



DEPARTMENT OF WATER AND SANITATION

DUE AT 11:00 ON

CLOSING DATE: 15 JUNE 2023

DWS06 0523 WTE

**THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION
OR FIXING OF REINFORCING STEEL AND FABRIC
REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR
THE RAISING OF CLANWILLIAM DAM IN THE WESTERN
CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF
CIDB 8CE OR HIGHER**

SUBMIT BID DOCUMENTS TO:

POSTAL ADDRESS:
DIRECTOR-GENERAL:
WATER AND SANITATION
PRIVATE BAG X313
PRETORIA, 0001

OR

TO BE DEPOSITED IN:
THE BID BOX AT THE ENTRANCE
OF ZWAMADAKA BUILDING
157 FRANCIS BAARD STREET
PRETORIA, 0001

Compulsory Briefing Session

Date: 30 May 2023

Time: 14:00pm

Venue: Contractors Site Office Boardroom - Clanwilliam Dam, Construction South
Main Security Gate Entrance GPS Coordinates: 32°11'21.25"S and 18° 52' 26.11"E

BIDDER: (Company Address OR Stamp)

COMPILED BY:
DEPARTMENT OF WATER AND SANITATION - DIRECTORATE CONSTRUCTION SOUTH



DEPARTMENT OF WATER AND SANITATION

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THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION OR FIXING OF REINFORCING STEEL AND FABRIC REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR THE RAISING OF CLANWILLIAM DAM IN THE WESTERN CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF CIDB 8CE OR HIGHER

Tender document compiled date: February 2023

Issued by:

Department of Water and Sanitation
Zwamadaka building
157 Francis Baard Street
Pretoria
0001

Prepared by:

Clanwilliam dam Construction
Raising of Clanwilliam dam Project
Construction South
Department of Water and Sanitation



DEPARTMENT OF WATER AND SANITATION

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Part T2: Returnable documents and schedules

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- T2.2 Returnable documents and schedules

THE CONTRACT

Part C1: Contract data

- C1.1 Pro-forma Form of offer and acceptance
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- C1.3 Pro-forma Performance guarantee

Part C2: Pricing data

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T1.1 TENDER NOTICE AND INVITATION TO TENDER

It is estimated that Tenderers should have a CIDB Contractor grading designation of CIDB 8CE or higher.

Documents may be downloaded from Department of Water and Sanitation website at www.dws.gov.za and from National Treasury website at www.etenders.gov.za.

Queries relating to the issue of these documents may be addressed in writing to bidenquirieswte@gov.za and FrylinckA@dws.gov.za

A compulsory site clarification meeting with representatives of the Employer will take place at Clanwilliam Dam Site at the Contractor Offices Boardroom (Main Security Gate Entrance GPS Coordinates: 32°11'21.25"S and 18° 52' 26.11"E – see submission data for further particulars) on 30 May 2023 starting at 14:00hrs.

The closing time for receipt of tenders is 11:00 hrs on 15 June 2023 Telegraphic, telephonic, telex, facsimile, e-mail and late tenders will not be accepted.

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

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

DEPARTMENT OF WATER AND SANITATION

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T1.2 TENDER DATA

IMPORTANT INFORMATION

PLEASE READ CAREFULLY THROUGH THE ENTIRE TENDER DOCUMENT BEFORE COMPLETING THE DOCUMENT.

TENDER AND CONTRACT STANDARDS CONDITIONS APPLICABLE TO THIS DOCUMENT

SANS ISO 10845-1: 2022 Ed 2	Processes, methods, and procedures.
SANS ISO 10845-2: 2022 Ed 2	Formatting and compilation of procurement documentation.
SANS ISO 10845-3: 2022 Ed 2	Standard conditions of tender.
GCC 2015 Ed 3	The General Conditions of Contract for Construction Works, 3rd Edition (2015), published by the South African Institution of Civil Engineering.

INSTRUCTIONS TO BIDDERS

All recipients of these bid documents, whether they submit a Bid or not, shall treat the details of the documents as PRIVATE AND CONFIDENTIAL.



T1.2.1 TENDER SPECIFIC DATA

The conditions of tender are those contained in the latest edition of SANS ISO 10845-3: 2022 Ed 2, Construction Procurement – Part 3: Standard conditions of tender.

SANS ISO 10845-3:2022 Ed 2 makes 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 provisions of SANS ISO 10845-3: 2022 Ed 2.

Each item of data given below is cross-referenced to the clause in SANS ISO 10845-3:2022 Ed 2 to which it mainly applies.

Clause number	TENDER DATA
3	TERMS AND DEFINITIONS
3.1	Wherever reference is made in the documentation to Bill of Quantities it shall also mean Pricing Schedule or Schedule of Quantities.
3.19	Whenever reference is made in the documentation to Bidder or Tenderer it shall mean is the person or organization that submits a tender offer. (The successful Bidder will be appointed as Contractor as per GCC 2015- Clause 1.1.1.9)
4	GENERAL REQUIREMENTS
4.1	The Employer is the Department of Water and Sanitation: Construction South
4.2	The tender documents issued by the employer comprise the documents listed on the contents page
4.4	The employer's agent email address is: FrylinckA@dws.gov.za
4.4	The language for communications is English.
5	TENDERER'S OBLIGATIONS
5.1	<p>Only those Tenderers who satisfy the following eligibility criteria and who provide the required evidence in their tender submissions are eligible to submit tenders and have their tenders evaluated:</p> <p>An Entity is not eligible to submit a bid if:</p> <ul style="list-style-type: none"> (a) the Bidder does not comply with the legal requirements of the Department's Procurement; (b) the Entity submitting the bid is under restrictions or has principals who are under restriction to participate in the Department's procurement due to corrupt or fraudulent practices; (c) the Bidder does not have the legal capacity to enter into the contract; (d) the Entity submitting the bid is insolvent, in receivership, 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 the foregoing; (e) the Bidder cannot demonstrate that he possesses the necessary professional and technical qualifications and competent, financial resources and other physical facilities, managerial capability, personnel, experience and reputation to perform the contract; (f) the Bidder cannot provide proof that he is in good standing with respect to duties, taxes, levies and contributions required in terms of legislation applicable to the work in the contract; (g) the Bidder has failed to perform on any previous contract and has been given a written notice to this effect; (h) the Bidder or a competent authorized representative of the Entity who submitted the tender has not attended the compulsory clarification meeting or site briefing session if applicable; (i) the bid offer is not signed by a person authorized to sign on behalf of the Bidder;

Clause number	TENDER DATA
	<p>(j) more than one bid has been submitted by a Bidder. Each Bidder shall submit only one bid for the same project, either individually as a Bidder or as a partner in a joint venture. No Entity can be a Sub-contractor while submitting a bid individually or as a partner of a joint venture in the same bidding process. An Entity, if acting in the capacity of Sub-contractor in any bid, may participate in more than one bid, but only in that capacity. A Bidder who submits or participates in more than one bid will cause all the proposals in which the Bidder has participated to be disqualified.</p>
5.1	<p>Only those Tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a Contractor grading designation equal to or higher than a Contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a CIDB 8 CE or higher class of construction work, are eligible to have their tenders evaluated.</p> <p>All projects of R60m and above must apply the Standard for Indirect Targeting for Enterprise Development.</p> <p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"> every member of the joint venture is registered with the CIDB; the lead partner has a Contractor grading designation in the CIDB 7CE or higher class of construction work; and the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a CIDB 8CE or higher class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.
5.5	<p>The tenderer shall obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are incorporated into the tender documents by reference.</p>
5.7	<p>The arrangements for a compulsory site clarification meeting are as stated in the Tender Notice and Invitation to Tender. (Site clarification meeting is also referred to as site briefing session.)</p> <p>The dam site is situated on the Olifants River, immediately next to the N7 and accessed through a controlled gate approximately 2 km South- West of Clanwilliam Town in the Western Cape province. The gravel site access roads is regularly maintained but can get challenging under abnormal rainfall conditions.</p> <p>Personal Protective Equipment (PPE) such as safety boots will be required before entering the site to examine some aspects of the works</p> <p>A full-time employee of the respondent who is involved in the preparation of submissions shall sign the attendance list in the name of the respondent. Addenda will be issued to, and respondents will be evaluated from only from those respondents appearing on the attendance list.</p>
5.10	<p>Tenderers are required to state the rates and currencies in South African Rand (ZAR).</p>
5.11	<p>No alterations, omissions or additions shall be made to this document, but should it be deemed necessary to do so, the Bidder is at liberty to qualify his bid.</p> <p>Bidders shall be deemed to have waived, renounced and abandoned any conditions printed or written upon any stationery used by them for the purpose of or in connection with the submission of bids which are in conflict with the conditions laid down in this document.</p> <p>Bidders shall not make any alterations or additions to the bid documents, except to comply with instructions issued by the Department, or necessary to correct errors made by the Bidder. All signatories to the bid offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.</p>
5.12	<p>No alternative tender offers will be considered.</p>
5.13.1	<p>Parts of each tender offer communicated on paper shall be submitted as an original, plus one (1) copies.</p> <p>The tenderer is requested to also provide a PDF (soft) copy of the complete tender submission in electronic format on a flash disk and to include this in their tender submission.</p>

Clause number	TENDER DATA
5.13.2	<p>An Entity is not eligible to submit a bid if the bid offer is not signed by a person authorized to sign on behalf of the Bidder. Each page of the completed document that will be submitted should be initialled by the Bidder at the bottom of the page.</p> <p>State clearly in Form D under T2.2 returnable documents and schedules, the authorised signatories that are liable on the behalf of the Tenderer, with proof from the employer and or company.</p>
5.13.2	<p>If the bid is submitted by joint venture of more than one person and/or Companies and/or firms it shall be accompanied by the following:</p> <p>(a) The original or a notarial certified copy of the original document under which such joint venture was constituted which must define precisely inter alia the conditions under which the joint venture will function, its period of duration and the participation of the several constituent persons and/or companies and/or firms.</p> <p>(b) A certificate signed by or on behalf of each participating person and/or company and/or firm authorising the person who signed the bid to do so.</p>
5.13.5 5.15	<p>The ORIGINAL printed, completed tender document together with a cover letter and all supporting documents needs to be placed and sealed in an envelope. The enveloped needs to be clearly marked as below indicated.</p> <p>The details and address for delivery of tender offers and identification details that are to be shown on the envelope:</p> <p>1) <u>Tender Identical details:</u> Tender reference number: DWS06 0523 WTE Title of Tender: THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION OR FIXING OF REINFORCING STEEL AND FABRIC REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR THE RAISING OF CLANWILLIAM DAM IN THE WESTERN CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF CIDB 8CE OR HIGHER</p> <p>2) <u>The details and address for delivery of tender offers and closing time are:</u> Location of tender box: THE BID BOX AT THE ENTRANCE Physical address: ZWAMADAKA BUILDING 157 FRANCIS BAARD STREET, PRETORIA, 0001 Closing date & time: 15 June 2023 at 11:00 hrs.</p> <p>3) <u>Name of the Bidder (shall be clearly shown)</u></p>
5.13.5	<p>The "ORIGINAL" and "COPY" are to be submitted as separate packages. The PDF soft copy on USB Flash drive to be submitted together with the "ORIGINAL" packages.</p>
5.13.6	<p>Telephonic, telegraphic, telex, facsimile or e-mailed tender offers shall NOT be accepted.</p>
5.15	<p>The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.</p>
5.16	<p>The tender offer validity period is for 120 days.</p>
5.18	<p>Provide, on request by the employer, any other material that has bearing on the tender offer within 5 working days of request.</p>
5.19	<p>The employer reserve the right to arrange access for the following inspections, tests, and analysis at Bidder's facilities.</p>
5.20	<p>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 C1.3 of this procurement document. (See also GCC 2015: Clause 6.2 – Security.)</p>
6	EMPLOYER'S UNDERTAKINGS
6.1	<p>The Employer will respond to requests for clarification received up to seven (7) working days before the tender closing time.</p>
6.2	<p>The employer shall issue addenda until four (4) working days before tender closing time.</p>

Clause number	TENDER DATA
6.4	Tenders will be opened immediately after the closing time for tenders at 11:00 hrs.
6.8	<p><u>TEST FOR RESPONSIVENESS:</u></p> <p>Bids will be evaluated in accordance with the new Preferential Procurement Regulations, 2022, using 90/10 preference points system as prescribed in the Preferential Procurement Policy Framework Act (PPPFA, Act 5 of 2000). The lowest acceptable bid will score 90 points for price and a maximum of 10 points will be awarded for the specific goals. Maximum of 100 points will be scored for functionality (quality).</p> <p>Bids received will be evaluated on the five (5) phases namely:</p> <ol style="list-style-type: none"> (1) Mandatory Requirements, (2) Administrative Compliance, (3) Functionality (5.11.9), (4) Price & Preference (5.11.7 & 5.11.8), & (5) Evaluation Method 4 (5.11.5).
6.8	<p><u>1) PHASE 1: MANDATORY REQUIREMENTS:</u></p> <p>Failure to submit any of the documents listed below will render your bid non-responsive and the bid will be disqualified.</p> <ul style="list-style-type: none"> • CIDB registration in terms of construction industry development board (CIDB) grade. (As per clause 4.1) • Certificate of attendance at the compulsory site briefing session and or sign on the attendance register. • Contract manager: Must have a Civil Engineering Diploma <u>OR</u> BTech <u>OR</u> Degree qualification <u>together with</u>, SACPCMP registration with 10 years work experience as a contracts manager post registration <u>OR</u> a valid Professional Engineering (PR. Eng / PR.Eng Tech / PR Eng Techni) registration with ECSA as a Civil Engineer or Technologist or Technician with at least 10 years post registration work experience as a contracts manager. • Steel fixer/s (for the head of a team): Must have a valid Certificated of NFQ Level 2 with SAQA, Unit Standard Title "Assemble, tie and install reinforcing cages".

Clause number	TENDER DATA			
6.8	2) <u>PHASE 2: ADMINISTRATIVE COMPLIANCE</u> Bidders are required to comply with the following listed below:			
	No	Criteria	Yes	No
	1	Companies must be registered with National Treasury's Central Supplier Database must submit CSD report.		
	2	Tax compliant with SARS: Attached a copy of valid Tax Compliance status pin page (to be confirmed through SARS).		
	3	Active registration with Company Intellectual Property Commission (to be verified through CSD and CIPC). Attach copy of Bidder's CIPC / CIPRO certificate.		
	4	A valid copy of B-BEE status Level Verification Certificate (Failure to submit, the Bidder will forfeit the preferential points to be claimed).		
	5	A valid letter of Good Standing with the Compensation Commissioner in terms of the Compensation for Occupational Injuries and Diseases Act No 130 of 1993 and or third parties' insurance registered with Financial Service Board (COIDA).		
	6	Initial and sign Tender data section (T1 & T2) and all required documents to be submitted with tender. Initial each page of section C1, C2 and C3 and sign where required.		
	7	Letter of appointment of duly authorized person to sign bid. Proof of such authority must be submitted with the bid. If by an individual, must be signed by that individual or by someone on his behalf duly authorised thereto and proof of such authority must be produced. If the bid is by a Company, it must be signed by a person duly authorised thereto by a Resolution of a Board of Directors a copy of which Resolution, duly certified by the Chairman of the Company is to be submitted with the bid.		
	8	The stipulated minimum threshold percentage for local production and content for steel products & components of construction, as per stipulated by the Department of Trade and Industry (DTI) is applicable. Please make yourself aware of the stipulated minimum threshold percentage of the specific item(s) as per the specifications. Annexure C need to be complete and is available on the Department: Trade and Industry website. (www.thedti.gov.za).		
	9	Companies to submit: <ul style="list-style-type: none"> The Company SABS : Permit to apply certification mark in accordance with SANS 920:2011 Certificated – Steel bars for concrete reinforcement; & Letter of confirmation that SANS 282: 2001 Bending dimensions and scheduling of steel reinforcement for concrete will be adhere to. 		
	10	Complete, sign, submit SBD1, SBD3.2, SBD4, SBD6.1 and Annexures C (Local Production and Content declaration – summary schedule.)		
	11	3 x final signed completion certificates (Final IPC) conducted in the recent 10 years where reinforcement were cut, bend, deliver on site and installed or fixed for that project must be for the value of R 12,5 million or more		
6.8	3) <u>PHASE 3: FUNCTIONALITY COMPLIANCE</u> As explained in 6.11.9. The Bidder must score a minimum of 70 points out of 100 to allow them to proceed to the next phase of evaluation.			
6.8	4) <u>PHASE 4: PRICE AND PREFERENCE</u> As explained in 6.11.7 & 6.11.8.			

Clause number	TENDER DATA																
6.11.5	<p>5) PHASE 5: EVALUATION METHOD</p> <p>Method 4: Financial offer, quality and preference → This method shall apply for the evaluation of this tender</p> <p>The procedure for the evaluation of responsive tenders is Method 4 (Financial offer, quality and preference).</p> <p>The total number of tender evaluation points (T_{EV}) shall be determined in accordance with the following formula:</p> $T_{EV} = f_1 (N_{FO} + N_P) + f_2 N_Q$ <p>Where:</p> <p>f_1 & f_2 are fractions,</p> <p>f_1 equals 1 minus f_2 ; and</p> <p>f_2 equals 0,5</p> <p>N_{FO} → is the number of tender evaluation points awarded for the <u>financial offer</u> made in accordance with SANS ISO 10845-3: 2022 Ed 2 clause 6.11.7, (where N_{FO} is maximum 90 points);</p> <p>N_P → is the number of tender evaluation points awarded for <u>preference claimed</u> in accordance with SANS ISO 10845-3: 2022 Ed 2 clause 6.11.8, (where N_P is maximum 10 points);</p> <p>N_Q → is the number of tender evaluation points awarded for <u>functionality (quality)</u> in accordance with SANS ISO 10845-3:2022 Ed2 clause 6.11.9, (where N_Q is maximum 100 points).</p> <p>Example:</p> <p>For example, if a Tenderer scores the following:</p> <p>75 points for pricing (N_{FO}) out of 90;</p> <p>6 points for preferencing (N_P) out of 10; and</p> <p>70 points for functionality (quality) (N_Q) out of 100</p> <p>And the fractions are f_2 equals 0,5</p> <table border="1" data-bbox="209 1227 1104 1473"> <tr> <th>Where the weights are:</th><th>Example values scored</th></tr> <tr> <td>Total points for financial offer (N_{FO}) → 90</td><td>75</td></tr> <tr> <td>N_P → 10</td><td>6</td></tr> <tr> <td>N_Q → 100</td><td>70</td></tr> <tr> <th>Calculation:</th><th>Example of calculation</th></tr> <tr> <td>Where: $f_1 (N_{FO} + N_P)$</td><td>$0.5 * (75 + 6) = 40.5$</td></tr> <tr> <td>And where: $f_2 N_Q$</td><td>$0.5 * 70 = 35$</td></tr> <tr> <td>Total Tender evaluation points (T_{EV}) → 100</td><td>75.5</td></tr> </table>	Where the weights are:	Example values scored	Total points for financial offer (N_{FO}) → 90	75	N_P → 10	6	N_Q → 100	70	Calculation:	Example of calculation	Where: $f_1 (N_{FO} + N_P)$	$0.5 * (75 + 6) = 40.5$	And where: $f_2 N_Q$	$0.5 * 70 = 35$	Total Tender evaluation points (T_{EV}) → 100	75.5
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6.11.7	<p>Price Score:</p> <p>Score for financial offers using the following formula:</p> $N_{FO} = W_1 \times A$ <p>Where:</p> <p>N_{FO} → is the number of tender evaluation points awarded for the financial offer;</p> $A = \left(1 - \left(\frac{P - P_m}{P_m} \right) \right) \quad (\text{As per Preferential Procurement Regulations, 2022})$ <p>P is the comparative offer of the tender offer under consideration;</p> <p>P_m is the comparative offer of the most favourable comparative offer; and</p> <p>W_1 is the maximum possible number of tender evaluation points awarded for the financial offer which equals 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of R50 000 000,00.</p>																

Preference Score:

Preferential Procurement Regulations, 2022, Act no. 5 of 2000 will be used to evaluate this proposal as per the applicable threshold value.

