBSOIL DRAINAGE SYSTEM

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	SSLP -	001 -	T -	00

DRAWING STATUS CODES :	SCALE	SHEET SIZE
R = REPORT T = TENDER C = CONSTRUCTION D = DRAFT P = PRELIMINARY A = AS BUILT	1:500	A0



STRUCTURE DATA: LEAK DETECTION

NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
LD1	SUBSOIL NODE	-24139.628	3194727.496	DEPTH = 0.500m P1 INV OUT = 1286.500 P4 INV OUT = 1286.500
LD2	SUBSOIL NODE	-24148.350	3194715.431	DEPTH = 0.550m P1 INV IN = 1286.450 P2 INV OUT = 1286.450
LD3	SUBSOIL NODE	-24172.425	3194732.374	DEPTH = 0.648m P2 INV IN = 1286.352 P3 INV OUT = 1286.352
LD4	SUBSOIL NODE	-24161.519	3194747.633	DEPTH = 0.310m P3 INV IN = 1286.290 P6 INV IN = 1286.290 P7 INV OUT = 1286.290
LD5	SUBSOIL NODE	-24130.907	3194739.560	DEPTH = 0.557m P4 INV IN = 1286.443 P5 INV OUT = 1286.443
LD6	SUBSOIL NODE	-24155.232	3194756.430	DEPTH = 0.669m P5 INV IN = 1286.331 P6 INV OUT = 1286.331
LD7	SUBSOIL NODE	-24169.574	3194753.237	DEPTH = 0.742m P7 INV IN = 1286.257

PIPE DATA: LEAK DETECTION

NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P1	110 ø	HDPE SLOTTED DRAINAGE PIPE	14.9 m	LD1 – LD2
P2	110 ø	HDPE SLOTTED DRAINAGE PIPE	29.4 m	LD2 – LD3
P3	110 ø	HDPE SLOTTED DRAINAGE PIPE	18.8 m	LD3 – LD4
P4	110 ø	HDPE SLOTTED DRAINAGE PIPE	14.9 m	LD1 – LD5
P5	110 ø	HDPE SLOTTED DRAINAGE PIPE	29.6 m	LD5 – LD6
P6	110 ø	HDPE SLOTTED DRAINAGE PIPE	10.8 m	LD6 – LD4
P7	110 ø	HDPE SLOTTED DRAINAGE PIPE	9.8 m	LD4 – LD7

STRUCTURE DATA: LEAK DETECTION

NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
LD8	SUBSOIL NODE	-24132.118	3194723.795	DEPTH = 0.500m P8 INV OUT = 1286.500 P9 INV OUT = 1286.500
LD9	SUBSOIL NODE	-24124.401	3194734.936	DEPTH = 0.545m P9 INV IN = 1286.455 P11 INV OUT = 1286.455
LD10	SUBSOIL NODE	-24141.438	3194710.339	DEPTH = 0.555m P8 INV IN = 1286.445 P10 INV OUT = 1286.445
LD11	SUBSOIL NODE	-24117.504	3194693.403	DEPTH = 0.652m P10 INV IN = 1286.348 P12 INV OUT = 1286.348
LD12	SUBSOIL NODE	-24100.235	3194717.573	DEPTH = 0.644m P11 INV IN = 1286.356 P13 INV OUT = 1286.356
LD13	SUBSOIL NODE	-24107.837	3194706.933	DEPTH = 0.708m P12 INV IN = 1286.292 P13 INV IN = 1286.312 P14 INV OUT = 1286.292
LD14	SUBSOIL NODE	-24100.725	3194701.988	DEPTH = 0.761m P14 INV IN = 1286.264

PIPE DATA: LEAK DETECTION

NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P8	110 ø	HDPE SLOTTED DRAINAGE PIPE	16.4 m	LD8 – LD10
P9	110 ø	HDPE SLOTTED DRAINAGE PIPE	13.6 m	LD8 – LD9
P10	110 ø	HDPE SLOTTED DRAINAGE PIPE	29.3 m	LD10 – LD11
P11	110 ø	HDPE SLOTTED DRAINAGE PIPE	29.8 m	LD9 – LD12
P12	110 ø	HDPE SLOTTED DRAINAGE PIPE	16.6 m	LD11 – LD13
P13	110 ø	HDPE SLOTTED DRAINAGE PIPE	13.1 m	LD12 – LD13
P14	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.7 m	LD13 – LD14

STRUCTURE DATA: LEAK DETECTION

NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
LD15	SUBSOIL NODE	-24075.454	3194754.044	DEPTH = 0.500m P15 INV OUT = 1285.500 P16 INV OUT = 1285.500
LD16	SUBSOIL NODE	-24095.592	3194725.743	DEPTH = 0.616m P15 INV IN = 1285.384 P17 INV OUT = 1285.384
LD17	SUBSOIL NODE	-24186.782	3194790.577	DEPTH = 0.988m P17 INV IN = 1285.012 P18 INV OUT = 1285.012
LD18	SUBSOIL NODE	-24165.463	3194820.778	DEPTH = 1.134m P18 INV IN = 1284.889 P20 INV IN = 1284.866 P21 INV OUT = 1284.889
LD19	SUBSOIL NODE	-24052.132	3194786.820	DEPTH = 0.634m P16 INV IN = 1285.366 P19 INV OUT = 1285.366
LD20	SUBSOIL NODE	-24143.597	3194851.728	DEPTH = 1.007m P19 INV IN = 1284.993 P20 INV OUT = 1284.993
LD21	SUBSOIL NODE	-24171.540	3194825.102	DEPTH = 2.384m P21 INV IN = 1284.864

PIPE DATA: LEAK DETECTION

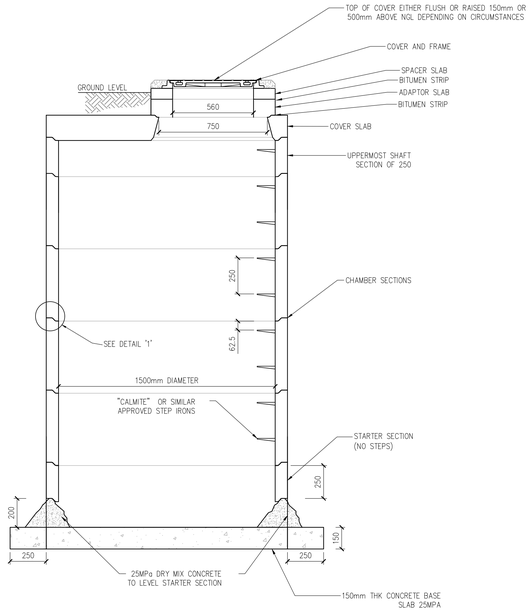
NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P15	110 ø	HDPE SLOTTED DRAINAGE PIPE	34.7 m	LD15 – LD16
P16	110 ø	HDPE SLOTTED DRAINAGE PIPE	40.2 m	LD15 – LD19
P17	110 ø	HDPE SLOTTED DRAINAGE PIPE	111.9 m	LD16 – LD17
P18	110 ø	HDPE SLOTTED DRAINAGE PIPE	37.0 m	LD17 – LD18
P19	110 ø	HDPE SLOTTED DRAINAGE PIPE	112.2 m	LD19 – LD20
P20	110 ø	HDPE SLOTTED DRAINAGE PIPE	37.9 m	LD20 – LD18
P21	110 ø	HDPE SLOTTED DRAINAGE PIPE	7.5 m	LD18 – LD21