Bid proposals will be evaluated based on the 90/10 preference points system in accordance with the PPPFA Act (Act no. 5 of 2000). Where a maximum of 90 points will be awarded in respect of price and a maximum of 10 points will be awarded for specific goals.

M_p shall be calculated to a maximum of 10 points, as claimed in Table 1 below in accordance with Preferential Procurement Regulations, 2022 and described below.

Points claimed will be according to a bidder's specific goals claimed as indicated in Table 1 below.

In terms of Regulation 4(2) and 5(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the tenderer's goals claimed as per Table 1 below. The tenderer goal claimed must be supported by proof / documentation as per Table 2 and the special conditions of this tender where applicable.

Table 1: Specific goals for the tender and points claimed

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system)
Women Ownership	2
Disability Ownership	2
Youth Ownership	2
Location of enterprise (local equals province): Western Cape	1
B-BBEE status level contribution from level 1 to 2 which are QSE or EME	3
TOTAL SCORED POINTS	10

"Specific goals" means specific goals as contemplated in section 2(1)(d) of the PPPFA Act which may include contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender and disability including the implementation of programmes of the Reconstruction of Development Programme as published in *Government Gazette* No. 16085 date 23 November 1994.

"Ownership" means the percentage ownership and control, exercised by individuals within an enterprise.

"Disability" means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being.

- i. A blind person (in terms of the Blind Persons Act, 1968 (Act no.26 of 1968);
- ii. A deaf person, whose hearing is impaired to such an extent that he/she cannot use it as a primary means of communication;
- iii. A person who, as a result of permanent disability, requires a wheelchair, caliper or crutch to assist him/her to move from one place or another;
- iv. A person who requires an artificial limb; or
- v. A person who suffers from a mental illness (in terms of the Mental Health Act, 1973 (Act no. 18 of 1973).

"Youth" means, in respect of a person younger than 35 years of age.

"Location of enterprise" Local equals province. Where a project cuts across more than one province, the bidder may be located in any of the relevant provinces to obtain the points.

Women, disability, and youth will be measured by calculating the pro-rata percentage of ownership of the bidding company which meets the criterion. E.g., Company A has five shareholders each of whom own 20% of the company. Three of the five shareholders meet the criterion, i.e., they are women/disability/youth. Therefore, this bidder will obtain 60% of the points allowable for this goal.

Documents/ information listed on the below Table 2 must be submitted to support and verify points claimed as per Table 1 above.

Clause number	TENDER DATA																				
	<p>Table 2: Documents required for verification of Tenderer claimed points</p> <table><tr><th>Specific Goal</th><th>Requires Proof Documents</th></tr><tr><td>Women Ownership</td><td>Full CSD Report</td></tr><tr><td>Disability Ownership</td><td>Full CSD Report</td></tr><tr><td>Youth Ownership</td><td>Full CSD Report</td></tr><tr><td>Location of enterprise</td><td>Full CSD Report</td></tr><tr><td>B-BBEE status level contribution from level 1 to 2 which are QSE or EME</td><td><ul style="list-style-type: none">Valid B-BBEE certificate/sworn affidavitConsolidated B-BBEE certificate in cases of Joint VenturesFull CSD Report</td></tr></table> <p>Failure on the part of a bidder to submit proof of documentation required in terms of this tender to claim for specific goals with the bid, will be interpreted to mean that preference points for specific goals are not claimed and will not be allocated.</p>	Specific Goal	Requires Proof Documents	Women Ownership	Full CSD Report	Disability Ownership	Full CSD Report	Youth Ownership	Full CSD Report	Location of enterprise	Full CSD Report	B-BBEE status level contribution from level 1 to 2 which are QSE or EME	<ul style="list-style-type: none">Valid B-BBEE certificate/sworn affidavitConsolidated B-BBEE certificate in cases of Joint VenturesFull CSD Report								
Specific Goal	Requires Proof Documents																				
Women Ownership	Full CSD Report																				
Disability Ownership	Full CSD Report																				
Youth Ownership	Full CSD Report																				
Location of enterprise	Full CSD Report																				
B-BBEE status level contribution from level 1 to 2 which are QSE or EME	<ul style="list-style-type: none">Valid B-BBEE certificate/sworn affidavitConsolidated B-BBEE certificate in cases of Joint VenturesFull CSD Report																				
6.11.9	<p><u>Functionality (Quality) Score:</u></p> <p>The score obtained in 6.11.9 (functionality criteria) will be used for the following formula:</p> $N_Q = 100 \times \frac{S_0}{M_s}$ <p>Where</p> <p>$N_Q \rightarrow$ is the number of tender evaluation points awarded for functionality offered;</p> <p>$S_0 \rightarrow$ is the score for functionality criteria (6.11.9) allocated to the submission under consideration; and</p> <p>$M_s \rightarrow$ is the maximum possible score for functionality criteria (100).</p> <p>Functionality is the terminology used to define the technical ability of the Tenderer, based on experience, to deliver the required product in accordance with the specialised quality, reliability and functionality.</p> <p>Points allocated for functionality shall be evaluated in accordance with the criteria as listed below table. An overall minimum threshold of 70 (M_s) points out of total 100 (M_s) must be achieved for the tender to be eligible.</p> <p>See T2 returnable annexure (as indicated below) for applicable documents with detail on point allocation for the sub-criteria's.</p> <p>The quality criteria and maximum score in respect of each of the criteria are as follows:</p> <table><tr><th colspan="2">Functionality criteria</th><th>Sub-criteria</th><th>Maximum number of points</th></tr><tr><td>1</td><td>Company Experience</td><td>1) Schedule of similar current and past work undertaken 2) Completion certificates of previous projects completed 3) Contactable client reference letters 4) SANS compliance</td><td>26</td></tr><tr><td>2</td><td>Managerial Capacity</td><td>1) Contracts Manager 2) Site Agent 3) Foreman 4) Steel fixers/s (head of team)</td><td>24</td></tr><tr><td>3</td><td>Preliminary Method statement: Cut, Bend & Installing/Fixing Reinforcing Steel</td><td>1) Project Program 2) Methodology 3) Environmental, Health & Safety</td><td>50</td></tr><tr><td colspan="3">Maximum possible score for quality (M_s)</td><td>100</td></tr></table> <p>Quality shall be scored by not less than three evaluators in accordance with the following schedules:</p> <ul style="list-style-type: none">Annexure G & H: Company ExperienceAnnexure I & J: Managerial CapacityAnnexure L: Preliminary methods statement <p>The minimum number of evaluation points for functionality (quality) is 70.</p>	Functionality criteria		Sub-criteria	Maximum number of points	1	Company Experience	1) Schedule of similar current and past work undertaken 2) Completion certificates of previous projects completed 3) Contactable client reference letters 4) SANS compliance	26	2	Managerial Capacity	1) Contracts Manager 2) Site Agent 3) Foreman 4) Steel fixers/s (head of team)	24	3	Preliminary Method statement: Cut, Bend & Installing/Fixing Reinforcing Steel	1) Project Program 2) Methodology 3) Environmental, Health & Safety	50	Maximum possible score for quality (M_s)			100
Functionality criteria		Sub-criteria	Maximum number of points																		
1	Company Experience	1) Schedule of similar current and past work undertaken 2) Completion certificates of previous projects completed 3) Contactable client reference letters 4) SANS compliance	26																		
2	Managerial Capacity	1) Contracts Manager 2) Site Agent 3) Foreman 4) Steel fixers/s (head of team)	24																		
3	Preliminary Method statement: Cut, Bend & Installing/Fixing Reinforcing Steel	1) Project Program 2) Methodology 3) Environmental, Health & Safety	50																		
Maximum possible score for quality (M_s)			100																		

SCORING OF FUNCTIONALITY:

The prompts for judgment and the associated scores used in the evaluation of quality shall be as follows:

Each evaluation criteria will be assessed in terms of five indicators – no response, poor, satisfactory, good and very good. Scores of 0, 40, 70, 90 or 100 will be allocated to no response, poor, satisfactory, good and very good, respectively.

TABLE: (SANS ISO 10854-3:2022 Ed2 Table A4) Scoring system that shall be used to score this criterion

Score	Rating	Qualitative indicator or prompt for judgement		
		Example 1 (Proposed Organization and staffing)	Example 2 (Approach paper)	Example 3 (Knowledge of issues pertinent to the project)
0	No response	Failed to provide information.	Failed to provide information.	Failed to provide information.
40	Poor	The organization chart is sketchy, the staffing plan is weak in important areas. There is no clarity in allocation of tasks and responsibilities.	The technical approach and/or methodology is poor/is unlikely to satisfy project objectives or requirements. The tenderer has misunderstood certain aspects of the scope of work and does not deal with the critical aspects of the project.	Key staff have limited experience of issues pertinent to the project
70	Satisfactory	The organizational chart is complete and detailed, the technical level and composition of the staffing arrangements are adequate.	The approach is generic and not tailored to address the specific project objectives and methodology. The approach does not adequately deal with the critical characteristics of the project. The quality plan, manner in which risk is to be managed, etc. is too generic.	Key staff have reasonable experience of issues pertinent to the project.
90	Good	Besides attaining the "satisfactory" rating, staff are well-balanced, i.e. they show good co-ordination, complimentary skills, clear and defined duties and responsibilities. Some members of the project team have worked together before on limited occasions.	The approach is specifically tailored to address the specific project objectives and methodology and is sufficiently flexible to accommodate changes that might occur during execution. The quality plan and approach to managing risk, etc. is specifically tailored to the critical characteristics of the project.	Key staff have extensive experience of issues pertinent to the project.
100	Very good	Besides attaining the "good" rating, the proposed team is well-integrated and several members have worked together extensively in the past.	Besides attaining the "good" rating, the important issues are approached in an innovative and efficient way, indicating that the tenderer has outstanding knowledge of state-of-the-art approaches. The approach paper details ways to improve the project outcomes and the quality of the outputs.	Key staff have outstanding experience of issues pertinent to the project.

The scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for quality.

EXAMPLE OF EVALUATION:

Criteria	SCORE (out of 0% - 100%)	WEIGHT (POINTS)	TOTAL (A% score x 5 points)
Sub-Criteria	Score according to SANS ISO 10845-3:2022 ed2 Table A.4	Max allowed points for a (per) sub-criteria.	
Example 1	70 score (=70%): Satisfactory	5	= 5 * 70% = 3.5
Example 2	90 score (=90%): Good	20	= 20 * 90% = 18

Clause number	TENDER DATA
6.13	<p>Tender offers will only be accepted if:</p> <ul style="list-style-type: none"> a) the Tenderer is registered on the Central Supplier Database (CSD) for the South African government (see https://secure.csd.gov.za/) unless it is a foreign supplier with no local registered entity; b) the Tenderer is in good standing with SARS according to the Central Supplier Database; c) the Tenderer submits a letter of intent from an approved insurer undertaking to provide the Performance guarantee to the format included in Part C1.3 of this procurement document; d) the Tenderer is registered with the Construction Industry Development Board (CIDB) 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: <ul style="list-style-type: none"> i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect; g) the Tenderer has completed the Compulsory Declaration and there are no conflicts of interest which may impact on the Tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process; h) the Tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer; i) the employer is reasonably satisfied that the Tenderer has in terms of the Construction Regulations, 2003, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely.
6.17	The number of paper copies of the signed contract to be provided by the employer to the successful Bidder is One (1).



DEPARTMENT OF WATER AND SANITATION

DWS06 0523 WTE

**THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION
OR FIXING OF REINFORCING STEEL AND FABRIC
REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR
THE RAISING OF CLANWILLIAM DAM IN THE WESTERN
CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF
CIDB 8CE OR HIGHER**

T2: RETURNABLE DOCUMENTS AND SCHEDULES

CONTENTS

T2.1: LIST OF RETURNABLE DOCUMENTS AND SCHEDULES

T2.2 RETURNABLE DOCUMENTS AND SCHEDULES



T2.1 LIST OF RETURNABLE DOCUMENTS AND SCHEDULES

THE TENDER DOCUMENT MUST BE SUBMITTED AS A WHOLE i.e. All volumes (including the fully priced and extended Provisional Bills of Quantities) as is bound together in one single document herein. All forms must be properly completed in black ink as required, and the document shall not be taken apart or altered in any way whatsoever.

Note: Should any of the below-mentioned documents and/or the entire Tender Enquiry Document not be submitted the tender submission may be viewed as NON-RESPONSIVE.

The tendered must complete the following returnable document/schedules:

RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES THAT WILL BE INCORPORATED INTO THE CONTRACT		
Doc. Ref. Nr.	Document/ Schedule	Completed (Tick)
SBD 1	SBD 1: Invitation to Bid	
SBD 3.2	SBD 3.2: Bill of Quantities – Non-Firm Price (Priced and extended Provisional Bill of Quantities - Part C2.2)	
SBD 4	SBD 4: Declaration of Interest	
SBD 6.1	SBD 6.1: Preference Points Claim Form: General Conditions and Definitions	
LOCAL CONTENT	Local production and content: Annexures C	
FORM A	Certificate of Attendance at Compulsory Clarification Site Meeting	
FORM B	Record of Addenda to Tender Documents	
FORM C	Compulsory Declaration	
FORM D	Certificate Authority of Signatory	
FORM E	Annual Financial Statements Declaration	
FORM F	Pro Forma Form of Offer and Acceptance (Part C1.1)	
FORM G	Contract Data (Part C1.2)	
FORM H	Pro Forma Performance Guarantee (Part C1.3)	
FORM I	Contractor's health and safety declaration	
FORM J	Health and Safety Act agreement	
FORM K	Verification Documentation	
ANNEXURE A	Preferencing Schedule for Broad Based Black Economic Empowerment Status (a valid copy of B-BBEE certificate or original valid sworn affidavit)	
ANNEXURE B	Proof of Contractor Registration issued by the Construction Industry Development Board (CIDB)	
ANNEXURE C	Tax Compliance Status Pin page issued by the South African Revenue Services.	



RETURABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES THAT WILL BE INCORPORATED INTO THE CONTRACT		
Doc. Ref. Nr.	Document/ Schedule	Completed (Tick)
ANNEXURE D	Central Supplier Database (CSD) proof of registration containing MAAA number.	
ANNEXURE E	Bidder's copy of CIPC company registration documents listing all members with percentages	
ANNEXURE F	Letter of good standing from COIDA (Compensation for Occupational Injuries & Diseases Act)	
ANNEXURE G	Company Experience	
ANNEXURE H	Schedule of similar work undertaken	
ANNEXURE I	Managerial Capacity	
ANNEXURE J	Schedule of Qualifications / Experience of key project team members.	
ANNEXURE K	Schedule of Proposed sub-contractor together with a pro-forma sub-contracting agreement signed by both parties	
ANNEXURE L	Preliminary Method statements: Cut, Bend & Installing/Fixing Reinforcing Steel	

NOTE: Failure to provide all these listed documents may result in the tender not being evaluated



T2.2 RETURNABLE DOCUMENTS AND SCHEDULES



PART A INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF DEPARTMENT/ PUBLIC ENTITY)							
BID NUMBER:	DWS06 0523 WTE	CLOSING DATE: 15 JUNE 2023			CLOSING TIME:	11:00am	
DESCRIPTION	THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION OR FIXING OF REINFORCING STEEL AND FABRIC REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR THE RAISING OF CLANWILLIAM DAM IN THE WESTERN CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF CIDB 8CE OR HIGHER.						
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)							
THE BID BOX, AT THE ENTRANCE OF ZWAMADAKA BUILDING							
157 FRANCIS BAARD STREET							
PRETORIA, 0001							
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO				TECHNICAL ENQUIRIES MAY BE DIRECTED TO:			
CONTACT PERSON	Department of Water and Sanitation			CONTACT PERSON	Mr A. Frylinck		
TELEPHONE NUMBER	012 336 6562/8151/7780/8241			TELEPHONE NUMBER	064 761 0506		
FACSIMILE NUMBER				FACSIMILE NUMBER			
E-MAIL ADDRESS	bidenquirieswte@dws.gov.za			E-MAIL ADDRESS	FrylinckA@dws.gov.za		
SUPPLIER INFORMATION							
NAME OF BIDDER							
POSTAL ADDRESS							
STREET ADDRESS							
TELEPHONE NUMBER	CODE			NUMBER			
CELLPHONE NUMBER							
FACSIMILE NUMBER	CODE			NUMBER			
E-MAIL ADDRESS							
VAT REGISTRATION NUMBER							
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA		
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX]			B-BBEE STATUS LEVEL SWORN AFFIDAVIT		[TICK APPLICABLE BOX]	
	<input type="checkbox"/> Yes <input type="checkbox"/> No					<input type="checkbox"/> Yes <input type="checkbox"/> No	
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]							
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]			ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?		<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]	
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS							
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?						<input type="checkbox"/> YES <input type="checkbox"/> NO	
DOES THE ENTITY HAVE A BRANCH IN THE RSA?						<input type="checkbox"/> YES <input type="checkbox"/> NO	
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?						<input type="checkbox"/> YES <input type="checkbox"/> NO	
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?						<input type="checkbox"/> YES <input type="checkbox"/> NO	
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?						<input type="checkbox"/> YES <input type="checkbox"/> NO	
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.							



SBD 1

PART B TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA .
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

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

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:
(Proof of authority must be submitted e.g. company resolution)

DATE:



SBD 3.2 PRICING SCHEDULE

PRICING SCHEDULE – NON-FIRM PRICES (PURCHASES)

SBD 3.2 is in section – Contract C2, under C2.2

Complete this document and place back into bid at C2.2



BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

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

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

2. Bidder's declaration

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

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

Full Name	Identity Number	Name of State institution

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



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

2.2.1 If so, furnish particulars:

.....

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

2.3.1 If so, furnish particulars:

.....

3 DECLARATION

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

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The Bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 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.

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.



- 3.5 There have been no consultations, communications, agreements or arrangements made by the Bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the Bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

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

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder



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

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

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

1. GENERAL CONDITIONS

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

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

1.2 **To be completed by the organ of state**

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

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

- (a) Price; and
(b) Specific Goals.

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

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

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

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



2. DEFINITIONS

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

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

Where

P_s = Points scored for price of tender under consideration
 P_t = Price of tender under consideration
 P_{min} = Price of lowest acceptable tender



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

3.2.1. POINTS AWARDED FOR PRICE

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

$$\begin{array}{ccc}
 \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\
 \\
 \mathbf{Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)} & \mathbf{or} & \mathbf{Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)}
 \end{array}$$

Where

- Ps = Points scored for price of tender under consideration
 Pt = Price of tender under consideration
 Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

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

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



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

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

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)
Women Ownership	2	
Disability Ownership	2	
Youth Ownership	2	
Location of enterprise: Western Cape	1	
B-BBEE status level contribution from level 1 to 2 which are QSE or EME	3	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

SBD 6.1



- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
- (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

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

Annex C

(C1)	Tender No.
(C2)	Tender description:
(C3)	Designated product(s)
(C4)	Tender Authority:
(C5)	Tendering Entity name:
(C6)	Tender Exchange Rate:
(C7)	Specified local content %

Pula EU GBP

Signature of tenderer from Annex B

Date: _____

FORM A



FORM A CERTIFICATE OF ATTENDANCE AT COMPULSORY CLARIFICATION SITE MEETING

This is to certify that (*Tenderer*) I,

was represented by the person of (*Bidder*)

of(*address*)

Telephone number

named below at the compulsory meeting held for all Tenderers at (*location*).....

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

I acknowledge that the purpose of the meeting was to acquaint myself with the site of the works and / or matters incidental to doing the work specified in the tender documents in order for me to take account of everything necessary when compiling our rates and prices included in the tender.

Having previously studied the documents, I carefully examined the site and equipment. I have made myself familiar with all the equipment likely to influence the work and the cost thereof.

I further certify that I am satisfied with the description of the work and the explanations given by the Department of Water and Sanitation Representative, and I understand perfectly the work to be done, as specified and implied, in the execution of this Contract.

Particulars of person attending the meeting: (Signed on behalf of Bidder) PRINT NAME & SIGNATURE

Name: .. Signature:

Capacity:

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

Name: .. Signature:

Capacity: Date and Time:

FORM B



FORM B 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.		
9.		
10.		
11.		
12.		
13.		
14.		

Attach additional pages if more space is required.

Signed

Date

Name

Position

Tenderer



FORM C COMPULSORY DECLARATION

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

Section 1: Enterprise Details

Name of enterprise:	
Contact person:	
Email:	
Telephone:	
Cell no	
Fax:	
Physical address	
Postal address	

Section 2: Particulars of companies and close corporations

Company / Close Corporation registration number	
--	--

Section 3: SARS Information

Tax reference number	
VAT registration number:	<i>State Not Registered if not registered for VAT</i>

Section 4: CIDB registration number

CIDB Registration number (if applicable)	
---	--

Section 5: National Treasury Central Supplier Database

Supplier number	
Unique registration reference number	

Section 6: Particulars of principals

principal: means a natural person who is a partner in a partnership, a sole proprietor, a director of a company established in terms of the Companies Act of 2008 (Act No. 71 of 2008) or a member of a close corporation registered in terms of the Close Corporation Act, 1984, (Act No. 69 of 1984).

Full name of principal	Identity number	Personal tax reference number

Attach separate page if necessary

FORM C



Section 7: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any principal is currently or has been within the last 12 months in the service of any of the following:

- | | |
|--|--|
| <input type="checkbox"/> a member of any municipal council | <input type="checkbox"/> an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act of 1999 (Act No. 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature | |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> a member of the board of directors of any municipal entity | <input type="checkbox"/> an employee of Parliament or a provincial legislature |
| <input type="checkbox"/> an official of any municipality or municipal entity | |

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

Name of principal	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 8: Record of family member in the service of the state

family member: a person's spouse, whether in a marriage or in a customary union according to indigenous law, domestic partner in a civil union, or child, parent, brother, sister, whether such a relationship results from birth, marriage or adoption

Indicate by marking the relevant boxes with a cross, if any family member of a principal as defined in section 5 is currently or has been within the last 12 months been in the service of any of the following:

- | | |
|--|---|
| <input type="checkbox"/> a member of any municipal council | <input type="checkbox"/> 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) |
| <input type="checkbox"/> a member of any provincial legislature | |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> a member of the board of directors of any municipal entity | <input type="checkbox"/> an employee of Parliament or a provincial legislature |
| <input type="checkbox"/> an official of any municipality or municipal entity | |

Name of family member	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 9: Record of termination of previous contracts with an organ of state

FORM C



Was any contract between the tendering entity including any of its joint venture partners terminated during the past 5 years for reasons other than the employer no longer requiring such works or the employer failing to make payment in terms of the contract.

☐ Yes ☐ No (Tick appropriate box)

If yes, provide particulars (interest separate page if necessary)

Section 10: Declaration

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the tendering entity confirms that the contents of this Declaration are within my personal knowledge, and save where stated otherwise in an attachment hereto, are to the best of my belief both true and correct, and:

- i) neither the name of the tendering entity or any of its principals appears on:
 - a) the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 (Act No. 12 of 2004)
 - b) National Treasury's Database of Restricted Suppliers (see www.treasury.gov.za)
- ii) neither the tendering entity or any of its principals has within the last five years been convicted of fraud or corruption by a court of law (including a court outside of the Republic of South Africa);
- iii) any principal who is presently employed by the state has the necessary permission to undertake remunerative work outside such employment (attach permission to this declaration);
- iv) the tendering entity is not associated, linked or involved with any other tendering entities submitting tender offers
- v) has not engaged in any prohibited restrictive horizontal practices including consultation, communication, agreement, or arrangement with any competing or potential tendering entity regarding prices, geographical areas in which goods and services will be rendered, approaches to determining prices or pricing parameters, intentions to submit a tender or not, the content of the submission (specification, timing, conditions of contract etc) or intention to not win a tender;
- vi) has 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;
- vii) neither the Tenderer or any of its principals owes municipal rates and taxes or municipal service charges to any municipality or a municipal entity and are not in arrears for more than 3 months;
- viii) SARS may, on an on-going basis during the term of the contract, disclose the Tenderer's tax compliance status to the Employer and when called upon to do so, obtain the written consent of any subcontractors who are subcontracted to execute a portion of the contract that is entered into in excess of the threshold prescribed by the National Treasury, for SARS to do likewise.

NOTE 1 The Standard Conditions of Tender contained in SANS 10845-3 prohibits anticompetitive practices (clause 3.1) and requires that Tenderers avoid conflicts of interest, only submit a tender offer if the Tenderer or any of his principals is not under any restriction to do business with employer (4.1.1) and submit only one tender either as a single tendering entity or as a member in a joint venture (clause 4.13.1). Clause 5.7 also empowers the Employer to disqualify any Tenderer who engages in fraudulent and corrupt practice. Clause 3.1 also requires Tenderers to comply with all legal obligations.

NOTE 2: Section 30(1) of the Public Service Act, 1994, prohibits an employee (person who is employed in posts on the establishment of departments) from performing or engaging remunerative work outside his or her employment in the relevant department, except with the written permission of the executive authority of the department. When in operation, Section 8(2) of the Public Administration Management Act, 2014, will prohibit an employee of the public administration (i.e. organs of state and all national departments, national government components listed in Part A of Schedule 3 to the Public Service Act, provincial departments including the office of the premier listed in Schedule 1 of the Public Service Act and provincial departments listed in schedule 2 of the Public Service Act, and provincial government components listed in Part B of schedule 3 of the Public Service Act) or persons contracted to executive authorities in accordance with the provisions of section 12A of the Public Service Act of 1994 or persons performing similar functions in organs of state from conducting business with the State or to be a director of a public or private company conducting business with the State. The offence for doing so is a fine or imprisonment for a period not exceeding 5 years or both. It is also a serious misconduct which may result in the termination of employment by the employer.

NOTE 3: Regulation 44 of Supply Chain Management regulations issued in terms of the Municipal Finance Management Act of 2003 requires that organs of state and municipal entities not award a contract to a person who is the service of the state, a director, manager or principal shareholder in the service of the state or who has been in the service of the state in the previous twelve months.

NOTE: 4: Regulation 45 of Supply Chain Management regulations requires a municipality or municipal entity to disclose in the notes to the annual statements particulars of any award made to a close family member in the service of the state.

NOTE: 5 Corrupt activities which give rise to an offence in terms of the Prevention and Combating of Corrupt Activities Act of 2004) include improperly influencing in any way the procurement of any contract, the fixing of the price, consideration or other moneys stipulated or otherwise provided for in any contract and the manipulating by any means of the award of a tender.

FORM C



NOTE: 6 Section 4 of the Competition Act of 1998 prohibits restrictive horizontal practice including agreements between parties in a horizontal relationship which have the effect of substantially preventing or lessening competition, directly or indirectly fixing prices or dividing markets or constitute collusive tendering. Section 5 also prohibits restrictive vertical practices. Any restrictive practices that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties.

Signed	Date
Name	Position
Tenderer .....	.....
.....	

FORM D



FORM D CERTIFICATE AUTHORITY OF SIGNATORY

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. Delete whichever is inapplicable.

A Company	B Partnership	C Joint Venture	D Sole Proprietor	E Close Corporation
--------------	------------------	--------------------	----------------------	------------------------

A. CERTIFICATE FOR COMPANY

I,, chairperson of the board of directors of
.....,

hereby confirm that by resolution of the board taken on 20.....

Mr/Ms....., acting in the capacity

of, was authorised to sign all documents in connection with this tender for

Contract reference number and any contract resulting from it

on behalf of the company.

As witnesses:-

1.
Witness Chairman

2.
Witness Date

FORM D



B. CERTIFICATE FOR PARTNERSHIP

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

.....

hereby authorise Mr/Ms,

acting in the capacity of to sign

all documents in connection with the tender for Contract reference number

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.

FORM D



C. CERTIFICATE FOR JOINT VENTURE

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 for Contract reference number..... and any contract resulting from it on our behalf.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all the partners to the Joint Venture.

NAME OF FIRM	ADDRESS	AUTHORIZING SIGNATURE, NAME & CAPACITY
Lead Partner		
Partner 1		
Partner 2		
Partner 3		
Partner 4		

FORM D



D. CERTIFICATE FOR SOLE PROPRIETOR.

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

As witnesses:-

1.
Witness Signature: Sole owner

2.
Witness Date

FORM D



E. CERTIFICATE FOR CLOSE CORPORATION

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

.....
.....

hereby authorise Mr/Ms,

acting in the capacity of to sign

all documents in connection with the tender for Contract reference number

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.



FORM E ANNUAL FINANCIAL STATEMENTS DECLARATION

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

- 1) The enterprise's financial year end is
- 2) The enterprise's financial statements have been prepared in accordance with the provisions of the Companies Act of 2008 or the Close Corporation Act of 1984, as applicable
- 3) The enterprise has compiled its financial accounts [tick one box]:

☐ internally
☐ independently
- 4) The following statement applies to the enterprise [tick one box and provide relevant information]

☐ enterprise has had its financial statements audited;
 name of auditor

☐ enterprise is required by law to have an independent review of its financial statements
 name of independent reviewer

☐ enterprise has not had its financial statements audited and is not required by law to have an independent review or audit of such statements
- 5) The attached income statement and balance sheet is a true extract from the financial statements complying with applicable legislation for the preceding financial year within 12 months of the financial year end.
[Attach the income statement and the balance sheet contained in the financial statement]
- 6) The annual turnover for the last financial year is R
- 7) The total assets as at the end of the last financial year is R
- 8) The total liabilities as at the end of the financial year is R

I hereby declare that the contents of this Declaration are within my personal knowledge, and save where stated otherwise are to the best of my belief both true and correct.

Signed

Date

Name

Position

Tender



FORM F PRO FORMA FORM OF OFFER AND ACCEPTANCE

Pro Forma Form of Offer and Acceptance is in section – Contract C1, under C1.1

Complete this document and place back into bid at C1.1



FORM G CONTRACT DATA

Contract data is in section – Contract C1, under C1.2

Complete this document and place back into bid at C1.2



FORM H PRO FORMA PERFORMANCE GUARANTEE

Pro Forma Performance Guarantee is in section – Contract C1, under C1.3

Complete this document and place back into bid at C1.3



FORM I 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 authorised 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 / enterprise 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 undertake, if my tender is accepted, to provide a sufficiently documented Health and Safety Plan in accordance with Regulation 5(1) of the Construction Regulations, approved by the Employer or his representative, before I will be allowed to commence with construction work under the contract. I hereby agree that my company/enterprise will not have a claim for compensation for delay or extension of time because of my failure to obtain the necessary approval for the said safety plan.
4. 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, visitors, and officials and inspectors of the Department of Labour.
5. 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 for specific items that may be scheduled in the bill of quantities.
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 for failure on my part to comply with the provisions of the Act and the Regulations as set out in Regulation 30 of 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.
8. I am aware of the fact that, should I be awarded the contract, I must submit the notification required in terms of Regulation 3 of the OHSA 1993 Construction Regulations 2003 before I will be allowed to proceed with any work under the contract.

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)



FORM J HEALTH AND SAFETY ACT AGREEMENT

AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, NO. 85 OF 1993

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety, Act No. 85 of 1993, hereinafter referred to as 'the Act', that the Contractor as an employer in its own right and in its capacity as Contractor for the execution of the works, shall have certain obligations and that the following arrangements shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:-

- i) The Contractor undertakes to acquaint the appropriate officials and the employees of the Contractor with all relevant provisions of the Act, and the regulations promulgated in terms of the Act, and
- ii) The Contractor undertake that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully complied with, and
- iii) The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations and expressly absolves the Employer from being obliged to comply with any of the aforesaid duties, obligations and prohibitions.
- iv) The Contractor shall be obliged to report forthwith to the Employer any investigation, complaint, or criminal charge which may arise as a consequence of the provisions of the Act and regulations pursuant to work performed on behalf of the Employer, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

SIGNED at On this day of 20.....

For and on behalf of the Contractor: Name: _____

Company Name: _____

AS WITNESSES:

1. _____

2. _____

for and on behalf of the Employer:

AS WITNESSES:

1. _____

2. _____

NOTE: As and when required; the Contractor will be required to sign project specific agreements in terms of section 37(2) of the Occupational Health and Safety Act no 85 of 1993.



FORM K VERIFICATION DOCUMENTATION

VERIFICATION DOCUMENTATION

The Tenderer shall attach the following documentation in support of the pre-qualification specification of this bid:

A valid copy of B-BBEE Status Level Verification Certificate issued by accredited Verification Agency/s by SANAS, together with their bid to substantiate their B-BBEE rating claims.

A trust, consortium or joint venture (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE Status Level Verification certificate to substantiate their B-BBEE rating claims.

An EME is required to submit a sworn affidavit confirming their annual total revenue of R10 million or less and level of black ownership to substantiate their EME rating claims.

An EME that is regarded as a Specialized Enterprise is required to submit a sworn affidavit confirming their annual turnover/allocated budget/ gross receipt of R10 million or less and level of percentage of black beneficiaries to substantiate their EME rating claims.

A QSE is required to submit a sworn affidavit confirming their annual total revenue of between R10 million and R50 million and level of black ownership or a B-BBEE level verification certificate to substantiate their QSE rating claims.

NOTE: It is a requirement of this contract that the verification documentation of the names of proposed Sub-contractors for the work must be provided with the Tender.

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

DATE:



ANNEXURE A B – BBEE STATUS VERIFICATION CERTIFICATE

Preferencing schedule: Broad Based Black Economic Empowerment Status

Preamble

Section 10(b) of the Broad-Based Black Economic Empowerment Act of 2003 (Act No. 53 of 2003) states that “Every organ of state and public entity must take into account and, as far as is reasonably possible, apply any **relevant code of good practice** issued in terms of this Act in developing and implementing a preferential procurement policy.”

A number of codes of good practice have been issued in terms of Section 9(1) of the B-BBEE Act of 2003 including a generic code of good practice and various sector codes. The sector codes vary the metrics, weightings and targets used in the generic code of good practice to establish the overall performance of an entity and its B-BBEE status. The B-BBEE status needs to be assessed in accordance with the applicable code.

1 Conditions associated with the granting of preferences

Tenderers who claim a preference shall provide sufficient evidence of their B-BBEE Status in accordance with the requirements of section 2 in respect of the applicable code as at the closing time for submissions, failing which their claims for preferences will be rejected.

2 Sufficient evidence of qualification

2.1 Exempted micro enterprises

Sufficient evidence of qualification as an Exempted Micro-Enterprise is a :

- a) a sworn affidavit - B-BBEE Exempted Micro Enterprise (see www.thedti.gov.za/gazettes/Affidavit_EME.pdf)

2.2 Enterprises other than micro exempted enterprises

Sufficient evidence of B-BBEE Status is:

- a) A valid copy of the certificate issued by a verification agency accredited by the South African National Accreditation System (SANAS) ; or.
b) a valid original sworn affidavit – B-BBEE Qualifying Small Enterprise (see www.thedti.gov.za/gazettes/BBEE_QUALIFYING_SMALL_ENTERPRISE.pdf)

3 Declaration

The Tenderer declares that

- a) the tendering entity is a level contributor as stated in the submitted evidence of qualification as at the closing date for submissions
b) the tendering entity has been measured in terms of the following code (*tick applicable box*)

☐ Generic code of good practice

☐ Other – specify

- c) the contents of the declarations made in terms of a) and b) above are within my personal knowledge and are to the best of my belief both true and correct

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the Tenderer confirms that he / she understands the conditions under which such preferences are granted and confirms that the Tenderer satisfies the conditions pertaining to the granting of tender preferences.

ANNEXURE A



Signature :

Name :

Duly authorised to sign on behalf of :

Telephone :

Fax: Date :

Name of witness Signature of witness

Note: 1) Failure to complete the declaration will lead to the rejection of a claim for a preference

- 2) Supporting documentation of the abovementioned claim for a preference must be submitted with the tender submission to be eligible for a preference

NOTE: ATTACHED TOGETHER WITH PREFERENCING SCHEDULE THE FOLLOWING:

Attached B-BBEE Status level in a valid copy of B-BBEE certificate issued in accordance with the revised Notice of Clarification published in the Notice 44 of 2015 published in Government Gazette 38799 on 15 May 2015 by the Department of Trade and Industry.

Attached hereto this page is my / our B-BBEE Status Level verification Certificate/ sworn affidavit. My failure to submit the certificate or sworn affidavit with my / our tender document may result in the award of 0 (zero) points allowable for this specific goal.

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

DATE:

ANNEXURE B



ANNEXURE B PROOF OF REGISTRATION WITH CIDB

CONTRACTOR'S PROOF OF REGISTRATION WITH CIDB

Attached to this page: Proof of Contractor Registration issued by the Construction Industry Development Board (CIDB).

Note: Only proof of CIDB grading for specified category 8CE or higher are acceptable. Applications, or acknowledgement of applications by CIDB, will only be acceptable if it is certain that the application will be successful and a certificate will be issued before award of the contract.

Attached hereto this page is my / our proof of Registration with CIDB. My failure to submit proof that the company is registered with CIDB on the required grading with my / our tender document at the closing of the bid will lead to the conclusion that I am / we are not registered with the CIDB and therefore will not be eligible to tender.

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

DATE:

ANNEXURE C



ANNEXURE C TAX COMPLIANCE STATUS PIN PAGE

CONTRACTOR'S TAX COMPLIANCE STATUS PIN

Attached to this page: A copy of valid Tax Compliance Status pin page (to be confirmed/verified through SARS).

Attached hereto this page is my / our copy of valid Tax compliance status pin page. My / our failure to submit Tax compliance status pin page with my / our tender document and also to maintain a tax compliance status on CSD during the tendering period may lead to the conclusion that I am / we are not eligible to be awarded this tender.