STRUCTURE DATA: LEAK DETECTION

NAME	DESCRIPTION	Y-COORD	X-COORD	DETAILS
LD22	SUBSOIL NODE	-24043.146	3194822.469	DEPTH = 0.500m P22 INV OUT = 1284.500 P23 INV OUT = 1284.500
LD23	SUBSOIL NODE	-24056.565	3194803.556	DEPTH = 0.577m P22 INV IN = 1284.423 P25 INV OUT = 1284.423
LD24	SUBSOIL NODE	-24146.177	3194867.438	DEPTH = 0.944m P26 INV IN = 1284.056 P28 INV OUT = 1284.056
LD25	SUBSOIL NODE	-24132.583	3194886.467	DEPTH = 1.022m P28 INV IN = 1283.978 P27 INV IN = 1283.979 P29 INV OUT = 1283.979
LD26	SUBSOIL NODE	-24029.925	3194841.102	DEPTH = 0.577m P23 INV IN = 1284.423 P24 INV OUT = 1284.423
LD27	SUBSOIL NODE	-24119.506	3194904.771	DEPTH = 0.946m P24 INV IN = 1284.054 P27 INV OUT = 1284.054
LD28	SUBSOIL NODE	-24139.771	3194891.769	DEPTH = 1.760m P29 INV IN = 1283.949
MH62	SUBSOIL NODE	-24101.369	3194835.496	DEPTH = 0.760m P25 INV IN = 1284.240 P26 INV OUT = 1284.240

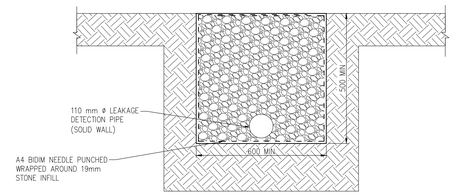
PIPE DATA: LEAK DETECTION

NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P22	110 ø	HDPE SLOTTED DRAINAGE PIPE	23.2 m	LD22 – LD23
P23	110 ø	HDPE SLOTTED DRAINAGE PIPE	22.8 m	LD22 – LD26
P24	110 ø	HDPE SLOTTED DRAINAGE PIPE	109.9 m	LD26 – LD27
P25	110 ø	HDPE SLOTTED DRAINAGE PIPE	55.0 m	LD23 – MH62
P26	110 ø	HDPE SLOTTED DRAINAGE PIPE	55.0 m	MH62 – LD24
P27	110 ø	HDPE SLOTTED DRAINAGE PIPE	22.5 m	LD27 – LD25
P28	110 ø	HDPE SLOTTED DRAINAGE PIPE	23.4 m	LD24 – LD25
P29	110 ø	HDPE SLOTTED DRAINAGE PIPE	8.9 m	LD25 – LD28



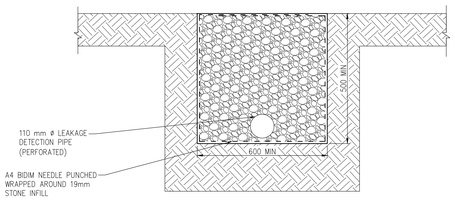
PROPOSED WET-WELL CHAMBER

SCALE 1:25



PROPOSED LEAKAGE DETECTION THROUGH EMBANKMENT WALL COLLECTOR DETAIL

SCALE 1: 100



PROPOSED LEAKAGE DETECTION COLLECTOR DETAIL

SCALE 1: 100

CLIENT

SIYANCUMA
LOCAL MUNICIPALITY

P.O BOX 27

DOUGLAS

TEL: (053) 298 1810

www.siyancuma.co.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED

CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE

LAYOUT PLAN & DETAILS: LEAKAGE DETECTION SYSTEM

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

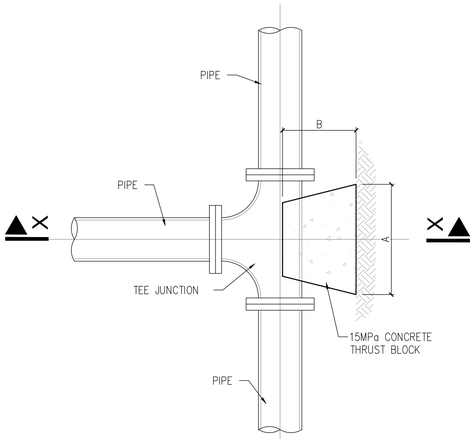
SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	LDLP -	001	- T -	00

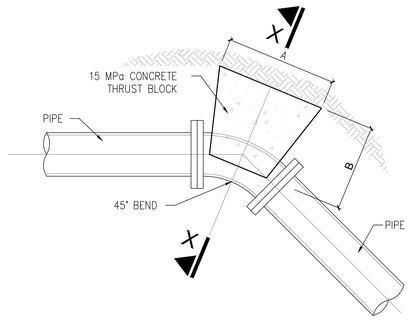
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: AS SHOWN

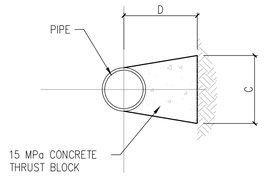
SHEET SIZE: A0



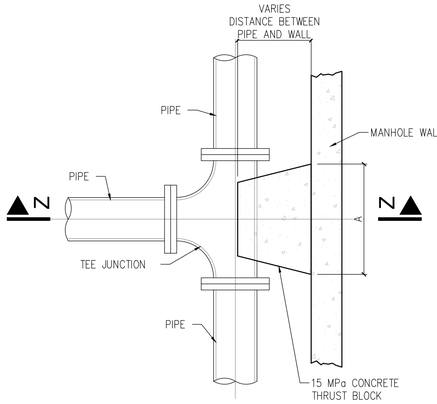
TYPICAL THRUST BLOCK
DETAIL FOR TEE JUNCTION
1:25



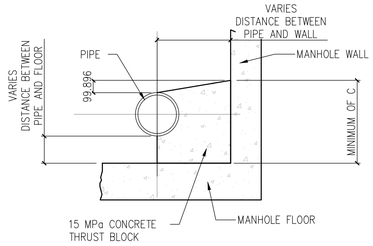
TYPICAL THRUST BLOCK
DETAIL FOR 45° BEND
1:25



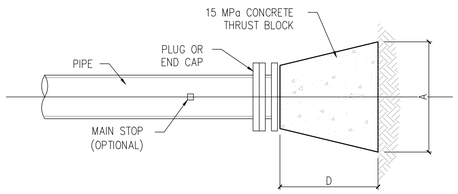
SECTION X–X
1:25



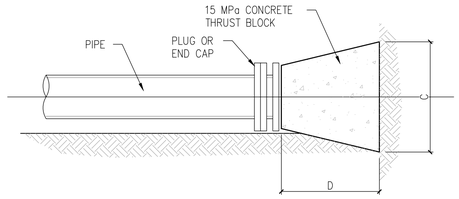
TYPICAL THRUST BLOCK DETAIL
FOR TEE JUNCTION INSIDE MANHOLE
1:25



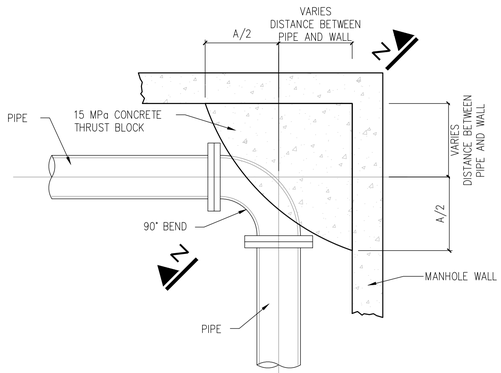
SECTION Z–Z
1:25



PLAN – END SECTION
1:25



ELEVATION – END SECTION
1:25



TYPICAL THRUST BLOCK DETAIL FOR 90°
BEND INSIDE MANHOLE
1:25

	90°			45°			22.5°			11.25°			135°			T PIECE			End Section		
DN	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
100	300	250	350	150	250	350	100	250	350	50	250	350	350	250	350	200	250	350	250	250	250
150	500	350	400	300	350	400	150	350	400	100	350	400	650	350	400	350	350	400	350	350	350
200	800	450	450	450	450	450	250	450	450	150	450	450	1000	450	450	550	450	450	500	450	500
250	1100	550	500	600	550	500	300	550	500	150	550	500	1400	550	500	750	550	500	600	550	600
300	1350	650	550	750	650	550	400	650	550	200	650	550	1750	650	550	950	650	550	750	650	750
350	1550	750	600	850	750	600	450	750	600	250	750	600	2000	750	600	1100	750	600	800	750	800
400	1850	850	650	1000	850	650	550	850	650	300	850	650	2400	850	650	1300	850	650	900	850	900
450	2150	950	700	1150	950	700	600	950	700	300	950	700	2800	950	700	1500	950	700	1000	950	1000
500	2450	1050	750	1350	1050	750	700	1050	750	350	1050	750	3200	1050	750	1750	1050	750	1150	1050	1150
600	3100	1250	850	1700	1250	850	850	1250	850	450	1250	850	4000	1250	850	2200	1250	850	1350	1250	1350
700	3700	1450	950	2050	1450	950	1050	1450	950	550	1450	950	4850	1450	950	2650	1450	950	1550	1450	1550
800	4350	1650	1050	2400	1650	1050	1200	1650	1050	650	1650	1050	5700	1650	1050	3100	1650	1050	1800	1650	1800
900	4350	1650	1050	2400	1650	1050	1200	1650	1050	650	1650	1050	5700	1650	1050	3100	1650	1050	1800	1650	1800
1000	5550	2000	1200	3000	2000	1200	1550	2000	1200	800	2000	1200	7250	2000	1200	3950	2000	1200	2200	2000	2200

NOTES

1. MAINTAIN CLEARANCE OF 80mm FROM FACE OF BELL TO CONCRETE
2. THIS BLOCKING DESIGN APPLIES ONLY WHERE 1035 KPa PRESSURE IS NOT EXCEEDED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
4. PROVIDE POLYETHYLENE FILM BETWEEN CONCRETE AND FITTINGS.
5. REFER TO SPECIFICATIONS CONCRETE = 15 MPa

CLIENT

SIYANCUMA
LOCAL MUNICIPALITY
PO BOX 27
DOUGLAS, 8730
TEL: (053) 298 1810
www.siyancuma.gov.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED
CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: TYPICAL THRUST BLOCK DETAILS

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

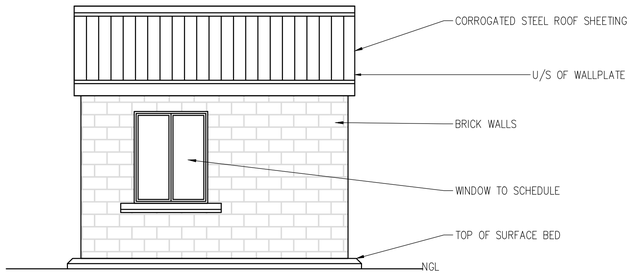
SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323 -	01 -	TD –	001	– T –	00

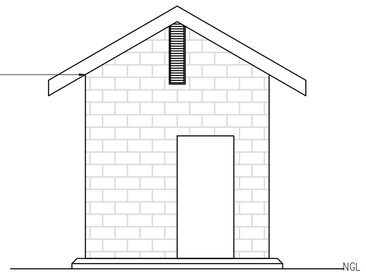
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: 1:2500

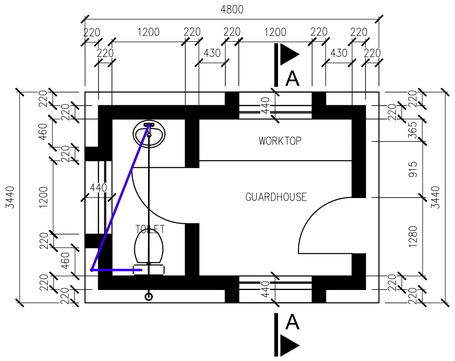
SHEET SIZE: A1



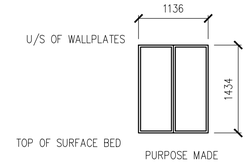
NORTH ELEVATION
SCALE 1:50



EAST ELEVATION
SCALE 1:50

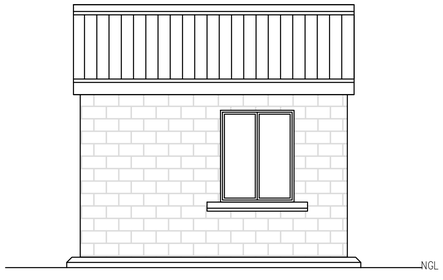


FLOOR PLAN
SCALE 1:50

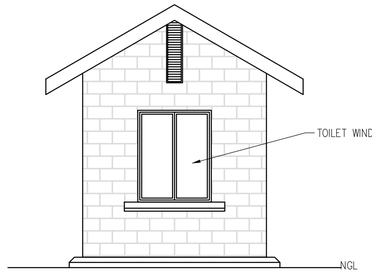


WINDOW SCHEDULE

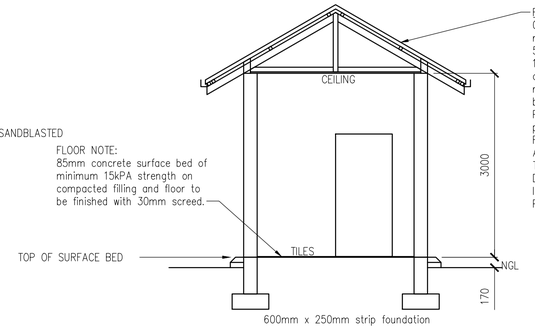
TIMBER FRAME / SINGLE CLEAR GLASS – TO SPECIALIST
MUST COMPLY TO SANS 204 & SANS 10400XA