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

DATE:

ANNEXURE D



ANNEXURE D CENTRAL SUPPLIER DATABASE

CONTRACTOR'S CENTRAL SUPPLIER DATABASE (CSD) PROOF OF REGISTRATION

Attached to this page: Central Supplier Database (CSD) proof of registration containing MAAA number.

Attached hereto this page is my / our Proof of Registration with National Treasury's Central Supplier Database (CSD).

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

DATE:

ANNEXURE E



ANNEXURE E COMPANY INTELLECTUAL PROPERTY COMMISSION CERTIFICATE

CONTRACTOR'S COMPANY INTELLECTUAL PROPERTY COMMISSION (CIPC/CIPRO) PROOF OF REGISTRATION

Attached to this page: Copies of Bidder's CIPC / CIPRO company registration documents listing all members with percentages.

Attached hereto this page is my / our Proof of CIPC/CIPRO active registration certificate.

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

DATE:

ANNEXURE F



ANNEXURE F LETTER OF GOOD STANDING FROM COIDA

CONTRACTOR'S LETTER OF GOOD STANDING FROM COIDA

Attached to this page: A valid letter of Good Standing with the Compensation Commissioner in terms of the Compensation for Occupational Injuries and Diseases Act No 130 of 1993 and or third parties insurance registered with Financial Service Board

Attached hereto this page is my / our Letter of Good Standing from COIDA.

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

DATE:



ANNEXURE G COMPANY EXPERIENCE

COMPANY EXPERIENCE

[MAX POINTS: 26]

Attached to this page proof at least a minimum of 3 projects:

- Signed completion certificates (Final IPC) together with client reference letters for similar works projects complete
- These final signed completion certificates (Final IPC) conducted in the recent 10 years where reinforcement were cut, bend, deliver on site and installed or fixed for that project must be for the value of R 12,5 million or more.

Tenderer can provide more than 3 signed **completion certificates** for relevant work completed, together with at least 3 client reference letters for 3 of these completion certificates submitted. The three client letters will be used to do reference checks on the contractor.

With proof of value together with completion certificates of previous projects completed, where the value of the projects is stated in other currencies, state the exchange rate at the time of project execution.

The tenderer is also requested to submitted the following:

- The Company SABS : Permit to apply certification mark in accordance with SANS 920:2011 Certificated – Steel bars for concrete reinforcement; &
- Letter of confirmation that SANS 282: 2001 Bending dimensions and scheduling of steel reinforcement for concrete will be adhere to.

The client reference should have the following:

- Description of the project / title of project,
- Scope of work completed,
- Period of the contract / time frame,
- Contract amount/value of work done,
- Client Name, &
- Client contact details (Telephone number, Cell phone number and E-mail Address),
- Reference letter to be sign by client/employer

Only the following will be considered as similar work conducted:

Completed projects where reinforcement were:

- Cut, bend and delivery as per bending schedules or drawings,
- Delivery of reinforcement on construction site as per schedule,
- Also fixed or installed on site for bridges, OR large buildings AND OR water related structures.

will count for relevant work done and therefor will be accepted for evaluation.

For each project indicated on “Annexure H: Schedule of similar work undertaken” proof of signed completion certificated, the value of project completed and scope of work done, should be provided.

This scoring system as indicated Table G.1 shall be used to score these criteria.

ANNEXURE G



Table G.1: Evaluation of Company Experience

FUNCTIONAL CRITERIA: 1- COMPANY EXPERIENCE [MAXIMUM POINTS 26]	SCORE:
<p>A - SUB-CRITERIA: [MAX POINTS 20]</p> <p>Providing of at least 3 x client reference letters (as per above requirements) together with the relevant signed completion certificates for <u>10 or more</u> projects signed completion certificates for similar work completed (as describe above). [20 points]</p> <p>Providing of at least 3 x client reference letters (as per above requirements) together with the relevant signed completion certificates for <u>8 or more but less than 10</u> projects signed completion certificates for similar work completed (as describe above). [16 points]</p> <p>Providing of at least 3 x client reference letters (as per above requirements) together with the relevant signed completion certificates for <u>6 or more but less than 8</u> projects signed completion certificates for similar work completed (as describe above). [12 points]</p> <p>Providing of at least 3 x client reference letters (as per above requirements) together with the relevant signed completion certificates for <u>3 or more but less than 6</u> projects signed completion certificates for similar work completed (as describe above). [6 points]</p> <p>Less than 3 project .....[0 points]</p>	
<p>B - SUB-CRITERIA: [MAX 6 POINTS]</p> <p>Providing both:</p> <ul style="list-style-type: none"> The Company SABS : Permit to apply certification mark in accordance with SANS 920:2011 Certificated – Steel bars for concrete reinforcement; & Letter of confirmation that SANS 282: 2001 Bending dimensions and scheduling of steel reinforcement for concrete will be adhere to. [6 point] <p><u>By omitting to provide both SANS certificated and confirmation letter will result in allocation of ZERO points for this sub-criteria</u></p>	
TOTAL	

Attached hereto this page is my / our documents as listed above.

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

DATE:

ANNEXURE H



ANNEXURE H

SCHEDULE OF SIMILAR WORK UNDERTAKEN

The Bidder shall, in the schedule hereunder, list all work of a similar nature to that contained in this Contract which has been successfully executed by him during the past ten years and/or which is at present being carried out by him.

DESCRIPTION AND LOCALITY OF WORK (NATURE OF WORK)	NAME TELEPHONE NUMBER AND EMAIL ADDRESS OF FIRM OF ENGINEERS, MUNICIPALITY, OR GOVERNMENT DEPARTMENT WHO ADMINISTERED THE WORK	VALUE OF WORK IN RAND (Inclusive of VAT)	DATE COMPLETED OR EXPECTED TO BE COMPLETED

NOTE: IF NO SIMILAR WORK HAS BEEN CARRIED OUT, THE ABOVE SCHEDULE IS TO BE MARKED "NIL" BY THE TENDERER

NAME OF BIDDER: _____

COMPANY NAME: _____

SIGNATURE OF BIDDER: _____

DATE: _____

IMPORTANT NOTE:

FAILURE BY THE BIDDER TO LIST PREVIOUS SIMILAR WORK DONE, THE BID SHALL BE REGARDED AS NON-RESPONSIVE



ANNEXURE I MANAGERIAL CAPACITY

MANAGERIAL CAPACITY

[MAX POINTS: 24]

The tenderer shall attach to Annexure I / Annexure J, his proposed management and key personal structure AND human resource plan for the execution of the works as follows but not limited to:

1. Organogram (showing site management reporting to top management)
2. CV's (inclusive certified certificates of qualifications) of key personnel showing applicable experience. *(As listed in "Schedule of qualifications / experience key project team members" – Annexure J).*
3. Proof of qualifications, and accreditation / affiliations for experience key personnel / staff. *(As listed in "Schedule of qualifications / experience of key project team members" – Annexure J)*

With the following identified key project team members (but not limited to) required proof of experience, qualifications/training, and where applicable registration:

- Contract manager: Must have a Civil Engineering Diploma **OR** BTech **OR** Degree qualification **together with**, SACPCMP registration with 10 years work experience as a contracts manager post registration **EITHER OR** a valid Professional Engineering (PR.Eng. / PR Eng. Tech / PR Eng. Techni) registration with ECSA as a Civil Engineer or Technologist or Technician with at least 10 years post registration work experience as a contracts manager. (Proof of qualification, registration together with a detailed/full CV to be submitted).
- Site agent: Must have at least total of 10 years working experience appointed as a site agent on Civil construction sites.
- Foreman: Must have experience in reinforcement fixing and installation on Civil construction sites of at least 10 years' experience.
- Steel fixer/s (for the head of a team): Must have a valid Certificated of NFQ Level 2 with SAQA, Unit Standard Title "Assemble, tie and install reinforcing cages". With at least 5 years' experience after obtaining the certificate(s)/qualification(s). Must be able to read and understand steel drawings, bending schedules, good people working skills.

This scoring system as indicated in Table I.1 shall be used to score this criteria

Attached hereto this page is my / our documents as listed above.

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

DATE:

ANNEXURE I



Table I.1: Evaluation of Managerial Capacity

TABLE I.1 FUNCTIONAL CRITERIA: 2- MANAGERIAL CAPACITY	[MAX24]	SCORE
SUB-CRITERIA: Contracts Manager (Construction Manager) [MAX 9] FOR EITHER SACPCMP OR ECSA REGISTRATION Proof that Contracts Manager has more than 20 years of relevant work experience. [9 points] Proof that Contracts Manager has 15 years or more but less than 20 years of relevant work experience. [8 points] Proof that Contracts Manager has less than 15 years but more than 10 years of relevant work experience. [6 points] If the Contracts manager has less than 10 years will mean that the Bidder is non-responsive. [0 points] NOTE: In the case of registered as both, the highest score will take preference. ATTACHED CV'S (proven relevant experience, qualifications & registration)		
SUB-CRITERIA: Site Agent [MAX 5] Proof that Site Agent has more than 20 years of relevant work experience. [5 points] Proof that Site Agent has 15 years or more but less than 20 years of relevant work experience. [4 points] Proof that Site Agent has 10 years or more but less than 15 years of relevant work experience. [3,5 points] If Site Agent has less than 10 years will mean that the bidder is non-responsive. [0 points] ATTACHED CV'S (proven relevant experience, qualification& registration)		
SUB-CRITERIA: Foreman [MAX 5] Proof that Foreman has more than 20 years of relevant work experience. [5 points] Proof that Foreman has 15 years or more but less than 20 years of relevant work experience. [4 points] Proof that Foreman has 10 years or more but less than 15 years of relevant work experience. [3,5 points] If Foreman has less than 10 years will mean that the bidder is non-responsive. [0 points] ATTACHED CV'S (proven relevant experience, qualifications & registration)		
SUB-CRITERIA: Steel Fixer [MAX 5] Proof that Steel Fixer has more than 15 years of relevant work experience after obtaining qualification. [5 points] Proof that Steel Fixer has 10 years or more but less than 15 years of relevant work experience after obtaining qualification. [4 points] Proof that Steel Fixer has 5 years or more but less than 10 years of relevant work experience after obtaining qualification. [3,5 points] If Steel Fixer has less than 5 years after obtaining qualification will mean that the bidder is non-responsive. [0 points] ATTACHED CV'S (proven relevant experience, qualifications & qualification)		
TOTAL		

ANNEXURE J



ANNEXURE J SCHEDULE OF QUALIFICATIONS / EXPERIENCE OF KEY PROJECT TEAM MEMBERS

SCHEDULE OF QUALIFICATIONS / EXPERIENCE OF KEY PROJECT TEAM MEMBERS

The Bidder shall state hereunder the qualifications and experience of each key project team members whom he proposes to employ in the execution of all or main sections of the works.

NAME	QUALIFICATIONS	PROJECT TEAM MEMBER (WORKS AND TIME SPENT)

SIGNATURE OF BIDDER

DATE

SCHEDULE OF PROPOSED SUB-CONTRACTORS

In accordance with the General Conditions of Contract the Bidder shall state hereunder the names of Sub-contractors he proposes to employ for the execution of certain sections of the Works.

[illegible]

ANNEXURE K



DID YOU ATTACH ORIGINAL AND VALID TAX CLEARANCE CERTIFICATES OF ALL SUB-CONTRACTORS AS LISTED ABOVE?

YES ☐ NO ☐

FAILURE BY THE BIDDER TO ATTACH LISTED SUB-CONTRACTORS' ORIGINAL AND VALID TAX CLEARANCE CERTIFICATES, THE BID MAY BE REGARDED AS NON-RESPONSIVE

DID YOU ATTACH CERTIFIED COPIES OF VALID B-BBEE CERTIFICATES OF ALL SUB-CONTRACTORS' AS LISTED ABOVE?

YES ☐ NO ☐

FAILURE BY THE BIDDER TO ATTACH LISTED SUB-CONTRACTORS' CERTIFIED COPIES OF VALID B-BEE CERTIFICATES OR IN CASE OF EMEs A SWORN AFFIDAVIT OBTAINABLE FROM THE DEPARTMENT OF TRADE AND INDUSTRY, THE BID MAY BE REGARDED AS NON-RESPONSIVE

DID YOU ATTACH CERTIFIED COPIES OF VALID ID DOCUMENTS OF OWNERS OF ALL SUB-CONTRACTORS' AS LISTED ABOVE?

YES ☐ NO ☐

FAILURE BY THE BIDDER TO ATTACH LISTED SUB-CONTRACTORS' CERTIFIED COPIES OF VALID ID DOCUMENT, THE BID MAY BE REGARDED AS NON-RESPONSIVE

DID YOU ATTACH CERTIFIED COPIES OF INCORPORATION OF THE COMPANY (CIPC CERTIFICATES) OF ALL SUB-CONTRACTORS AS LISTED ABOVE?

YES ☐ NO ☐

FAILURE BY THE BIDDER TO ATTACH LISTED SUB-CONTRACTORS' CERTIFIED COPIES OF INCORPORATION OF COMPANY (CIPC CERTIFICATES), THE BID MAY BE REGARDED AS NON-RESPONSIVE

NAME OF BIDDER: _____

COMPANY NAME: _____

SIGNATURE OF BIDDER: _____

DATE: _____



ANNEXURE L PRELIMINARY METHOD STATEMENT FOR – Cut, Bend & Installing/Fixing Reinforcing Steel

The tenderer must acquaint themselves with the scope of work (Section C3) before writing this preliminary method statement.

Method Statement must be submitted with the tender to evaluate the ability of the Contractor to perform the work according to specification.

The attached method statement under this annexure, Cut, Bend & Installing/Fixing Reinforcing Steel shall include the 3 sections as show in table L.1. More information on each of these sections is explain below.

Table L.1: Summary of Method statement layout

METHOD STATEMENT FOR CUT, BEND & INSTALLING/FIXING REINFORCING STEEL		TOTAL POINTS 50
SUB-CRITERIA (AS EXPLAINED BELOW)		MAXIMUM POINTS
1	Project program	10
2	Environmental, Health & Safety	10
3	Methodology – that will be used to do the work	30

Table L.1 will be score to the Table L.2. Table L.2 indicated the point allocated under each sub-criteria.

Scoring system that shall be used to score this criterion is as per SANS ISO 10854-3:2022 Ed2 Table A4.

The evaluators are to score the functionality criteria's and sub-criteria's as per SANS ISO 10854-3:2022 Ed2 Table A4 (unless otherwise stated). The score allocated needs to be applied as a percentage of total maximum allowed points for the evaluated specific criteria as indicated in example below.

EXAMPLE OF EVALUATION:

Criteria	SCORE (out of 0-100%)	WEIGHT (POINTS)	TOTAL (A% score x 5 points)
Sub-Criteria	0-100 according to Table L.2	Max allowed points for this sub-criteria i.e 5 POINTS	
Example 1	70 score (=70%): Satisfactory	5	= 5 * 70% = 3.5
Example 2	90 score (=90%): Good	20	= 20 * 90% = 18

ANNEXURE L



METHOD STATEMENT SECTIONS EXPLAINED:

1) PROJECT PROGRAM:

[MAX: 10 POINTS]

The tendered shall attached a preliminary programme of works (project program), reflecting the proposed sequence, duration, and milestones of execution of the various activities comprising the work for this contract. This program shall be in line with the methodology.

The programme shall be in accordance with the information provided and with all other relevant aspects of the tender.

An preliminary programme in the form of a Gant chart must be submitted with the tender. The following must be shown (but not limited to):

- The proposed sequence of the various activities.
- The dependencies that exist between the activities and whether these are time related or resource limited.
- Any shutdown periods proposed by the Contractor.
- Any slack time built into various activities or sub-phases.
- The critical path of the work to be undertaken.

This programme shall be in sufficient detail so that it can form the basis of a more detailed construction programme to be prepared after the Contract has been awarded.

Nr	Work Place	Start Date	End Date	Working days
1.	Cut, bend & installing/fixing reinforcing steel for the Cofferdam and Intake Tower with Inlet works u/s of dam wall			
2.	Cut, bend & installing/fixing reinforcing steel for the Tunnel and Outlet works installing/ including Right Bank Chambers			
3.	Cut, bend & installing/fixing reinforcing steel for Left and Right Bank Pipe encasement			
4.	Cut, bend & installing/fixing reinforcing steel for Gallery sections			
5.	Cut, bend & installing/fixing reinforcing steel for Spillway and Apron Sections			
6.	Cut, bend & installing/fixing reinforcing steel for the Left and Right Bank retaining Walls			

Page limitation: Max – 2 pages writing & 2 Attachment pages

2) ENVIRONMENTAL, HEALTH & SAFETY:

[MAX: 10 POINTS]

2.1) ENVIRONMENT:

[MAX: 5 POINTS]

Proposed contract specific Environmental Management System, inclusive of environmental management plan and waste management plan. This shall also contain details of all site layouts, pollution prevention measures and environmental protection measures. Provide environmental plan management system, including site environmental inspection documents for all the work to be carried out with specific reference to:

- EMP
- CWD 67

2.2) HEALTH & SAFETY:

[MAX:5 POINTS]

Provide Health and Safety management (plan) system for all the work to be carried out with specific reference to:

- Organogram and legal appointments,
- Preliminary baseline risk assessment for all activities (Cutting, Bending, Installing/fixing of reinforcement),
- File structure of documentation,&
- Safe handling of reinforcement steel.

Page limitation: Max – 3 to 4 page for section 2 – Environmental, Health & Safety.

Tender

Part T2: Returnable documents

T2.2
Preliminary Method Statement: Drilling & Blasting
Page | 66

ANNEXURE L



3) METHODOLOGY:

[MAX: 30 POINTS]

It is a requirement that the Tenderer shall attach / submit a preliminary Method Statement. This method statement should address the following (but not limited to) in adequately details:

- Methods and equipment/tools to be used for the cut and bend of various required size and shapes of reinforcement, including durations and any associated risk factors;
- Transport of materials;
- Methods, equipment/tools and materials to be used for the installation / fixing of various required size and shapes of reinforcement, including durations and any associated risk factors;
- Quality management,
- Intended method of measurement

For each of the major work sections:

- Cofferdam and Intake Tower with Inlet Works U/S of the dam wall inclusive of parking area
- Tunnel, Left Bank Outlet Works and Right Bank Outlet Works
- All Pipe Encasements
- Galleries
- Spillway and Apron
- Left Bank and Right Bank NOC
- Left Bank and Right Bank Retaining walls

It is requested that method statement submitted is limited to maximum of 4 pages.

Attached hereto this page is my / our Preliminary Method Statement for Cut, Bend & Installing/Fixing Reinforcing Steel.