SOUTH ELEVATION
SCALE 1:50



WEST ELEVATION
SCALE 1:50



SECTION A–A
SCALE 1:50

NOTES

ROOF:
IN CLIMATIC ZONE 1 – ALL TILED ROOFS SHALL HAVE A TILED UNDERLAY OR RADIANT BARRIER AND THE JOINTS SHALL BE SEALED.
ROOF ASSEMBLY THAT HAS METAL SHEET ROOFING FIXED TO METAL PURLINS, METAL RAFTERS OR METAL BATTENS SHALL HAVE A THERMAL BREAK CONSISTING OF A MATERIAL WITH AN R–VALUE OF NOT LESS THAN 0.2 INSTALLED BETWEEN THE METAL SHEET ROOFING AND ITS SUPPORTING MEMBERS.

EXTERNAL DOORS:
IN CLIMATIC ZONE 1, 2, 4, 6 – A SEAL TO RESTRICT AL SHALL BE FITTED TO EACH EDGE OF AN EXTERNAL DOOR AND OTHER SUCH OPENING.

HOT WATER SERVICES:
A MINIMUM OF 50% BY VOLUME OF THE ANNUAL AVERAGE HOT WATER HEATING REQUIREMENTS SHALL BE PROVIDED BY MEANS OTHER THAN ELECTRICAL RESISTANCE HEATING, INCLUDING BUT NOT LIMITED TO, SOLAR HEATING, HEAT PUMPS, HEAT RECOVERY FROM OTHER SYSTEMS OR PROCESSES.
HOT WATER USAGE SHOULD BE MINIMISED AND THE SYSTEM MAINTAINED IN ACCORDANCE WITH REQUIREMENTS GIVEN IN SANS 10252–1.
ALL EXPOSED PIPES TO AND FROM THE HOT WATER CYLINDERS AND CENTRAL HEATING SYSTEMS SHALL BE INSULATED WITH PIPE INSULATION MATERIAL WITH AN R–VALUE IN ACCORDANCE WITH REGULATIONS.
HOT WATER VESSELS AND TANKS SHALL BE INSULATED WITH MATERIAL ACHIEVING A MINIMUM R–VALUE OF 2.0.

LIGHTING AND POWER:
DEPENDING UPON OCCUPANCY AND ACTIVITY, THE MINIMUM LIGHTING LEVELS SHALL BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS10114–1 AND SANS 10400–C.

GENERAL REQUIREMENTS:
IN ANY BUILDING OF OCCUPANCY CLASSIFIED IN TERMS OF REGULATION A20 AS A1, A2, A3, A4, C1, C2, E1, E2, E3, E4, F1, F2, F3, G1, H1, H2, H3, H4 AND H5, THE ORIENTATION AND SHADING SHOULD BE IN ACCORDANCE WITH REQUIREMENTS OF SANS204, EXTERNAL WALLS SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.3, FENESTRATION SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.4, ROOF ASSEMBLY CONSTRUCTION SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.5,
IF IN SLAB HEATING IS INSTALLED, IT SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.2,
AND SERVICES THAT USE ENERGY OR CONTROL THE USE OF ENERGY, INCLUDING HEATING AIR, AIR CONDITIONING AND MECHANICAL VENTILATION IN ACCORDANCE WITH SANS204, AND HOT WATER SYSTEMS IN ACCORDANCE WITH REQUIREMENTS OF 4.1 (SERVICES EXCLUDE COOKING FACILITIES AND PORTABLE APPLIANCES).

OPENINGS NOTES:
ROOFS, EXTERNAL FLOORS AND ANY OPENINGS SUCH AS GLAZING OR DOOR IN THE EXTERNAL FABRIC, SHALL BE CONSTRUCTED TO MINIMISE AIR LEAKAGE IN ACCORDANCE WITH 4.4.1 WHEN FORMING PART OF EXTERNAL FABRIC OF HABITABLE ROOMS IN CLIMATIC ZONES 1, 2, 4, 6 OR CONDITIONED SPACE.

EXTERNAL WALLS:
DOUBLE–SKIN MASONRY WITH NO CAVITY, PLASTERED INTERNALLY, OR RENDERED EXTERNALLY SHOULD MEET THE REQUIRED R–VALUES SINGLE–LEAF MASONRY WALLS WITH A NOMINAL WALL THICKNESS GREATER THEN OR EQUAL TO 140MM (EXCL. PLASTERING AND RENDERING), PLASTERED INTERNALLY AND RENDERED EXTERNALLY SHOULD MEET THE REQUIRED R–VLAUES.

ROOF AND CEILINGS:
MUST ACHIEVE THE MINIMUM TOTAL R–VALUE AS PER REQUIREMENTS THERMAL RESISTANCE FOR CEILINGS TO COMPLY TO REGULATIONS – INSULATION TO ACHIEVE THE REQUIREMENTS IN SANS 10400XA

CLIENT

SIYANCUMA
LOCAL MUNICIPALITY
PO BOX 27
DOUGLAS, 8730
TEL: (053) 298 1810
www.siyancuma.gov.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED
CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: GAURDHOUSE DETAIL

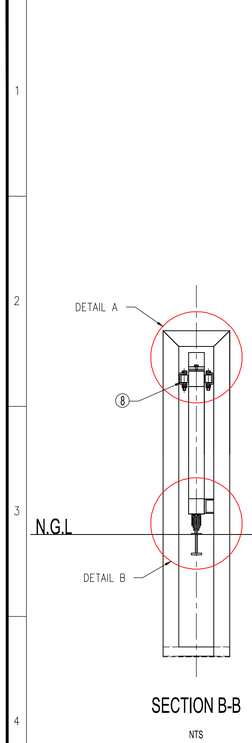
	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323	01	TD	002	T	00

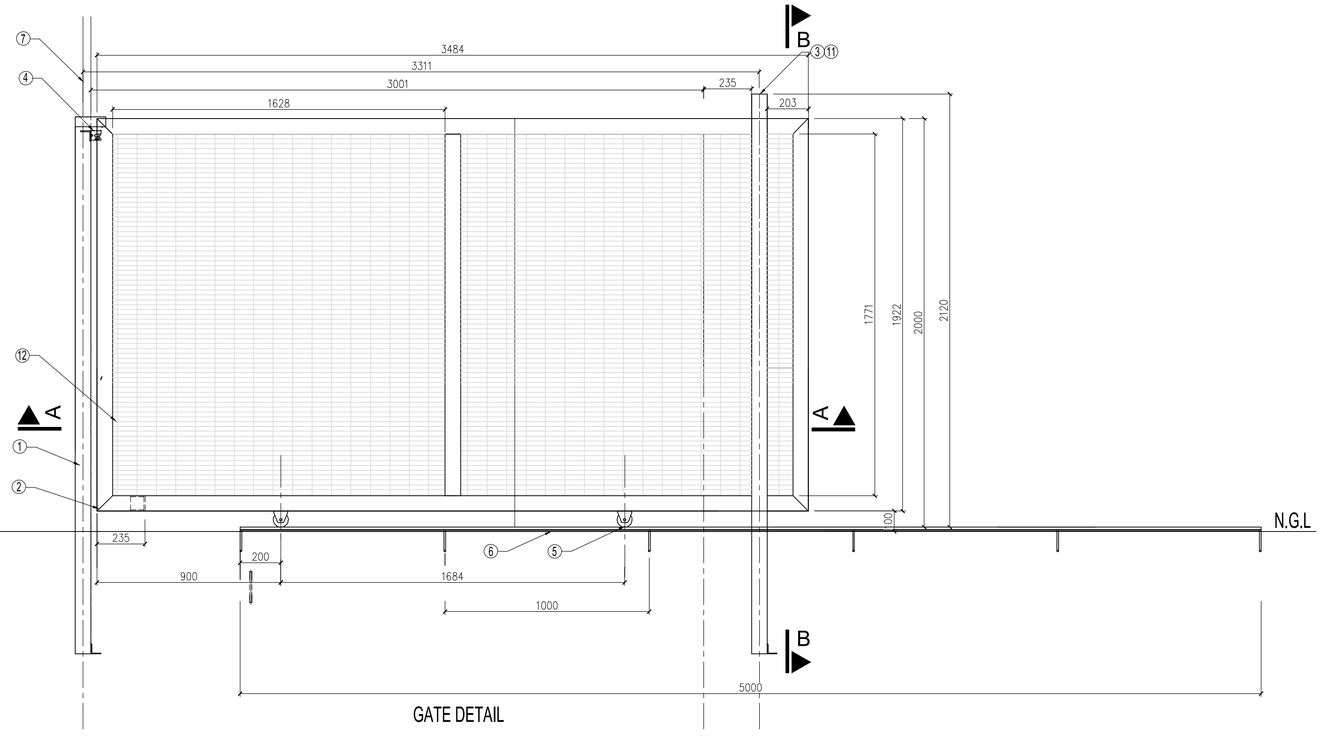
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: AS SHOWN
SHEET SIZE: A1



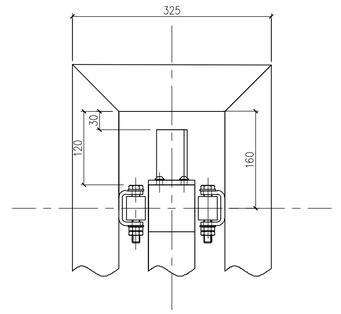
SECTION B-B

NTS



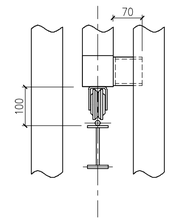
GATE DETAIL

SCALE 1:15



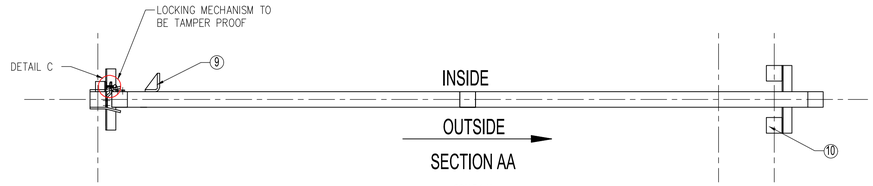
GATE DETAIL A

SCALE 1:5



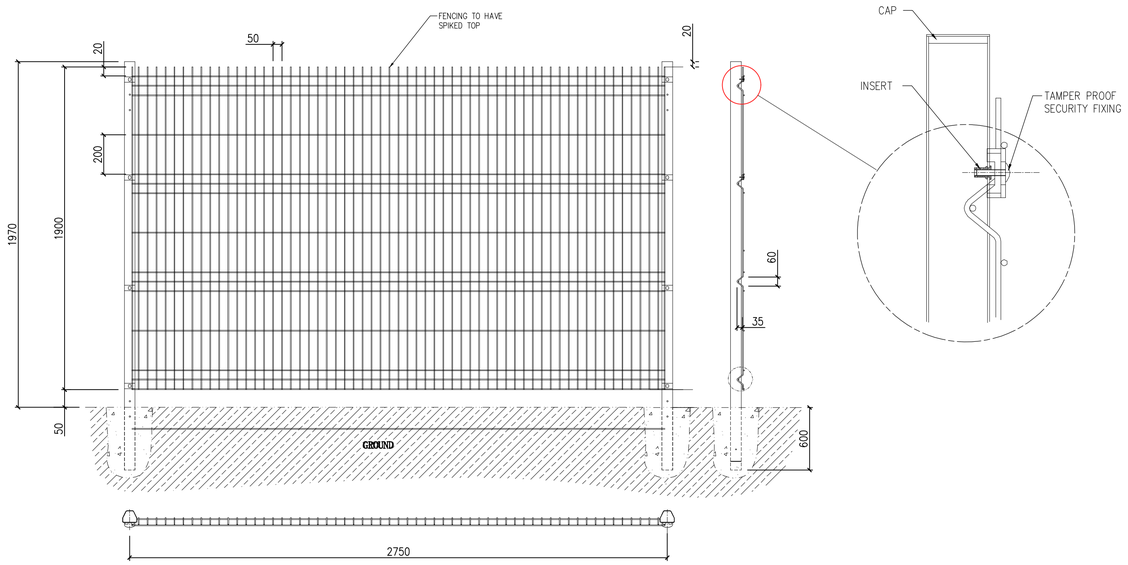
GATE DETAIL B

SCALE 1:15



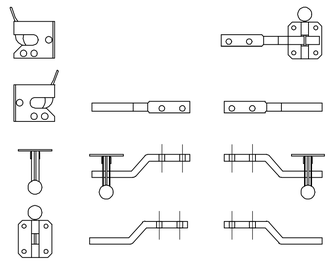
SECTION AA

SCALE 1:15



FENCING DETAIL

SCALE 1:200



GATE DETAIL C

SCALE 1:15

NOTES

1. DRAWING ADAPTED FROM CLEARVU SPECIFICATIONS
2. MESH GRID FENCING APPROVED BY ENGINEER
3. GATE MUST BE LOCKABLE WITH TAMPER PROOF LOCK
4. FENCING TO EXTEND 500mm BELOW GROUND LEVEL