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)

ANNEXURE L



Tabel L.3: Point allocation for each section

(4) FUNCTIONAL CRITERIA- METHOD STATEMENT: CUT, BEND & INSTALLING/FIXING REINFORCING STEEL (ref T1: 5.11.8 & 5.11.9)			(TOTAL 60)
A fully completed and signed with the following sections:			
SUB-CRITERIA:1 - PROJECT PROGRAM	SCORE out of 0-100%	WEIGHT (POINTS)	TOTAL (% score x 5 points)
<p>A fully completed and signed program for each section and the entire project which have: [Max 10]</p> <ul style="list-style-type: none"> Gannt Chart with timeline, deliverables, milestones, dependencies Time taken to complete the entire project within 55 months Deliverables: Activities and their chronological order for the execution of the project Dependencies: such as reinforcement steel delivery waiting periods Any slack time built into various activities or sub-phases. The critical path of the work to be undertaken. 		10	
SUB-CRITERIA: 2 - ENVIRONMENTAL, HEALTH & SAFETY	SCORE out of 0-100%	WEIGHT (POINTS)	TOTAL (% score x 20 points)
<p>ENVIRONMENTAL: [Max 5] Proposed contract specific Environmental Management System, inclusive of environmental management plan and waste management plan. This shall also contain details of all site layouts, pollution prevention measures and environmental protection measures. Provide environmental plan management system, including site environmental inspection documents for all the work to be carried out with specific reference to CWD 67 & EMP</p> <p>HEALTH & SAFETY: [Max 5] Provide Health and Safety management (plan) system for all the work to be carried out with specific reference to:</p> <ul style="list-style-type: none"> Organogram and legal appointments, Preliminary baseline risk assessment for all activities (Cutting, Bending, Installing/fixing of reinforcement), File structure of documentation,& Safe handling of reinforcement steel. 		10	

ANNEXURE L



SUB-CRITERIA: 3 – METHODOLOGY	SCORE out of 0-100%	WEIGHT (POINTS)	TOTAL (% score x 5 points)
<p>Method statement should address the following (but not limited to) in adequately details:</p> <ul style="list-style-type: none"> • Methods and equipment/tools to be used for the cut and bend of various required size and shapes of reinforcement, including durations and any associated risk factors; • Transport of materials; • Methods, equipment/tools and materials to be used for the installation / fixing of various required size and shapes of reinforcement, including durations and any associated risk factors; • Quality management, • Intended method of measurement <p>For each of the <u>major</u> work sections:</p> <ul style="list-style-type: none"> • Cofferdam and Intake Tower with Inlet Works U/S of the dam wall inclusive of parking area • Tunnel, Left Bank Outlet Works and Right Bank Outlet Works • All Pipe Encasements • Galleries • Spillway and Apron • Left Bank and Right Bank NOC • Left Bank and Right Bank Retaining walls <p style="text-align: right;">[Max 30]</p>		30	

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)



DEPARTMENT OF WATER AND SANITATION

DWS06 0523 WTE

**THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION
OR FIXING OF REINFORCING STEEL AND FABRIC
REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR
THE RAISING OF CLANWILLIAM DAM IN THE WESTERN
CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF
CIDB 8CE OR HIGHER**

C1: AGREEMENT AND CONTRACT DATA

CONTENTS

C1.1 PRO FORMA FORM OF OFFER AND ACCEPTANCE

C.1.2 CONTRACT DATA

C 1.2.1 GENERAL CONDITIONS OF CONTRACT

C 1.2.2 SPECIAL CONDITIONS OF CONTRACT

C 1.2.3 CONTRACT SPECIFIC DATA

C1.3 PRO FORMA FORM OF GUARANTEE

FORM F – PRO FORMA FORM OF OFFER AND ACCEPTANCE

C1.1 PRO FORMA FORM OF OFFER AND ACCEPTANCE - RENDERING OF SERVICES (as per GCC 2015)

OFFER

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

THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION OR FIXING OF REINFORCING STEEL AND FABRIC REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR THE RAISING OF CLANWILLIAM DAM IN THE WESTERN CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF CIDB 8CE 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 TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS

.....

.....Rand (in words); R (in figures)

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

For the Tenderer:

Signature(s): _____

Name(s): _____

Capacity: _____

Date: _____

Name and address of organisation:

Signature and names of witness:

Signature(s):

Name(s):

Capacity:

Date:

ACCEPTANCE

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

The terms of the contract, are contained in

- Part T1: Tender Data
- Part T2: Returnable Schedules and Documents
- Part C1: Contract Data
- Part C2: Pricing Data
- Part C3: Scope of Work
- Part C4: Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Part T1 to Part C4 above.

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

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

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

For the Employer:

Signature(s): _____

Name(s): _____

Capacity: _____

Date: _____

Name and address of organisation:

Signature and names of witness:

Signature(s): _____

Name(s): _____

Capacity: _____

Date: _____

SCHEDULE OF DEVIATIONS

Notes:

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

1. **Subject:** _____

Details _____

2. **Subject:** _____

Details _____

By the duly authorised representatives signing this Agreement, the Employer and the Tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender schedules, as well as

any confirmation, clarification or change to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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

FOR THE TENDERER:

FOR THE EMPLOYER

_____	Signature(s)	_____
_____	Name(s)	_____
_____	Capacity	_____
Name and address of organisation		Name and address of organisation
_____		_____
_____		_____
_____		_____
_____	Witness signature	_____
_____	Witness Name	_____
_____	Date	_____

C1.2 CONTRACT DATA

C1.2.1 GENERAL CONDITIONS OF CONTRACT

The Contract shall be governed by 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 and is obtainable from www.saice.org.za. It is supplemented with the Special Conditions of contract for the GCC and the Contract Data for GCC.

The only variations from these General Conditions of Contract shall be given in the Special conditions of Contract below. Whenever there is a conflict, the provisions in the Special Conditions and contract specific data of Contract shall prevail.

C1.2.2 SPECIAL CONDITIONS OF CONTRACT

C1.2.2.1 GENERAL

These Special Conditions of Contract (SCC) form an integral part of the Contract. The Special Conditions of Contract shall amplify, modify or supersede, as the case may be, to the extent specified below, and shall take precedence and shall govern.

C1.2.2.2 AMENDMENT TO THE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS. (3rd Edition 2015) (GCC)

The clauses of the Special Conditions hereafter are numbered "SCC" followed in each case by the number of the applicable clause or sub clause in the General Conditions of Contract for Construction Works (3rd Edition 2015), and the applicable heading. A new special condition, that has no relation to the existing clauses, is introduced by a number that follows after the last clause number in the General Conditions, and an appropriate heading.

The pro forma annexures included in the General Conditions of Contract for Construction Works (3rd Edition 2015) are deleted for the purpose of this Contract and are replaced with the forms bound into this document

SCC 1(1) Definitions

The definitions contained in Clause 1(1) are hereby amended and/or supplemented as follows:

SCC 1.1.1 In the contract defined as:

DWS06 0523 WTE

"THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION OR FIXING OF REINFORCING STEEL AND FABRIC REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR THE RAISING OF CLANWILLIAM DAM IN THE WESTERN CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF CIDB 8CE OR HIGHER "

the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:

SCC1.1.1.15 "Employer" means the Department of Water and Sanitation acting on behalf of the Government of the Republic of South African and shall include the Employer's duly authorised representative.

SCC1.1.1.16 "Employers Agent" means Contract Manager Department of Water and Sanitation: Construction South or any other person appointed from time to time by him and notified in writing to the Contractor.

SCC 6.5 Day works: Delete in entirety

- SCC 8.6.1 Change paragraph to read “Except if provided otherwise in the Contract Data, the Contractor, without limiting his obligations in terms of the Contract, shall as part of the documentation required before commencing with the works in accordance with Clause 5.3.1, at his own cost, effect and maintain the following insurances in the name of the Contractor.”
- SCC 8.6.1.1 Delete
- SCC 8.6.1.1.1 Delete with sub-clauses
- SCC 8.6.1.3 Change paragraph to read “Liability insurance that covers the Contractor against its respective liability for the death of, or injury to any person, or loss of, or damage to property arising from or in the course of the fulfilment of the Contract, from the Commencement Date to the issue of the Certificate of Completion for a limit of indemnity covering the risks of the Contractor for an amount not less than stated in the Contract Data.”
- SCC 8.6.6 Delete
- SCC 8.6.7 Delete
- SCC 2.2.4 Add:
There will be standing times in terms of days, where there might be not fixing of reinforcement work to be done. And therefore no claim will be entertained for less 14 days standing time.
- If cannot provide work for 28 days continuously site will be de-established (7 day notice will be given) by the Employer.
- Site re-establishment will be done given a 7days notice period.

C1.2.3 CONTRACT SPECIFIC DATA

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 copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering (Tel 011 805 5947), www.saice.org.za.

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

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

PART 1 COMPULSORY DATA PROVIDED BY THE EMPLOYER

Clause	Description	Information
1.1.1.13	Defects and liability period	12 Months
1.1.1.14	The time for practical Completion	55 Months from commencement date
1.1.1.15	The name of Employer	Department of Water and Sanitation: Construction South
1.2.1.2	The address of the Employer	Department of Water and Sanitation Construction South 4-6 Alkmaar Str. Paarl
1.1.1.16	The name of the Employers Agent.	To be indicated in contract
1.1.1.26	The Pricing Strategy	Re-measurable
3.2.3	Specific approval of the Employer required	5.7.3 Acceleration 5.12.3 Extension of Time 6.3.1 Variations 9.1 Termination of Contract 9.2 Termination by Employer 10 Claims and Disputes
5.1.1.1	Special non-working days	1. Statuary holidays as declared by National or Regional Government. 2. Three weeks annual Builders holiday December to January (dates to be confirmed) 3. The last Friday of every month.
5.8.1	The non-working days	Sundays
5.3.1	The documentation required before commencement with works execution:	Health and Safety plan (Clause 4.3) Initial programme (Clause 5.6) Security (Clause 6.2) Insurance (Clause 8.6)

		Method Statements (as required by the applicable Specifications) Environmental Plan Other documents as specified in C3
5.3.2	The time to submit the documentation required before commencement with Works execution	28 days
5.4.2	The access and possession of the Site	Shall not be exclusive to the Contractor but as set out in the Site Information
5.13.1	The penalty for failing to complete the Works	R50 000,00 per working day
5.14.1	Requirements for practical completion	On submission and signed of all cut, bend and installation/fixing of reinforcement records and reports of scheduled work.
5.16.3	The latent defect period	10 years
6.8.2	The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values: $(1 - x) \left[\frac{aL_t}{L_o} + \frac{bP_t}{P_o} + \frac{cM_t}{M_o} + \frac{dF_t}{F_o} - 1 \right]$	x = 0,10 (Fixed) Values of coefficients are: a = 0.15 Labour b = 0.30 Contractors Equipment c = 0.45 Material d = 0.10 Fuel Total of all coefficients must equal 1.0
6.8.2	The definition and source of: "L _t " is the "labour Index", "P _t " is the "Plant Index" "M _t " is the "Materials Index" "F _t " is the Fuel Index	As per Statistics South Africa and published by SAFCEC from time to time. Labour (Lt): Statistical Release P0141, Table A – Consumer Price Index: Main Indices, Geographic indices. Plant (Pt): Statistical Release P0151.1, Table 4 – Mining and construction plant and equipment index, Plant and equipment. Materials (Mt): Statistical Release P0151.1, Table 6 – Civil engineering material indices, Civil engineering total. Fuel (Ft): Statistical Release P0142.1, Table 1 – PPI for final manufactured goods.
6.8.2	The base month	The base month used for the calculation will be 30 days before the closing date of the bid.
6.5.1.2.3	The percentage allowance on the net cost of materials actually used in completed work	15%

6.10.1.5	The percentage advance on materials not yet built into the Permanent Works	0%
6.10.3	The limit of retention money	5% of the Contract Value
8.6.1.1.2	Value of plant and materials supplied by the employer to be included in the insurance sum	0
8.6.1.1.3	Amount cover professional fees for repairing damage and loss to be included in the insurance sum	R 5 000 000,00
8.6.1.3	The limit of indemnity for liability insurance	R 50 000 000,00
10.5.3	The number of Adjudication Members to be appointed by the Contractor	Three (3)
10.7.1	The determination of disputes	Legal Process

FORM G CONTRACT DATA		
C1.2 CONTRACT DATA		
PART 2: DATA PROVIDED BY THE CONTRACTOR		
Clause	Description	Information
1.1.1.9	The name of the Contractor	
1.2.1.2	The address of the Contractor	Physical address: Postal address: E-mail address:
6.2.1	The security to be provided by the Contractor	Performance guarantee of 10% of Contract sum.
6.8.3	Price adjustments for variations in the costs of special materials are allowed	Special Material(s) Unit Rate

(End of Section C1)



FORM H PRO FORMA PERFORMANCE GUARANTEE

C1.3 PRO FORMA PERFORMANCE GUARANTEE

Tender Reference No:

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

PRO FORMA PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, Third Edition (2015).

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Employer's Agent" means:

"Works" means:

"Site" means:

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

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

Amount in words:

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

Amount in words:

Type of Performance Guarantee: (*Insert Variable or Fixed*)

"Expiry Date" means: (*Give date*) or any other later date set by the

Contractor and/or Employer provided such instruction is received prior to the Expiry Date as indicated here.

CONTRACT DETAILS

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

1. VARIABLE PERFORMANCE GUARANTEE

1.1 Where a Variable Performance Guarantee has been selected, the Guarantor's liability shall be limited during the following periods to diminishing amounts of the Guaranteed Sum as follows:

1.1.1 From and including the date of signing the Performance Guarantee up to and including the date of the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum:

R.....(Amount in words.....)

1.1.2 From the day following the date of the said interim payment certificate up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, whichever occurs first:

R.....(Amount in words.....)

1.2 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum, has been issued and the date on which the Certificate of Completion of the Works has been issued.

2. FIXED PERFORMANCE GUARANTEE

2.1 Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2.2 The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.

2.3 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

3.1 The Guarantor hereby acknowledges that:

3.1.1 Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.

3.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.

3.2 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:

3.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;

3.2.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;

3.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.

3.3 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

3.3.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or

- 3.3.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
- 3.3.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 3.4 It is recorded that the aggregate amount of payments. required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1.
- 3.5 Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 3.6 Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 3.7 Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 3.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 3.9 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 3.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 3.11 This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 3.12 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrates' Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at:

Date:

Guarantor's signatory (1):

Capacity:

Guarantor's signatory (2):

Capacity:

Witness signatory (1):

Witness signatory (2):



DEPARTMENT OF WATER AND SANITATION

DWS06 0523 WTE

**THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION
OR FIXING OF REINFORCING STEEL AND FABRIC
REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR
THE RAISING OF CLANWILLIAM DAM IN THE WESTERN
CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF
CIDB 8CE OR HIGHER**

C2 PRICING DATA

CONTENTS

C2.1 PRICING INSTRUCTIONS

C2.2 BILL OF QUANTITIES

C2.1 PRICING INSTRUCTIONS

1. GENERAL

The Bill of Quantities forms part of the Contract Documents and must be read and priced in conjunction with all the other documents comprising the Tender Documents which include the Conditions of Tender, Conditions of Contract, the Specifications (including the Project Specification), and the Drawings.

2. DESCRIPTION OF ITEMS IN THE SCHEDULE

The short descriptions of the items in the Bill of Quantities are for identification purposes only and the measurement and payment clause of the Standardised Specifications and each Particular Specification, read together with the relevant clauses of the Project Specification and directives on the drawings, set out what ancillary or associated work and activities are included in the rates for the operations specified.

3. QUANTITIES REFLECTED IN THE SCHEDULE

The quantities given in the Bill of Quantities are estimated quantities only and will be subject to re-measuring during the execution of the work. Where quantities or sums are indicated as "Provisional", the Employer reserves the right to adjust the quantity or sum upwards or downwards as necessary, or the item can be omitted altogether. The Contractor shall obtain the Employer detailed instructions for all work before ordering any materials or executing work or making arrangements for it.

The Works as finally completed in accordance with the Contract shall be measured and paid for as specified in the Bill of Quantities, and the contract price for the completed contract shall be computed at the relevant unit rates and prices, all in accordance with the General and Special Conditions of Contract, the Specifications and Project Specifications, and the Drawings, et. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste.

The validity of the contract will in no way be affected by differences between the quantities in the Bill of Quantities and the quantities finally certified for payment.

4. PRICING OF THE SCHEDULE

The prices and rates to be inserted by the Tenderer in the Bill of Quantities shall be the full inclusive prices to be paid by the Employer for the work described under the several items, and shall include full compensation for all costs and expenses that may be required in and for the completion and maintenance during the defects liability period of all the work described and as shown on the drawings as well as all overheads, profits, incidentals and the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the Tender is based. Reasonable unit rates and prices shall be entered in the Bill of Quantities as these will be used for the assessment of payment for any additional work that may have to be carried out.

Each item shall be priced and extended to the "Total" column by the Tenderer, with the exception of the items for which "rate only" is required or items which already have Prime Cost or Provisional Sums affixed thereto. If the Contractor omits to price any items in the Bill of Quantities, then these items will be considered to have a nil rate or price.

All items for which terminology such as "inclusive" or "not applicable" have been added by the Tenderer will be regarded as having a nil rate which shall be valid irrespective of any change in quantities during the execution of the Contract.

All rates and amounts quoted in the Bill of Quantities shall be in Rand and shall include all levies and taxes (other than VAT). VAT will be added in the summary of the Bill of Quantities.

5. CORRECTION OF ENTRIES

Incorrect entries shall not be erased or obliterated with correction fluid but must be crossed out neatly. The correct figures must be entered above or adjacent to the deleted entry, and the alteration must be initialled by the Tenderer.

6. MONTHLY PAYMENTS

Unless otherwise specified in the Specifications and Project Specifications, progress payments in Interim Certificates, referred to in Clause 6.10 of the General Conditions of Contract 2015 (Third edition), in respect of "sum" items in the Schedule of Quantities shall be by means of interim progress instalments assessed by the Employer's Agent and based on the measure in which the work actually carried out relates to the extent of the work to be done by the Contractor.

7. UNITS OF MEASUREMENT

The units of measurement described in the Bill of Quantities are metric units for which standard international abbreviations are used. Abbreviations used in the Bill of Quantities, including some non-standard abbreviations, are as follows:

Non-Standard Abbreviations	
%	percent
No.	number
Prov sum	Provisional sum
R/only	Rate only
Sum	lump sum
Standard Abbreviations	
kPa	kilopascal
M	metre
m ²	square metre
m ³	cubic metre
MN	meganewton
MN.m	meganewton-metre
MPa	megapascal
T	ton (1000 kg)

For the purpose of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:

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

8. ARITHMETICAL ERRORS

Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.

If a bill of quantities (or schedule of quantities or schedule of rates) applies and there is a discrepancy between the unit rate and the line-item total resulting from multiplying the unit rate by the quantity, the line item total shall govern and the rate shall be corrected. However, in exceptional cases where, in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in either the unit rate or line total, or where the error was obviously not a result of incorrect arithmetic but rather the result of a writing error, the Employer reserves the right to correct either the tendered rate or the line total as the case may be, subject to clarification in terms of SANS 10845 -3 Clause 4.10.

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 be adjusted to obtain the correct tender value.

DEPARTMENT OF WATER AND SANITATION

DWS06 0523 WTE



THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION OR FIXING OF
REINFORCING STEEL AND FABRIC REINFORCEMENT FOR A PERIOD OF 55
MONTHS FOR THE RAISING OF CLANWILLIAM DAM IN THE WESTERN CAPE - CIDB
CONTRACTOR GRADING DESIGNATION OF CIDB 8CE OR HIGHER

C2.2 BILL OF QUANTITIES

SBD 3.2

PRICING SCHEDULE – NON-FIRM PRICES (PURCHASES)

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

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

Name of Bidder.....Bid number.....
Closing Time 11:00 Closing date.....