CLIENT

SIYANCUMA LOCAL MUNICIPALITY

PO BOX 27

DOUGLAS, 8730

TEL: (053) 298 1810

www.siyancuma.gov.za

CONSULTANT

SAMEX CONSULTING ENGINEERING DEFINED

CNR JACOBUS SMITH AND WATERWORKS, 6 URBAN CORNER, NEW PARK KIMBERLEY, 8301

TEL : (053) 285 0222

www.samexconsulting.co.za

PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: FENCE & GATE DETAILS

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

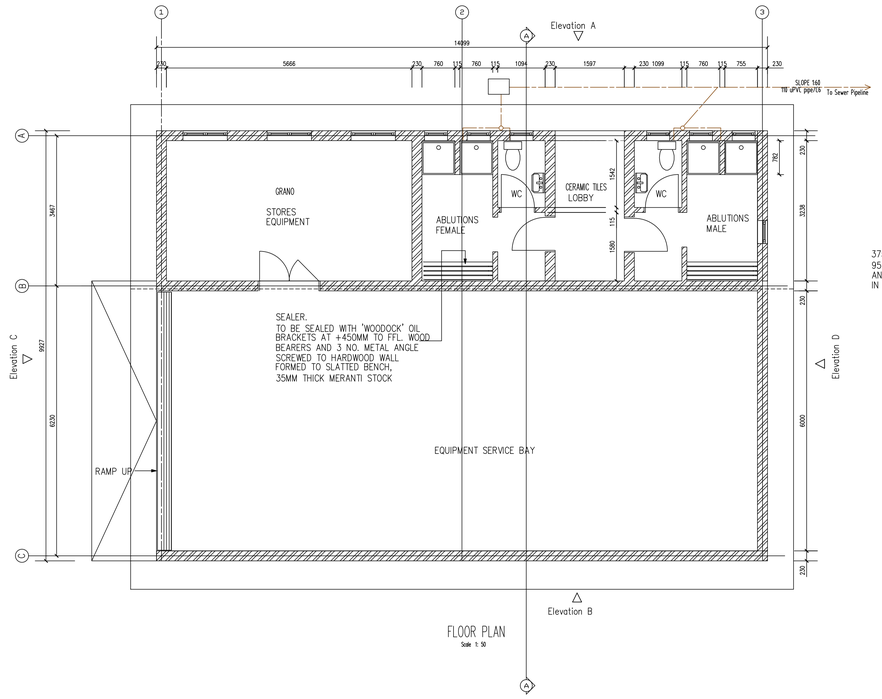
SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323	- 01	- TD	- 003	- T	- 00

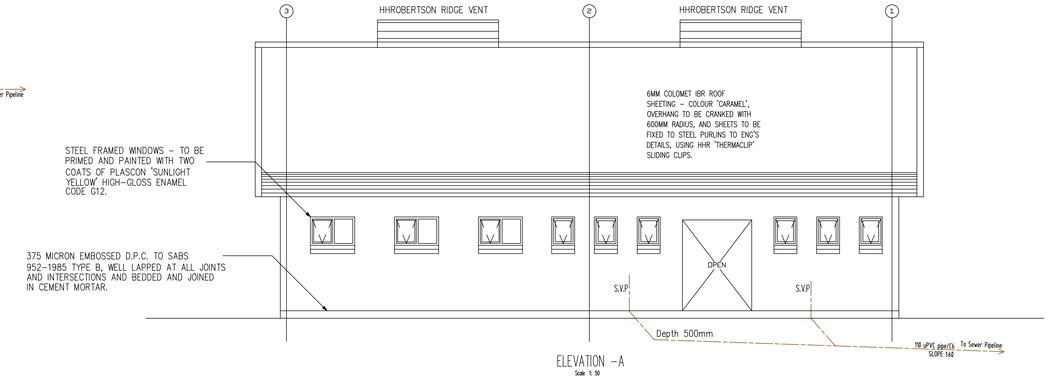
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: AS SHOWN

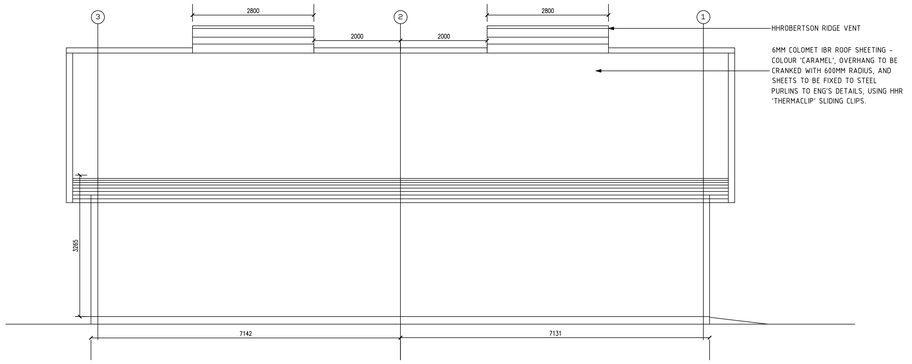
SHEET SIZE: A1



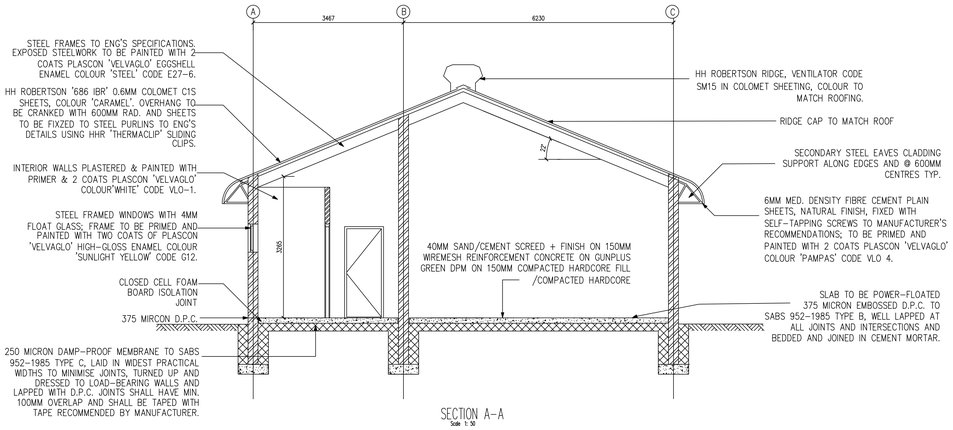
FLOOR PLAN
Scale 1: 50



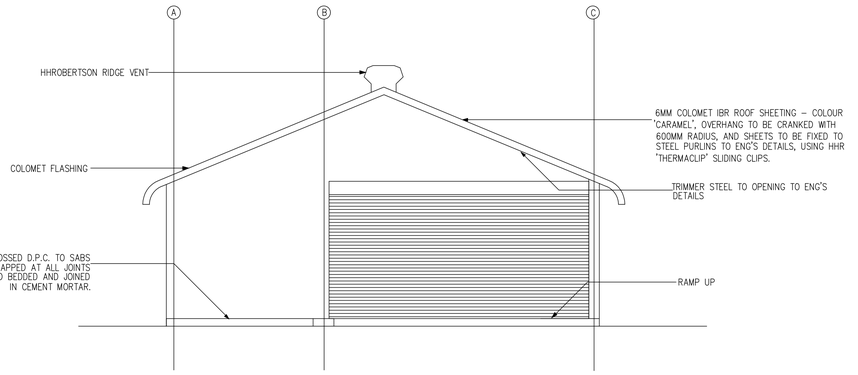
ELEVATION –A
Scale 1: 50



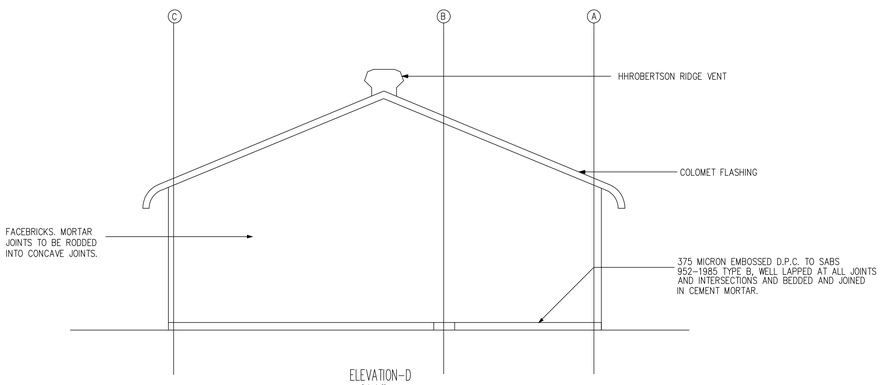
ELEVATION –B
Scale 1: 50



SECTION A–A
Scale 1: 50



ELEVATION–C
Scale 1: 50



ELEVATION–D
Scale 1: 50

NOTES

ROOF:
IN CLIMATIC ZONE 1 – ALL TILED ROOFS SHALL HAVE A TILED UNDERLAY OR RADIANT BARRIER AND THE JOINTS SHALL BE SEALED.
ROOF ASSEMBLY THAT HAS METAL SHEET ROOFING FIXED TO METAL PURLINS, METAL RAFTERS OR METAL BATTENS SHALL HAVE A THERMAL BREAK CONSISTING OF A MATERIAL WITH AN R–VALUE OF NOT LESS THAN 0.2 INSTALLED BETWEEN THE METAL SHEET ROOFING AND ITS SUPPORTING MEMBERS.

EXTERNAL DOORS:
IN CLIMATIC ZONE 1, 2, 4, 6 – A SEAL TO RESTRICT AL SHALL BE FITTED TO EACH EDGE OF AN EXTERNAL DOOR AND OTHER SUCH OPENING.

HOT WATER SERVICES:
A MINIMUM OF 50% BY VOLUME OF THE ANNUAL AVERAGE HOT WATER HEATING REQUIREMENTS SHALL BE PROVIDED BY MEANS OTHER THAN ELECTRICAL RESISTANCE HEATING, INCLUDING BUT NOT LIMITED TO, SOLAR HEATING, HEAT PUMPS, HEAT RECOVERY FROM OTHER SYSTEMS OR PROCESSES.
HOT WATER USAGE SHOULD BE MINIMISED AND THE SYSTEM MAINTAINED IN ACCORDANCE WITH REQUIREMENTS GIVEN IN SANS 10252–1.
ALL EXPOSED PIPES TO AND FROM THE HOT WATER CYLINDERS AND CENTRAL HEATING SYSTEMS SHALL BE INSULATED WITH PIPE INSULATION MATERIAL WITH AN R–VALUE IN ACCORDANCE WITH REGULATIONS.
HOT WATER VESSELS AND TANKS SHALL BE INSULATED WITH MATERIAL ACHIEVING A MINIMUM R–VALUE OF 2.0.

LIGHTING AND POWER:
DEPENDING UPON OCCUPANCY AND ACTIVITY, THE MINIMUM LIGHTING LEVELS SHALL BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS10114–1 AND SANS 10400–C.

GENERAL REQUIREMENTS:
IN ANY BUILDING OF OCCUPANCY CLASSIFIED IN TERMS OF REGULATION A20 AS A1, A2, A3, A4, C1, C2, E1, E2, E3, E4, F1, F2, F3, G1, H1, H2, H3, H4 AND H5, THE ORIENTATION AND SHADING SHOULD BE IN ACCORDANCE WITH REQUIREMENTS OF SANS204, EXTERNAL WALLS SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.3, FENESTRATION SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.4, ROOF ASSEMBLY CONSTRUCTION SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.5.
IF IN SLAB HEATING IS INSTALLED, IT SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF 4.4.2.
AND SERVICES THAT USE ENERGY OR CONTROL THE USE OF ENERGY, INCLUDING HEATING AIR, AIR CONDITIONING AND MECHANICAL VENTILATION IN ACCORDANCE WITH SANS204,
AND HOT WATER SYSTEMS IN ACCORDANCE WITH REQUIREMENTS OF 4.1 (SERVICES EXCLUDE COOKING FACILITIES AND PORTABLE APPLIANCES).

OPENINGS NOTES:
ROOFS, EXTERNAL FLOORS AND ANY OPENINGS SUCH AS GLAZING OR DOOR IN THE EXTERNAL FABRIC, SHALL BE CONSTRUCTED TO MINIMISE AIR LEAKAGE IN ACCORDANCE WITH 4.4.1 WHEN FORMING PART OF EXTERNAL FABRIC OF HABITABLE ROOMS IN CLIMATIC ZONES 1, 2, 4, 6 OR CONDITIONED SPACE.

EXTERNAL WALLS:
DOUBLE–SKIN MASONRY WITH NO CAVITY, PLASTERED INTERNALLY, OR RENDERED EXTERNALLY SHOULD MEET THE REQUIRED R–VALUES SINGLE–LEAF MASONRY WALLS WITH A NOMINAL WALL THICKNESS GREATER THEN OR EQUAL TO 140MM (EXCL. PLASTERING AND RENDERING), PLASTERED INTERNALLY AND RENDERED EXTERNALLY SHOULD MEET THE REQUIRED R–VLAUES.