OFFER TO BE VALID FOR 120 DAYS FROM CLOSING DATE OF BID

NO	PAY REF	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SECTION A : PRELIMINARY AND GENERAL						
A1 - FIXED-CHARGE ITEMS						
A.1 .1	CWD01SC 5.3.1	Establishment of Facilities for Contractor on site (Including all insurance and other costs)	Sum	1	.....	.....
A.1 .2	CWD01SC 5.3.1	De-establishment of Facilities	Sum	1	.....	.....
A.1 .3	CWD01SC 5.3.3; SCC 2.2.4	Temporary de-establishment	No	4	.....	.....
A.1 .4	CWD01SC 5.3.4; SCC 2.2.4	Re-establishment after temporary de-establishment	No	4	.....	.....
Carry forward to summary - Sub Total A1 =						.....

NO	PAY REF	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SECTION A : PRELIMINARY AND GENERAL						
A2 - TIME-RELATED ITEMS						
A.2	.1	CWD01 SC 5.4.1	Health and Safety and Environmental compliance per month while on site.	Sum	1	.....
A.2	.2	CWD01 SC 5.4.2	Supervision while on Site.	Sum	1	.....
Carry forward to summary - Sub Total A2 =						.....

NO	PAY REF	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SECTION B : CUTTING, BENDING AND DELIVER OF REINFORCING STEEL (SANS 1200G)						
B.1	.1	8.3.1	<16mm dia. Mild Steel bars (250 MPa Yield Stress)	Ton	50	.....
B.1	.2	8.3.1	<16mm dia. High Tensile. Steel bars (450 MPa Yield Stress)	Ton	120	.....
B.1	.3	8.3.1	≥16≤25 mm dia. High Tensile. Steel bars (450 MPa Yield Stress)	Ton	4000	.....
B.1	.4	8.3.1	32mm dia. High Tensile Steel bars (450 MPa Yield Stress)	Ton	700	.....
Carry forward to summary - Sub Total B1 =						.....

NO	PAY REF	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
INSTALLING / FIXING OF REINFORCING STEEL AT CLANWILLIAM DAM SITE (SANS 1200G)						
B.2 .1	8.3.1	<16mm dia. Mild Steel bars (250 MPa Yield Stress)	Ton	50	.....	.....
B.2 .2	8.3.1	<16mm dia. High Tensile. Steel bars (450 MPa Yield Stress)	Ton	120	.....	.....
B.2 .3	8.3.1	≥16≤25 mm dia. High Tensile. Steel bars (450 MPa Yield Stress)	Ton	4000	.....	.....
B.2 .4	8.3.1	32mm dia. High Tensile Steel bars (450 MPa Yield Stress)	Ton	700	.....	.....
Carry forward to summary - Sub Total B2 =						.....

NO	PAY REF	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
SECTION C : HIGH YIELD WELDED FABRIC REINFORCING STEEL(IN 2.44 X 6M SHEETS)						
SUPPLY & DELIVERY OF HIGH YIELD WELDED FABRIC REINFORCING STEEL TO CLANWILLIAM DAM SITE (SANS 1200G)						
C.1 .1	8.3.2	Mesh Ref. 193	m ²	1000	.....	.....
C.1 .2	8.3.2	Mesh Ref. 617	m ²	7000	.....	.....
C.1 .3	8.3.2	Mesh Ref. 395	m ²	500	.....	.....
C.1 .4	8.3.2	Mesh Ref. 888	m ²	500	.....	.....
Carry forward to summary - Sub Total C1 =						.....

SUMMARY OF BILL OF QUANTITIES		
SECTION	DESCRIPTION	AMOUNT
A1	FIXED CHARGES	
A2	TIME RELATED CHARGES	
B1	CUTTING, BENDING AND DELIVERY OF REINFORCING STEEL	
B2	INSTALLING/FIXING OF REINFORCING STEEL AT CLANWILLIAM DAM SITE	
C1	SUPPLY & DELIVERY OF HIGH YIELD WELDED FABRIC REINFORCING STEEL TO CLANWILLIAM DAM SITE	
D	SUB TOTAL (D) = (A1 + A2 + B1 + B2 + C1)	
E	10% CONTINGENCIES (E) OF D	
F	SUB TOTAL F (D + E)	
G	20% ESCALATION (G) OF F	
H	SUB TOTAL H (F + G)	
15% VAT OF H		
TOTAL incl. VAT (H + VAT)		

- Service basis.
(See note here under)

CONSTRUCTION SOUTH
CLANWILLIAM DAM IN THE
WESTERN PROVINCE

- Period required before service after receipt of order:

Country of origin

- Delivery period:

*FIRM / NOT FIRM

- Is the price firm?

*FIRM / NOT FIRM

- Does the offer comply with the specifications

*YES / NO

- If not to specifications, indicated deviation(s)

- Is the offer strictly to specification?

*YES / NO

- If not to specification, state deviation(s)

PRICE ADJUSTMENTS

A NON-FIRM PRICES SUBJECT TO ESCALATION

1. NON-FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON-FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES
2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$(1 - x) \left[\frac{aL_t}{L_o} + \frac{bP_t}{P_o} + \frac{cM_t}{M_o} + \frac{dF_t}{F_o} - 1 \right]$$

Where:

X = Fixed 10% (0,10) of the original bid price. Is portion of the bid price remains firm, it is not subject to any price escalations.

a = Factor of the bid price for Labour

b = Factor of the bid price for Contractors Equipment

c = Factor of the bid price for Material

d = Factor of the bid price for Fuel

The total of the various factors "a", "b", "c", "d" must add up to 100%

"Lt", "Pt", "Mt" & "Ft" = The indices are available from the STATS SA website **(As defined in C1.2.3 – Clause 6.8.2):**

Labour (Lt): Statistical Release P0141, Table A – Consumer Price Index: Main Indices, Geographic indices.

Fuel (Ft): Statistical Release P0142.1, Table 1 – PPI for final manufactured goods, Diesel (there is only 1 value for diesel since January 2018 , not split anymore).

Materials (Mt): Statistical Release P0151.1, Table 6 – Civil engineering material indices, Civil engineering total.

Plant (Pt): Statistical Release P0151.1, Table 4 – Mining and construction plant and equipment index, Plant and equipment.

3. The following index/indices must be used to calculate your bid price: **(As per C1.2.3 Contract data: THE INDICES BASED DATE WILL BE 30 DAYS BEFORE TENDER CLOSING DATE- CLAUSE 6.8.2)**

All index's based date (closing of tender) : Date _____

4. FURNISH A BREAKDOWN OF PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

FACTORS	PERCENTAGE OF BID PRICE
a	15%
b	30%
c	45%
d	10%
TOTAL	100%

B PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

1. Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of the items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	RATE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		

2. Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rates as issued by your commercial bank for the periods indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

I / we fully agree to these price escalation adjustment.

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)



DEPARTMENT OF WATER AND SANITATION

DWS DWS06 0523 WTE

**THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION
OR FIXING OF REINFORCING STEEL AND FABRIC
REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR
THE RAISING OF CLANWILLIAM DAM IN THE WESTERN
CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF
CIDB 8CE OR HIGHER**

C3: SCOPE OF WORKS

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C3.1 STANDARD SPECIFICATION

C3.2 PROJECT SPECIFICATION

C3.3 PARTICULAR SPECIFICATIONS

C3.1 STANDARD SPECIFICATION

SS 1 APPLICABLE STANDARD SPECIFICATIONS

In the event of any discrepancy between a part or parts of the Standardised or Particular Specifications and the Project Specifications, the Project Specifications and Particular Specifications shall take precedence. In the event of a discrepancy between the Specifications, (including the Project Specifications) and the drawings and / or the Bill of Quantities, the discrepancy shall be resolved by the Employer before the execution of the work under the relevant item.

The applicable standard specifications are mentioned in the Project Specification and Particular specification.

List of Standard Specifications applicable, but not, limited to:

- SANS 920:2011
- SANS 282:2011
- SANS 1024:2012
- SANS 10144:2012

(All work shall be done in accordance with the specifications listed in the Project Specification, the Particular Specifications and Drawings.)

C3.2 PROJECT SPECIFICATION

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- PS 2.2 Material
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PS 5. FACILITIES PROVIDED BY CONTRACTOR FOR WORKS

- PS 5.1 Electrical Power and Distribution
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PS 6. WORKING TIMES

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- PS 9.1 General Responsibilities
- PS 9.2 Contractors' Methods and Materials
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- PS10.2 Local Procurement
- PS10.3 Training & Skills development

PS 11. HEALTH AND SAFETY

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- PS 11.2 Audits
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- PS 11.4 Health and Safety Officers
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- PS 11.7 Workman's Compensation Act

PS 12. ENVIRONMENTAL REQUIREMENTS

- PS 12.1 General
- PS 12.2 Temporary Services and Facilities
- PS 12.3 Refuse and Waste Control
- PS 12.4 Protection of Flora
- PS 12.5 Protection of the Fauna

PS 13. PAYMENT

PS 14. INFORMATION TO BE SUBMITTED BY CONTRACTOR

C3.2 PROJECT SPECIFICATION

The applicable Project Specification is as follows:

Olifants-Doorn River Water Resources Project (ODRWRP)
Raising Of Clanwilliam Dam - Volume 3: C3.2
Project Specification
(Will be provided in electronic format.)

All work shall be done in accordance with the specifications listed in the Project Specification, the Particular Specifications and Drawings.

PS 1. DESCRIPTION OF THE PROJECT

The raising of Clanwilliam Dam, which will be the first phase of the Olifants-Doorn River. Water Resources Project (ODRWRP), will increase the yield of the dam by about 70 Mm³ per annum to augment the water supplies to the Olifants River irrigation scheme situated in the north-western part of the Western Cape province, as well as to assist in the development of resource-poor farmers.

Clanwilliam Dam is located on the Olifants River, in the Western Cape, approximately 2 km South West of the town of Clanwilliam. The original dam was constructed in 1932-1935 (38m high from the base). The existing structure is a concrete gravity dam, consisting of a controlled ogee gravity spillway with 13 vertical crest gates. The length of the wall is 255 m. The total spillway length is 117,58 m, including the piers between the gates. The dam was raised in 1964 with vertical crest gates. Tensioned cables were supplied to ensure stability of the dam wall.

Currently, water is released downstream via the Olifants River to Bulshoek Weir from where the water is diverted into the dilapidated irrigation canal situated on the left bank. Water is also released from the existing outlet works situated on the right bank into an irrigation canal situated on the right bank, to the pump station on the right bank supplying water to the town of Clanwilliam, and to the hydropower plant situated downstream on the right bank.

The feasibility investigation for raising the dam was completed at the end of 2007 and the Record of Decision (ROD) was issued on 12 May 2009 by the Department of Environmental Affairs. Approval by the Minister for raising the dam by 13 m was issued on 18 August 2010.

In order to comply with current dam safety standards, the Department of Water and Sanitation is also required to implement remedial measures with the raising in the height of the dam wall.

The raised dam wall will be approximately 370 m in length and 49 m in maximum height. At full supply level the reservoir will cover a surface area of approximately 2 022 ha and capacity of 344,3 million cubic metre. The works include addition of concrete on the downstream side, extending the apron, construction of a free standing intake tower, river outlet control house, a power generating house, short tunnel and coffer dam works on the upstream side, as well as various other pipe outlet structures on the downstream side. This work must be done without interfering with the day to day operation of the dam.

PS 2. SCOPE OF THE CONTRACT

PS2.1 General

The detail of the work to be carried out under this contract, to the required standard SANS specifications and the project specifications, at the different structure sections as per the drawings and bending schedules provided by the Employer, includes, but is not limited to:

- a) Supply and delivery of mild steel and high yield reinforcing steel (250 MPa & 450 MPa) in 13 m lengths, fabric, and already cut and bent to the required shape codes and sizes to the designated steel fixing area on Clanwilliam Dam Construction site.
- b) Reinforcement steel will be placed in position and fixing of reinforcement and supporting steel schedules, as well as the provision of all spacer devices and binding wire to be included.

The quantities are considered to be a reasonable estimate of the expected work to be done under this contract.

The employer reserves the right not to award all components of the work described in this document. No claim for additional costs shall be considered in the event of certain components of work specified not being undertaken nor for quantities that deviate significantly from the estimated quantities.

The work is subdivided into the following major sections:

- Cofferdam and Intake Tower with Inlet Works U/S of the dam wall inclusive of parking area
- Tunnel, Left Bank Outlet Works and Right Bank Outlet Works
- All Pipe Encasements
- Galleries
- Spillway and Apron
- Left Bank and Right Bank NOC
- Left Bank and Right Bank Retaining walls

It is the Employer's responsibility to assist with:

- Transport of materials on site
- Lifting of materials on site
- Installation of scaffolding and safe working platforms

PS2.2 Material

The Contractor shall be responsible for the quality of reinforcing materials and the supply & delivery, cut, bend and fixing of reinforcing including dowels. This incorporates workmanship and production processes in fulfilment of the Contract.

No imported materials will be accepted under this Contract. The material will adhere to the following standards:

- High tensile Steel (SANS 920:2011 – 450MPa) reinforcing bars denoted by the letter “Y”, deformed bar in diameters: 8,10,12,16,20,25,32 and 40mm
- Mild Steel (SANS:920:2011 – 250MPa) reinforcing bars denoted by the letter “R”, smooth bar in diameters: 8,10,12,16,20,25,32 and 40mm
- Welded mesh fabric reinforcement Standard fabrics (SANS 1024 – 485MPa)

PS2.3 Cutting & Bending Reinforcement

Reinforcing bars shall be bent to the dimensions shown on the Drawings and in accordance with SANS 282. All reinforcing steel shall be stored on Site in such a manner as to avoid distortion and shall be protected from aggressive environments and contamination from foreign matter. Bars shall be clearly marked either individually or in bundles with their code numbers immediately after cutting and / or bending and before fixing commences.

No flame cutting will be permitted on high yield bars without prior approval.

Already bent reinforcing bars shall not be re-bent at the same spot.

The Contractor shall cut and bend reinforcing steel at the Contractor's premises, and supply the already cut and bend reinforcement as per bending schedules or requested by Employer according to the program / requested by the Employer.

Reinforcement sizes shall range from 10mm to 32mm but not limited to, as per bending schedules.

See preliminary reinforcement and bending schedule drawings under C4 for other structures & sections.

NOTE: No flame cutting of steel bars shall be permitted without prior authorisation from the Employer.

PS2.4 Installing/Fixing of Reinforcement

Reinforcement shall be positioned as shown on the Drawings and maintained in those positions with the permissible deviation to Degree of Accuracy II as specified in Table 1, unless otherwise shown on the Drawings or ordered by the Employer's Agent. The reinforcement shall be secured by tying at intersections with annealed wire of nominal diameter 1,6 mm or 1,25 mm or by the use of acceptable clips. Reinforcement shall be supported in its correct position by means of hangers or saddles and aligned by chairs and spacers. Welding of reinforcement will not be permitted

Table1: Permissible deviations(mm)

	DEGREE OF ACCURACY			
	I	II	III	IV
(1) Reinforcement				
(a) Spacing between two adjacent bars	+/-25	+/-20	+/-15	
(b) Longitudinal location of bend's and ends of bars	+/-40	+/-30	+/-20	
(c) Cover to reinforcement	-0 +20	-0 +20	-0 +10	

The Contractor shall ensure that, at the time of placing concrete, all steel is free from loose or powdery rust, scale, oil and other coatings that may reduce the bond between steel and concrete, affect the durability of the concrete or initiate corrosion in the reinforcement. If any material other than water is used for lubricating the formwork, every precaution shall be taken to avoid contamination of the reinforcement.

NB: Reinforcing will be fixed as per the drawings and specifications. Some installations will require working on heights. **See C4.1 Tender Drawings; item 4.1.25 – 4.1.31**

PS2.5 Cover

The reinforcement shall be fixed to ensure the minimum concrete cover as specified on the drawings is maintained between the outside of any bar or stirrup and the face of the concrete. The permissible deviation shall be to degree of accuracy II as specified in Table 1 above, unless otherwise shown in the drawings or ordered by the Engineer. Any cover or spacer blocks used to maintain the concrete cover shall be as small as possible and be of an approved material and design.

PS2.6 Method statements

It is a requirement of this contract that final work procedures must be approved before commencement of work. Method statements will full details concerning the methods, equipment and materials will be required for the following but not limited to:

- The transport of material
- The cut and bend of reinforcing
- The fixing of reinforcement and fabric reinforcement at all relevant structures in the works

The above method statements, preliminary method statement must be submitted with the tender to evaluate the ability of the Contractor to perform the work according to specification.

PS 3. THE SITE

PS 3.1 Location and access to site

The dam site is situated on the Olifants River, in the Western Cape, approximately 2 km South- West of Clanwilliam town in the Western Cape province.

The site is immediately next to the N7 and accessed through a controlled gate. The gravel site roads will be regularly maintained but could get challenging under abnormal rainfall conditions.

PS 4. FACILITIES PROVIDED BY EMPLOYER'S AGENT to CONTRACTOR

PS4.1 Contractors Yard

A Storage area, to the west of the N7 will be provided as part of the main site establishment area. If the Contractor requires more area or any other area it must be specified in his document and be negotiated with the Employer.

The Employer will supply only potable water for human consumption. The Contractor must make arrangements for its own water distribution required in the performance of its duties.

PS 5. FACILITIES PROVIDED BY CONTRACTOR FOR WORKS

PS5.1 Electrical Power and Distribution

The Contractor shall make his own arrangements to provide his own power supply.

Failure or interruption of the power supply shall not relieve the Contractor of any of his obligations under the Contract.

PS5.2 Accommodation and Site Facilities

The Contractor must supply his own offices and storage facilities. The Employer's Agent will indicate available area for site establishment.

The Contractor shall make his own arrangements for accommodation for his staff. No accommodation is allowed on the site in terms of the Environmental EMP. (Will be provided in electronic format.)

The Contractor shall make own arrangement to transport employees to the site.

PS5.3 Storing of Reinforcement

Reinforcement steel may be stored to the designated steel fixing area on Clanwilliam Dam Construction site.

PS5.4 Resting and eating areas

The Contractor shall provide sufficient and suitably positioned areas for use by his workers on site during resting and eating periods. Sufficient refuse bins, tables and seating must be provided. Existing and new permanent structures for the raised dam wall may not be used as resting and eating areas.

PS5.5 Sanitation and cleaning

The Contractor shall provide at or within 200m of each work place (As per EMP) chemical toilet facilities with toilet paper, potable water, soap and towels together with industrial soaps and barrier creams as appropriate. The Contractor shall maintain all toilet facilities in a clean and sanitary condition and shall take all necessary precautions to prevent pollution of the Site. The sewage will be disposed of at a registered disposal facility and the disposal certificate will be kept on record.

The Contractor shall ensure that there are adequate and sufficient refuse bins in and around the working area and that these shall be emptied frequently. All refuse bins shall be placed on a concrete base, which shall, from time to time, be sprayed with insecticide. All refuse collection, removal and disposal on site shall be the responsibility of the Contractor. All refuse shall be disposed of at a licensed landfill site only, and certificates of receipt shall be kept on record.

The Contractor shall clear away and remove all traces of the toilets and restore the sites to their original condition as soon as the toilets are no longer required

PS5.6 Access control and security

The Employer will be responsible for access control and security for the site. The Contractor will abide by the access control measures. The Contractor is responsible for the safeguarding and protection of their own Contractor's provided area and equipment/tools on site. The Employer does not take any liability for the Contractor in terms of security what so ever.

PS 6. WORKING TIMES

PS 6.1 DWS – Construction South - Clanwilliam Dam Working Hours

Deliveries and work may be done during these working hour:

October – March (Summer time)

- Monday to Thursdays: 06:30 am – 16:15, and
- Friday's : 06:30 – 15:00

April – September (Winter time)

- Monday to Thursday: 7:00 to 16:45, and
- Friday 7:00 to 15:30

But not on the following days or periods:

- (i) Fridays 15:00 to Mondays 07h00;
- (ii) All public holidays and Sundays;
- (iii) Builders holidays: The period 11 December to 9 January (roughly); &
- (iv) The last Friday of the month.

Unless otherwise agreed.

Each consignment will be delivered to the designated store yard at the site, accompanied by the necessary delivery documents, stating the tender number, item description and quantity delivered.

PS 6.2 Work at Night

Written permission will be obtained to work at night. Responsible and qualified supervisory staff shall always be present and sufficient light must be available to conduct the work safely.

PS 6.3 Sunday Working

Sunday work shall not be permitted except for necessary maintenance, repairs and emergencies and shall only be undertaken with the prior written approval of the Employer.

PS 6.4 Last Friday of Month

The last Friday of the month is regarded as the pay day of the Employer's personnel. This is a non-working weekend for Employer's personnel, and the Contractor will only be allowed to work with special permission on this day.

PS 6.5 Builders Holiday and Public Holidays

The site will close for the end of the year's Builders Holiday period. Work will not normally be permitted on Public Holidays, except when approved by the Employer.

PS 7. CLIMATIC CONDITIONS

PS7.1 Rainfall data

The rainfall data to be used for extension of time arising from abnormal rainfall is presented in the below table: rainfall record.

Table: Rainfall Record

Rainfall Station No:00846710 Clanwilliam

Period: 1992-2012

Month	AVE	STD DEV	N DAY RAIN	NUM MON	MAX R DAY	MAX RAIN DATE
January	0,0	0.26	0,05	19	13,8	5/1/2004
February	0,25	0.53	0.11	20	10,8	23/2/2010
March	0,45	0.89	0.14	20	29	26/3/1997
April	0,85	1.38	0.33	20	21.4	26/4/2007
May	2,05	3.05	0.76	19	25	8/5/1998
June	3,03	3.98	1.35	18	54.5	8/6/1997
July	2,67	3.23	1.05	18	29.4	26/7/2007
August	2,03	2.80	0.58	18	27.8	18/8/2003
September	0,95	1.35	0.37	18	11.5	12/9/1996
October	0,52	0.91	0.22	18	12.6	19/10/2011
November	0,67	1.16	0.21	18	29.4	8/11/2009
December	0,52	1.11	0.21	18	19.6	24/12/2007

Explanation of headings:

'AVE' represents the average rainfall for the month = R_n

'STD DEV' represents the standard deviation from the normal

'N DAY RAIN' represents the average number of rain days per month exceeding 10 mm = N_n

'NUM MON' represents the number of months used in the calculation

'MAX R DAY' represents the maximum rainfall that occurred over a 24-hour period (08:00-08:00)

'MAX RAIN DATE' represents the date on which the maximum 24 hour rainfall occurred

PS7.2 Extension of time arising from abnormal rainfall

Extension of time in terms of the Conditions of Contract arising from abnormal rainfall shall be calculated separately for each calendar month or part thereof in accordance with the formula given below. It shall be calculated for the whole period until completion of the contract including any extension thereof:

$$V = (N_w - N_n) + (0,050 \times (R_w - R_n))$$

If V is negative and its absolute value exceeds Nn then V shall be taken as equal to minus Nn.

The symbols shall have the following meanings:

V = Extension of time in calendar days in respect of calendar month under consideration.

Nw = Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded.

Rw = Actual rainfall in mm for the calendar month under consideration.

Nn = Average number of days, as derived from existing rainfall records provided in Table 1.12.1, on which a rainfall of 10 mm or more has been recorded for the calendar month.

Rn = Average rainfall in mm for the calendar month, as derived from the rainfall records supplied in Table 1.12.1

The total extension of time shall be the algebraic sum of the monthly totals for the period under consideration. Extensions of time for part of a month shall be calculated using pro rata values of Nn and Rn.

The factor (Nw - Nn) shall be considered to represent a fair allowance for variations from the average number of days during which rainfall exceeds 10 mm.

The factor 0,050 (Rw - Rn) shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall does not exceed 10 mm but wet conditions prevented or disrupted work.

Accurate rain gauging shall be taken at the weather station to be supplied by the Employer's Agent at a suitable point on Site.

PS 8. PROGRAMMING REQUIREMENTS

PS 8.1 Preliminary Tender Program

The Tenderer shall submit a preliminary programme in the form of a Gant chart with the tender. As per requirement in T2 – returnable schedules, Annexure L (for cut, bend & installing/fixing of reinforcing steel).

A program will be provided to the Tenderers at the compulsory site briefing session. (Will be provided in PDF format.)

PS 8.2 Program requirements

A construction programme in Construction Computer Software for Windows (CCS) format, used by the Employer for the construction programming of the Clanwilliam dam will be used to determine the requirements and work areas.

From the contractual programme the Contractor shall make provision for:

An average steel fixing rate of 8 tonnes of steel to be fixed within three working days;

To complete cutting and bending within a period of two weeks from the date of receiving a bending schedule. Steel must not be bent or delivered that will not be used within a four week period from delivery.

The Contractor shall take all necessary and required steps to ensure that his / her staff and personnel adhere to the construction programme requirements.

The Contractor shall not be allowed extension of time due to any mechanical failure of his / her equipment; provision must be made for standby equipment.

PS 8.3 Contract Programme Maintenance and Progress Monitoring

A detail Contract Programme shall be developed using the latest version of Construction Computer Software for Windows or Microsoft Project for Windows or equal.

Five working days before the monthly progress meeting the Contractor shall submit to the Employers Agent a programme update that reflects the actual progress against current programmes and the effect on future activities.

The Contractor shall also submit a narrative report with each monthly update including a description of current and anticipated programme related problem areas, current and anticipated delaying factors and their impact, and an explanation of corrective actions taken or proposed.

All variances from the Contract Programme shall be promptly reported and the future impact of such variations shall be determined and analysed by the Contractor and necessary corrective measures established, subject to the approval of the Employer's Agent.

PS 8.4 Progress Meetings

The Contractor will be required to attend regular site meetings with the Employer or Employer's Agent where the progress of construction will be reviewed. Such meetings will normally be held monthly. The Contractor shall also attend weekly meetings with the Employer's Agent and provide, prior to each meeting as required by the Employer's Agent, detailed programmes showing separately the various activities of the Contractor anticipated over the forthcoming two-week period.

PS 9. CONSTRUCTION MATTERS

PS9.1 General Responsibilities

The Site and all services are under the control of the Employer and therefore the Employer expects the Contractor to liaise regularly with the Employer's Agent in order to ensure smooth execution and integration of activities with the Employer.

Non-performance of the Employer shall not relieve the Contractor of any of his obligations under the Contract.

The Construction Permit has been issued for the project in the Departments name and is thus not necessary for Contractor to apply for it.

PS9.2 Contractors Methods and Materials

It is a requirement of this contract that final work procedures must be approved before the commencement of work. Method statement to be submitted for approved 14 days before start date, to the Employer, unless if otherwise instructed. It shall consist of full details concerning the methods, equipment/tools and materials will be required for the following but not limited to:

- Cut and Bending reinforcement
- Installing/Fixing of reinforcement on site

The Tenderer shall submit a preliminary Method Statement (including, project program, , equipment/tools to be used, methodology to be followed, quality management plan, environmental, health and safety, but not limited to), with the tender. As per requirement in T2 – returnable schedules, Annexure L (for cut, bend and installing/fixing reinforcement).

PS9.3 Quality Management

The Contractor shall be responsible under the Contract for the quality and installation of reinforcing steel, workmanship and production processes in fulfilment of the Contract. The Contractor shall have a Quality Management system in place in order to satisfy the Specification relevant to each operation to the works in accordance with the Contract:

Quality control procedures to include:

- Deliveries;
- Invoicing;
- Personnel responsibilities;
- Hold points in production for inspection;
- Documentation and communication; &
- Drawing issue procedures.

Records and returns shall be reported to the Employer in an agreed format:

The Contractor shall keep accurate daily records detailing work carried out on the works and shall submit them to the Employer prior to the weekly and or monthly progress meeting or at such other times as the Employer may require. The records shall include the following for each portion of the works separately and in sufficiently detail to establish the person- hours and equipment hours expended:

- Extent of work done;
- The numbers of each category of workmen and supervising staff;
- The numbers and types of Contractor's Equipment used;
- The time and duration of any significant delays or breakdowns of any Contractor's Equipment; and
- Any other events relevant to progress of the Works.

The Contractor shall also provide such further information as may be requested by the Employer

PS9.4 Competence of Workmen

The Contractor shall ensure that only competent personnel are employed in operations involving cutting, bending and installing/fixing of reinforcement skills affecting the quality of the works. Should the competence of any member of the Contractor's workforce be in doubt, the Employer may order that the member be sent for additional training at the Contractor's account and/or that member be replaced with a competent person to perform that work.

PS9.5 Contractor's Returns

Records and returns shall be reported to the Employers Agent in an agreed format:

a) Weekly

The Contractor shall keep accurate daily records detailing work carried out on the works and shall submit them to the Employers Agent prior to the weekly progress meeting or at such other times as the Employer's Agent may require. The records shall include the following for each Portion of the Works separately and in sufficiently detail to establish the person- hours expended:

- Extent of work done;
- The numbers of each category of workmen and supervising staff;
- Any other events relevant to progress of the works.

The Contractor shall also provide such further information as may be requested by the Employer's Agent.

b) Day work and Similar Records

Records shall be kept daily of labour and materials where there is an agreement to pay by day works. Such records shall be valid only when signed by both parties.

In cases where there is any dispute or uncertainty on payment procedure, sheets shall be signed daily by both parties as an agreed record of work done but shall not imply any commitment concerning payment. These sheets shall be annotated "For record purposes only".

PS 10. LOCAL SOCIO-ECONOMIC DEVELOPMENT PARTICIPATION OBJECTIVES

The following shall be applicable to this Contract as per particular specification CWD 68:

The Department of Water and Sanitation (DWS, also referred to as the “Employer”) is committed to transformation within the construction industry and water sector through the optimisation of socio-economic benefits within its sphere of business influence in terms of the Broad-Based Black Economic Empowerment Act, (Act No. 53 of 2003). The general principles, upon which the implementation of the Olifants-Doorn River Water Resources Project (ODRWRP) is based, are:

Contribute to local and regional economic development by optimising the use of locally available skills, materials and resources - Local Socio-Economic Participation and Development (LSEPD);

Promote transformation, technology and skills transfer within the infrastructure development industry through employment creation, preferential procurement, enterprise development, training and skills development objectives - Socio-Economic Empowerment (SEE);

Ensure the project is implemented in a socially responsible and sustainable manner, and

Ensure economic access for Black people living in rural areas by incorporating them into the mainstream economy.

The Contractor must adhere to the minimum requirements and to report monthly on the implementation and compliance of the performance monitoring criteria of this specification (CWD68). The Employer will audit the Contractor's compliance to this specification and notify the Employer's Agent to direct the Contractor on any non-compliance.

The cost for all personnel recruitment/administration and training in respect to compliance of this specification shall form part of the SAFCEC rates.

PS 10.1 Appointment of Labour

The Labour Desk which will be established by the Employer will be responsible for the recruitment of local labour. The Contractor shall advise the labour desk or CLC – Community liaison Committee in writing of the numbers of each category of temporary workers, which is required, and the period for which they are required.

The Contractor shall pay his employees and shall ensure that his Sub-contractors pay their employees rates of remuneration not less than prescribed by legislation and applicable to the area of the Works and shall observe conditions of employment which are no less favourable than those which are customary in the area in which the works are to be constructed for those trades and occupations involved in the fulfilment by the Contractor of his obligations under the Contract. The Contractor shall also practice and ensure that his Sub-contractors practice a policy of equal remuneration, conditions of employment and benefits for people of equal skills and productivity.

Local employment targets for local labour from designated groups to be comply with, as per CWD 68 (Table CWD68.4.1), is as follow:

Designated Groups	Skilled or permanent staff target (%)	Local labour minimum target (%)
Black people	75	90
Women	10	15
Youth	5	20
People with disabilities	2	1

PS 10.2 Local Procurement

The Contractor is to support Enterprises and Business in the local Clanwilliam Town and in Municipality area, including the township and rural areas, for goods or services.

PS 10.3 Training and Skills Development

The Employer is committed to the development of labour from the local area as well as elsewhere in SA. To achieve this objective, the Contractor shall implement a formal skills plan by following accredited SETA training programmes.

The Contractor is required to invest a minimum of 0,5% of the accepted Tender Amount on accredited SETA site training and development programmes.

NOTE: The Tenderer should acquaint themselves with the requirements of particular specification CWD 68. The Contractor will adhere to these requirements at all times thorough out the contact period.

PS 11. HEALTH AND SAFETY

PS 11.1 General

The Contractor shall ensure that only competent personnel are employed in operations involving particular skills affecting the quality of the works. Should the competence of any member of the Contractor's workforce be in doubt, the Employer may order that the member be sent for additional training at the Contractor's account and/or that member be replaced with a competent person to perform the work.

It will be required from the contractor to work on heights on the project.

For this contract the Contractor will be the mandatory of the Employer which means that the Contractor, as employer in his own right in respect of the contract, will be responsible for all the duties and obligations of an employer as set out in the Act(OHSA 1993) and the Construction Regulations 2003. Furthermore, the Contractor shall comply with any additional current statutory requirements of any relevant Government Departments regarding health and safety and specifically environmental health issues.

Nothing specified in this document shall relieve the Contractor of any obligations or responsibilities with regard to health and safety responsibilities.

Where safety precautions are not being observed, the Employer may order the Contractor to comply with minimum safety requirements at the Contractor's expense, and compliance with such an order will not absolve the Contractor from any of his responsibilities and obligations under the Contract.

All Covid-19 related regulatory specification needs to be implemented and adhered to by the Contractor.

Before commencement of work under the contract the Contractor shall:

1. **Enter into an agreement with the Employer**(Client) to confirm his status as mandatory (employer) for the contract under consideration.
2. **Submit a Health and Safety Plan to the Employer** within 28 days after the Commencement Date. The Contractor shall immediately implement the policy and any amendments, and keep it in operation for the full duration of the Contract.
3. **Submit a risk assessment of the contract works** as part of the Health and Safety Plan and which is to include;
 - (i) Identification of the risks and hazards;
 - (ii) Analysis and evaluation of the risks and hazards identified;
 - (iii) A documented plan of safe work procedures;
 - (iv) A monitoring plan; and
 - (v) A review plan.

4. **Undergo compulsory Site Safety and Environmental Induction training** by all personnel who will be performing supervisory work and work related to the work under this contract before starting with any work on site.

The Contractor is required to keep health and safety records (which shall include audit reports) on site in an orderly filing system which shall be handed over to the Employer on completion of construction.

Failure by the Contractor to comply with safety requirements will entitle the Employer to reduce payment of the relevant Bill of Quantity items and/or order a temporary halt of work within the affected areas until the specified requirements are met, without any extension of time being granted and without any additional payment.

All vehicles and plant to be operated and maintained according to Construction Regulations 23.

Refer to CWD01 HS Health and Safety Specification in the Particular Specification Document.

A Pro-Forma Health and Safety plan must be submitted with the Tender as per requirement in T2 returnable schedule (Annexure L- Cut, Bend, And Installing/Fixing Reinforcing Steel).

PS 11.2 Audits

The Contractor shall arrange for health and safety audits at monthly intervals to be carried out. The results and details of these audits shall be submitted to the Employer's Agent within the first week of the next month.

The Employer will monitor compliance by the Contractor with the Health and Safety Policy by means of Audits, and may give instructions for improvements.

The Contractor shall note that independent health and safety audits (or if considered suitable by the Employer combined audits with the Contractor's auditor) will be carried out as considered necessary by the Employer.

PS 11.3 Works Health and Safety Committee

For the purpose of implementing and monitoring the Health and Safety Plan the Contractor shall put in place a Health and Safety Committee.

The Committee shall meet at least at monthly intervals. Minutes of the meeting shall be kept by the Contractor and copied to Employer within 7 days of the meeting.

PS 11.4 Health and Safety Officers

The Contractor shall appoint a full-time permanent Health and Safety Officer on the commencement of the works. On the commencement of shift working, the Contractor shall appoint at least one deputy with the same duties. The Health and Safety Officer and the deputy (or deputies) shall be employed exclusively on health and safety matters, and at least one of them shall always be available on Site so that Health and Safety matters receive 24-hour coverage for the full duration of the Contract. The Health and Safety Officer or his deputy shall carry out regular and random checks of all parts of the Site where work is taking place.

PS 11.5 First Aid Provisions

The Contractor shall provide a first aid station. The Contractor shall institute and operate a basic first aid training program to ensure that at least each foreman or work crew leader is trained in first aid and possesses a valid certificate to that effect issued by the Red Cross Society of South Africa, or equivalent qualification within 3 months of his appointment. There shall be a person certified in first aid in each work crew.

PS 11.6 Accident Reporting

The Contractor, through the Health and Safety Officer or his deputy, shall keep the Employer's Agent informed at the time, or as soon thereafter as is practical but not later than 12 hours, of any occurrence during the course of work, whether on or off the Site, if the said occurrence affected or may have affected the health or safety of any person employed on the Site or of any member of the public. The Contractor shall submit to the Employer's Agent at the end of each month reports and statistics in

spreadsheet format approved by the Employer's Agent on all accidents involving any person employed on or visiting the works.

PS 11.7 Workman's Compensation Act

By accepting the Contract, the Contractor warrants that all his and his Sub-Contractor's workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act (Act no 130 of 1993) which covers shall remain in force whilst any workman is present on the Site.

PS 12. ENVIRONMENTAL REQUIREMENTS

The Contractor shall take full responsibility for protecting the natural environment and eliminating or minimising the negative impacts of construction on the environment during construction.

PS 12.1 General

The main project, Raising of Clanwilliam Dam, has been environmentally authorised under a Record of Decision (ROD)/ Environmental Authorization. The ROD requires that all activities conducted by the Employer and Contractors/Sub-contractors are within the framework of the Environmental Management Plan (EMP) and Rehabilitation Specifications (RS).

The Contractor and his staff must be familiar with the *EMP & RS* and execute the project in such a way that it complies with the requirements of the EMP and RS. The Employers Agent will regularly inspect the Contractor's site. In the event that the Contractor does not comply with the requirements the deviation must be rectified as recommended by the Employer at the Contractor's cost.

The Contractor shall construct and/or implement all the necessary environmental protection measures in each area before any production work will be allowed to proceed. The Employer may suspend the works at any time should the Contractor, fail to implement, operate or maintain any of the environmental protection measures adequately. The costs of such suspension shall be to the Contractor's account.

The Contractor shall submit a Method Statement containing details of all site layouts and environmental protection measures proposed to the Employer for review and approval.

These shall include:

- Pollution prevention measures;

Full Environmental file to be submitted before any work will commence on site (including but not limited to): Copy of Site Environmental Inspection Documents / Sheet

PS 12.2 Temporary Services and Facilities

When refuelling of vehicles and plant it needs to be done in a banded area, and or if not possible, needs to be done over a secured drip tray.