ROOF AND CEILINGS:
MUST ACHIEVE THE MINIMUM TOTAL R–VALUE AS PER REQUIREMENTS THERMAL RESISTANCE FOR CEILINGS TO COMPLY TO REGULATIONS – INSULATION TO ACHIEVE THE REQUIREMENTS IN SANS 10400XA

CLIENT

SIYANCUMA
LOCAL MUNICIPALITY
PO BOX 27
DOUGLAS, 8730
TEL: (053) 298 1810
www.siyancuma.gov.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED
CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
KIMBERLEY, 8301
TEL : (053) 285 0222
www.samexconsulting.co.za

PROJECT
GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE
WASTE WATER MANAGEMENT

DRAWING TITLE
PROPOSED STORES FLOOR PLAN SECTIONS, ELEVATIONS & DETAILS

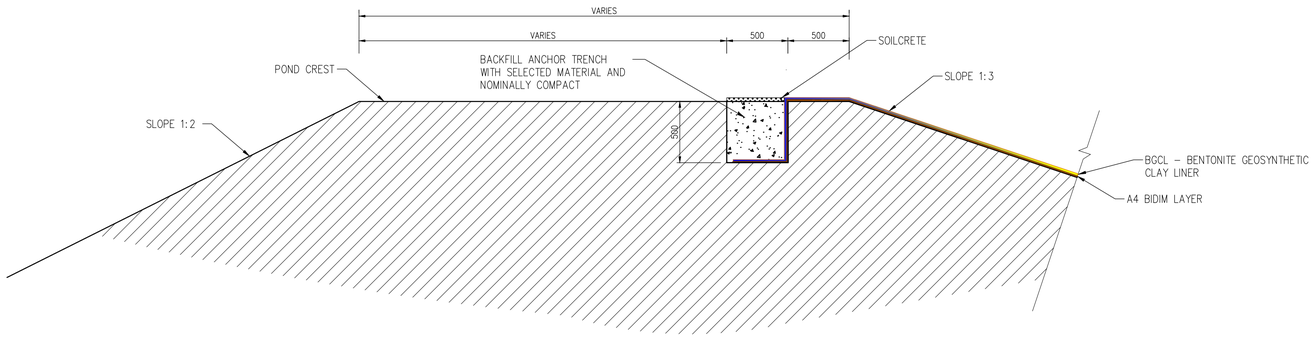
	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
APPROVED		

SAMEX DRAWING NUMBER

SAMEX PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
S0323	01	TD	004	T	00

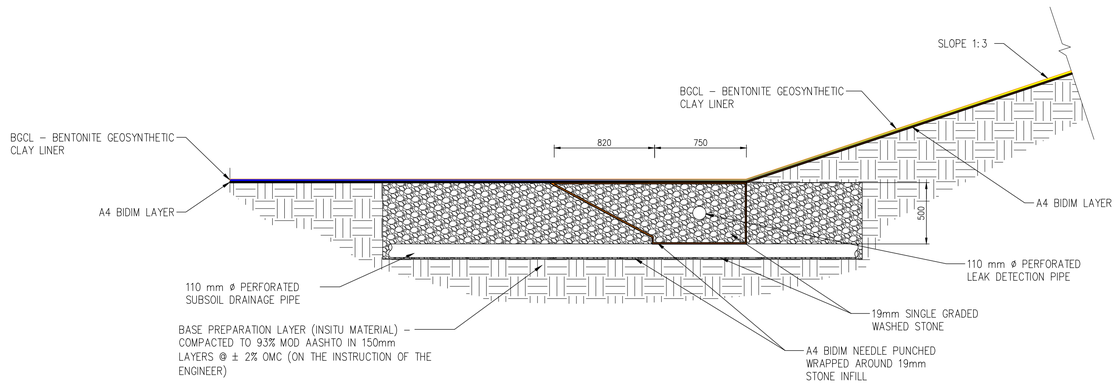
DRAWING STATUS CODES :
R = REPORT T = TENDER C = CONSTRUCTION
D = DRAFT P = PRELIMINARY A = AS BUILT

SCALE: AS SHOWN
SHEET SIZE: A0



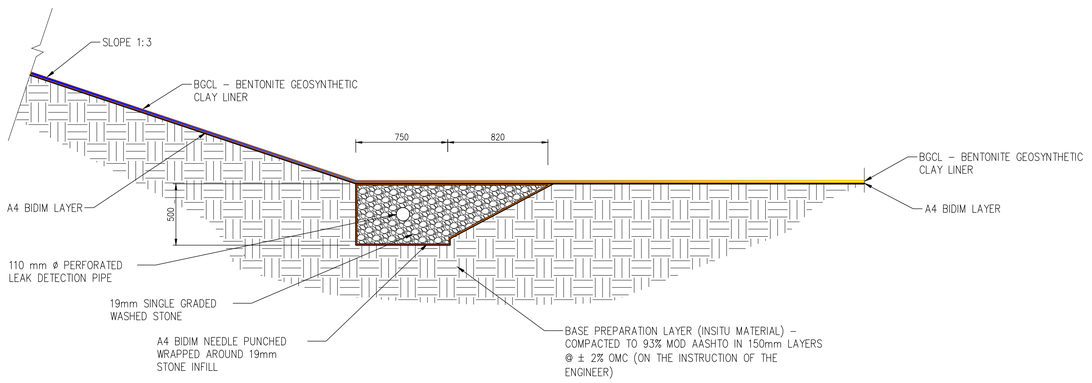
PROPOSED LINER PLACEMENT AND ANCHOR DETAIL

SCALE 1:25



PIPE CROSSING DETAIL OF LEAK DETECTION AND SUBSOIL DRAIN

SCALE 1:25



PROPOSED DETAIL OF LEAK DETECTION OF THE PONDS

SCALE 1:25

GENERAL NOTES:

- INSIDE SIDE SLOPES 1:3
- FLOOR SLOPES 1% AVERAGE

GEOTEXTILES

GEOTEXTILES TO CONFORM TO GEOTEXTILES TO CONFORM TO GRI GT12(A)

A. THE FOLLOWING CONFORMANCE TESTS TO BE DONE:

PARAMETER	METHOD
MASS PER UNIT AREA	ASTM D5261

ALL EDGES OF THE GT & GCL MUST BE THERMALLY BONDED WITH A HEAT GUN AT ON SITE TO ENSURE CONTACT WITH THE ADJACENT LAYER.

CONSTRUCTION QUALITY ASSURANCE

READ THE CQA FOR THIS PROJECT IN THE DESIGN REPORT IN CONJUNCTION WITH THESE DRAWINGS

CLIENT

SIYANCUMA
LOCAL MUNICIPALITY
PO BOX 27
DOUGLAS, 8730
TEL: (053) 298 1810
www.siyancuma.gov.za

CONSULTANT

SAMEX CONSULTING
ENGINEERING DEFINED

CNR JACOBUS SMITH AND WATERWORKS,
6 URBAN CORNER, NEW PARK
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PROJECT: GRIEKWASTAD WASTEWATER TREATMENT WORKS

DISCIPLINE: WASTE WATER MANAGEMENT

DRAWING TITLE: OXIDATION PONDS LINER DETAILS

	RESPONSIBLE PERSON	DATE
DRAW CONTROL	LN	10/2025
DESIGN	LN	10/2025
DESIGN CONTROL	LN	10/2025
PROJECT MANAGER	NQ	10/2025
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