Vehicles worked on outside the wash bays will have portable drip trays placed under them to catch oil and diesel which may leak from the vehicles.

PS 12.3 Refuse and Waste Control

The management of solid waste on site shall be strictly controlled and monitored. The Contractor shall adhere to and implement the following:

- Labelled recycling bins shall be used and waste separated where possible. In addition, a recycled-material collection schedule shall be established and the bins shall be collected regularly;
- Eating areas for the construction staff shall be designated and supplied with waste bins to control litter;
- No on-site burying or dumping or unauthorised burning of any waste materials, vegetation, litter or refuse shall occur;

Solid waste shall be disposed of off site, at an approved landfill site. The Contractor shall supply the Employer with a certificate of disposal; and waste shall be separated into recycling, domestic waste, building/construction rubble, scrap metal, oil and grease and hazardous waste and dealt with in the following manner:

- a) Recycling
Suitable recycling bins, all with lids, shall be provided by the Contractor for his own buildings. Recycling shall be collected and removed from all facilities on the Site at least twice per week. Recycling waste shall be transported to the approved refuse disposal site off site in covered containers or covered trucks.
- b) Domestic waste
Suitable refuse bins, all with lids, shall be provided by the Contractor for his own buildings. Refuse shall be collected and removed from all facilities on the Site at least twice per week. Domestic waste shall be transported to the approved refuse disposal site off site in covered containers or covered trucks.
- b) Organic waste
Refuse from food preparation and eating areas shall be collected and removed daily. Organic waste shall be disposed of as per Domestic waste.
- c) Building/Construction waste
Inert building/construction rubble shall be disposed of by burying in the dam basin in borrow pits, at a site and in such a way as approved by the Employer.
- d) Scrap metal
Scrap metal shall be disposed of offsite.
- e) Used oil and grease
Used oil and/or grease shall be removed from site and sold to an approved used oil recycling company. The certificated thereof shall be placed on file on site.
- f) Hazardous waste
All hazardous waste shall be disposed of in an approved hazardous waste disposal site and a disposal certificate supplied to the Employer. The certificated thereof shall be placed on file on site.

PS 12. 4 Protection of Flora

The removal, damage and disturbance of indigenous flora is prohibited. The Contractor shall request permission before removal of any vegetation on the designated work area and undertake to demarcate and protect flora outside the designated work area.

PS 12. 5 Protection of the Fauna

The Contractor shall protect fauna living within the Site and shall ensure that fishing, hunting, snaring, poisoning, shooting, nest raiding or egg-collecting and disturbance does not occur. The Contractor is to ensure that his employees are instructed not to feed wild animals and no domestic pets or livestock are permitted on site.

The use of pesticides is prohibited unless approved by the Employer.

Refer to EMP and CWD 67 Particular Specification Documents.

A Pro-Forma Environmental Management System, inclusive of environmental management plan and waste management plan must be submitted with the Tender as per requirement in T2 returnable schedule (Annexure L- Cut, Bend, And Installing/Fixing Reinforcing Steel).

PS 13. PAYMENT

Payments will be made monthly on receipt of specified tax invoices.

Payment will not be made for consignment unless supported by delivery notes duly signed by the official checking the delivery.

Escalation will only be paid if stipulated in the Special Conditions of Contract.

Payment will be done within 30 days of receipt of original invoice by depositing the payment directly into the bank account of the successful Tenderer. No cash payment or cheque payment will be done.

PS 14 INFORMATION TO BE SUBMITTED BY CONTRACTOR

To be submitted as required in T2 – returnable schedules / documents.

C3.3 PARTICULAR SPECIFICATIONS

Note: Particular Specifications for Conventional Concrete for Dams are specified in;

- (a) Particular Specification **CWD32 – “CONVENTIONAL CONCRETE FOR DAMS”**. A copy of the document will be provided during the Compulsory Site Briefing session.
- (b) Civil Project Specifications (Vol 2.1) PS 20.2.

The specific Project, Particular Specifications, Drawings and other documents (as listed below) will be provided in a electronic format.

Particular Specifications applicable are:

CWD 01SC	General
CWD 32	Conventional Concrete for Dams (Where applicable for Reinforcement)
CWD 65	Occupational Health and Safety Specifications
CWD 67	Environmental
CWD 68	Local Socio – Economic Participation and Development
EMP	Environmental Management Plan
Tender Drawings	

C3.3 PARTICULAR SPECIFICATIONS

CONTENT

PS 1. REINFORCEMENT

PS 1.1 General

PS 1.2 Cutting

PS 1.3 Bending

PS 1.4 Installing/Fixing

PS 1.5 Cover

PS 1 REINFORCEMENT

PS 1.1 General

The Contractor shall submit to the Employer the bending schedule of the reinforcement steel to be supplied on site together with a clear statement of his planned procedures.

These details shall be submitted 14 days prior to the Contractor's intended start date for installing/fixing reinforcement in a particular section of the dam.

All accidents, injury to persons or damage to property or the Works shall be reported in detail and in writing to the Employer as soon as possible after the event.

PS 1.2 Cutting (CWD32.5.1.1)

No flame cutting of high yield steel bars shall be permitted without prior authorisation from the Employer.

PS 1.4 Installing/Fixing (CWD32.5.1.3)

The Contractor shall ensure that, at the time of placing concrete, all steel is free from loose or powdery rust, scale, oil and other coatings that may reduce the bond between steel and concrete, affect the durability of the concrete or initiate corrosion in the reinforcement. If any material other than water is used for lubricating the formwork, every precaution shall be taken to avoid contamination of the reinforcement. Reinforcement shall be positioned as shown on the Drawings and maintained in those positions with the permissible deviation to Degree of Accuracy II as specified in **Clause CWD32.6**, unless otherwise shown on the Drawings or ordered by the Employer's Agent. The reinforcement shall be secured by tying at intersections with annealed wire of nominal diameter 1,6 mm or 1,25 mm or by the use of acceptable clips. Reinforcement shall be supported in its correct position by means of hangers or saddles and aligned by chairs and spacers. Welding of reinforcement will not be permitted

PS 1.5 Cover (CWD32.5.1.4)

The reinforcement shall be Installed/fixed to ensure the minimum concrete cover as specified on the Drawings is maintained between the outside of any bar or stirrup and the face of the concrete. The permissible deviation shall be to Degree of Accuracy II as specified in **Clause CWD32.6**, unless otherwise shown in the Drawings or ordered by the Employer's Agent. Any cover or spacer blocks used to maintain the concrete cover shall be as small as possible and be of an approved material and design.



DEPARTMENT OF WATER AND SANITATION

DWS DWS06 0523 WTE

**THE SUPPLY, CUT, BEND, DELIVERY, AND INSTALLATION
OR FIXING OF REINFORCING STEEL AND FABRIC
REINFORCEMENT FOR A PERIOD OF 55 MONTHS FOR
THE RAISING OF CLANWILLIAM DAM IN THE WESTERN
CAPE - CIDB CONTRACTOR GRADING DESIGNATION OF
CIDB 8CE OR HIGHER**

C4: SITE INFORMATION

CONTENTS

C4.1: TENDER DRAWINGS

C4.1 TENDER DRAWINGS

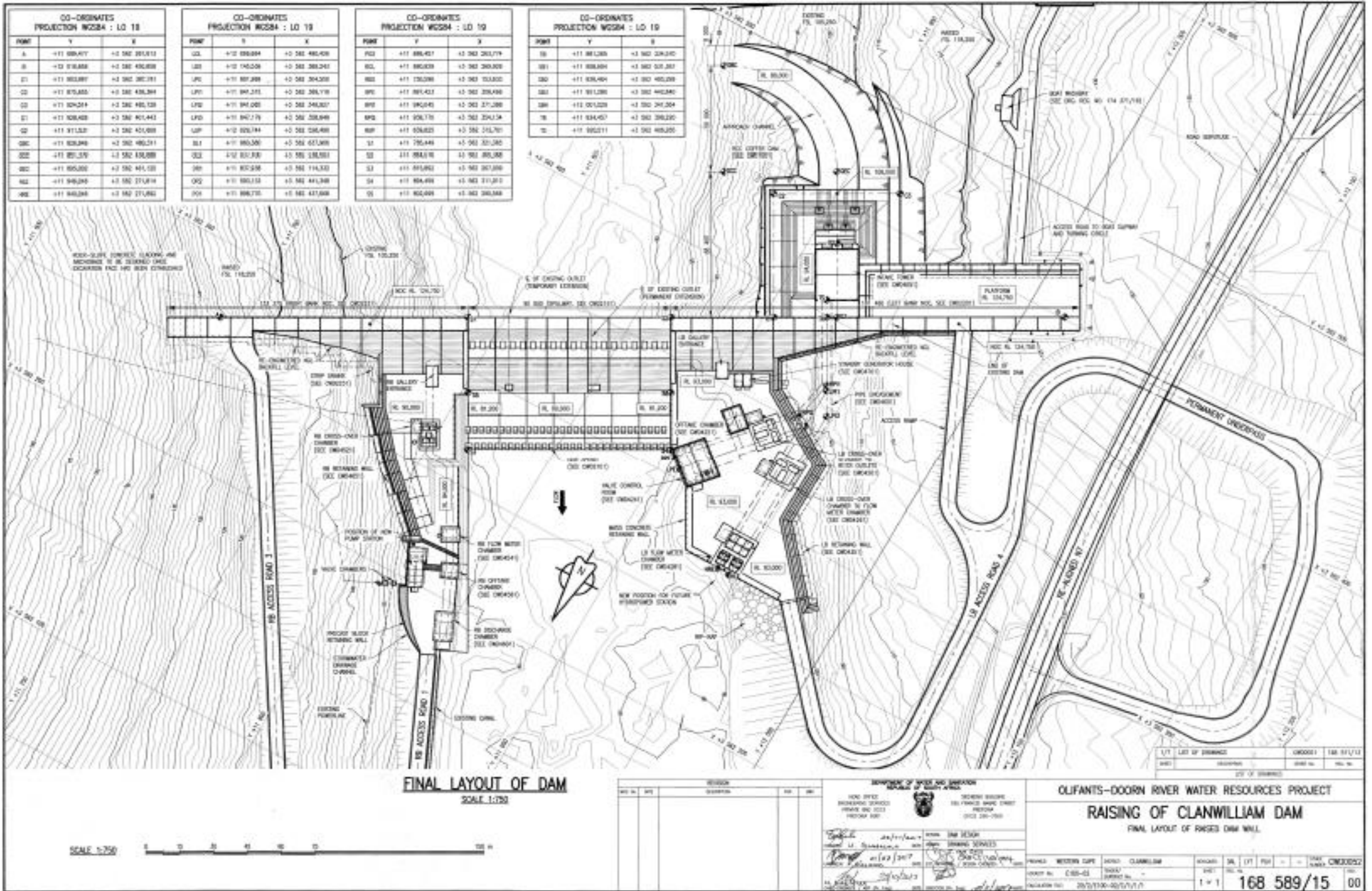
The tender drawings listed below are for **tender purposes only**. All work shall be done in accordance to the final approved construction drawings, that will be issued after signing of the contract.

The list of drawings annexure to this document is as follows:

Number	Drawing Title	CWD Reference number	Revision
4.1.1	Final Layout of Raised Dam Wall	CWD 0052	00
4.1.2	Left Bank Outlet Works - Pipe Encasement	CWD 5014	00
4.1.3	Right Bank Pipe Encasement A	CWD 5017	00
4.1.4	Right Bank Pipe Encasement B	CWD 5018	00
4.1.5	Right Bank Pipe Encasement C	CWD 5019	00
4.1.6	Right Bank Pipe Encasement D	CWD 5020	00
4.1.7	Right Bank Pipe Encasement E	CWD 5021	00
4.1.8	Tunnel Reinforcement	CWD 5026	00
4.1.9	Spillway Ogee Cap Bending Schedule	CWD 5031	00
4.1.10	Training Walls Bending Schedule	CWD 5038	00
4.1.11	Spillway Step Reinforcement	CWD 5042	00
4.1.12	Intake Tower Bending Schedule	CWD 5077	00
4.1.13	Intake Tower - Secondary Concrete Reinforcement	CWD 5092	00
4.1.14	Emergency Gate Control Room Bending Schedule	CWD 5115	00
4.1.15	Outlet Valve Control Room Roof Bending Schedule	CWD 5228	00
4.1.16	Left Bank Flow Meter Chamber Bending Schedule	CWD 5310	00
4.1.17	Left Bank Offtake Chamber Bending Schedule	CWD 5363	00
4.1.18	Left Bank Retaining Wall Bending Schedule	CWD 5409	00
4.1.19	Right Bank Flow Meter Chamber Bending Schedule	CWD 5529	00
4.1.20	Standby Generator House Bending Schedule	CWD 5654	00
4.1.21	Spillway Apron Bending Schedule 1 of 2	CWD 5720	00


4.1.22	Spillway Apron Bending Schedule 2 of 2	CWD 5720	00
4.1.23	Drainage Gallery Bending Schedule	CWD 5785	00
4.1.24	29-Cross Over Chamber to Flow Meter BS	CWD 5280	00
4.1.25	RCC Cofferdam Drainage & Left Bank Cladding	CWD 1005	00
4.1.26	Intake Tower Section 04 - 04	CWD 4055	00
4.1.27	Left Bank NOC with Old Spillway Section 01 - 01	CWD 2203	00
4.1.28	Spillway Section 01 - 01	CWD 2152	00
4.1.29	Right Bank NOC Stepped Concrete Infill Details	CWD 2233	00
4.1.30	Right Bank NOC Stepped Concrete Infill Details	CWD 2236	00
4.1.31	Drainage Gallery Floor and Step Details	CWD 2314	00

Note: (Will be provided in electronic format.)

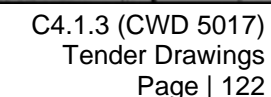


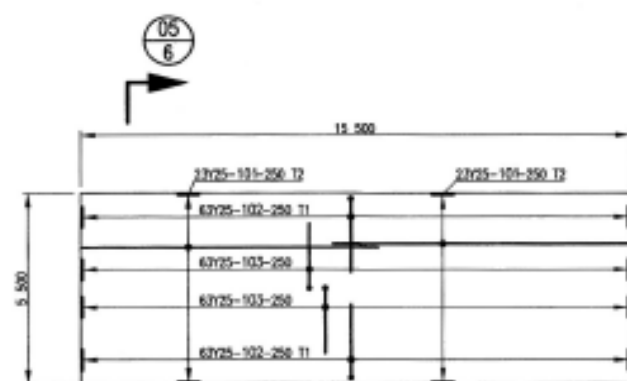
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DEPARTMENT OF WATER AND SANITATION								
BAR BENDING SCHEDULE								
SCHEME			OLIFANTS-ODORN RIVER WRP			SHEET 4		
STRUCTURE			CLANNILLIAN DAM: LB PIPE ENCASEMENT			DRAWN: R. DE LANGE		
PLAN REF NO.			CND5001 TO CND5014			CHECKED: D. JOHNSON		
SUMMARY OF LENGTHS AND MASSES								
Type Y			Type R			Type -		
Bar#	LEN	MASS KG	Bar#	LEN	MASS KG	Bar#	LEN	MASS KG
Y25	790	1 064						
Y25	38 325	150 015						
Y26	295	1 610						
TOTAL MASS	KG	553 689	TOTAL MASS	KG		TOTAL MASS	KG	

DEPARTMENT OF WATER AND SANITATION		REPUBLIC OF SOUTH AFRICA	
HEAD OFFICE CIVIL ENGINEERING PRIVATE BAG 3013 PRETORIA 0001		 SECTION: DAM DESIGN DRAWN: DRAWING SERVICES CHECKED: J. de Lange ENGINEER: R. de Lange JH Barone	
SECTION: DAM DESIGN		SECTION: DAM DESIGN DRAWN: DRAWING SERVICES CHECKED: J. de Lange ENGINEER: R. de Lange JH Barone	

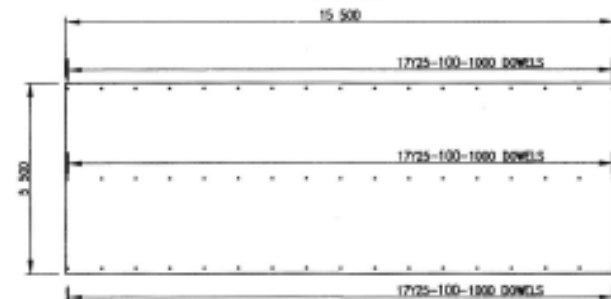
DEPARTMENT OF WATER AND SANITATION REPUBLIC OF SOUTH AFRICA	
HEAD OFFICE CIVIL ENGINEERING PRIVATE BAG 10113 PRETORIA 0001	 SECTION B.U.-004 505 FRANCIS BAARD STR PRETORIA (011) 300-7500
<i>[Signature]</i> CHIEF ENGINEER (CIVIL)	SECTION D.M. DESIGN DRAWING SERVICES
<i>[Signature]</i> CHIEF ENGINEER (ELECTRICAL)	<i>[Signature]</i> CHIEF ENGINEER (MECHANICAL)
<i>[Signature]</i> CHIEF ENGINEER (SANITATION)	<i>[Signature]</i> CHIEF ENGINEER (WATER)
<i>[Signature]</i> CHIEF ENGINEER (WATER)	<i>[Signature]</i> CHIEF ENGINEER (WATER)





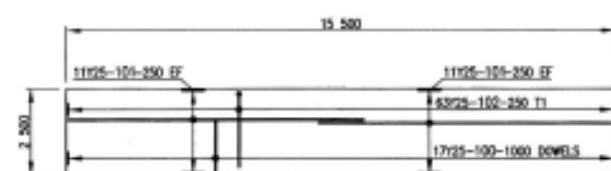
TOP STEEL ON ENCASEMENT D

SCALE 1:100



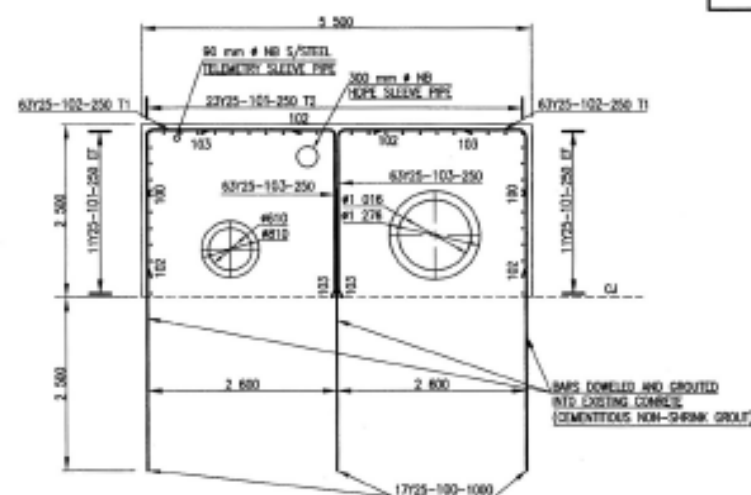
PLAN ON S/BARS (ENCASEMENT D)

SCALE 1:100



ELEVATION ON ENCASEMENT D (BOTH SIDES)

SCALE 1:100



SECTION 05-05

SCALE 1:50

NOTES:

- COVER TO REINFORCEMENT IS 50 mm UNLESS OTHERWISE INDICATED.
- LAP LENGTHS = 50 x ϕ .
- ANCHORAGE LENGTHS = 50 x ϕ .
- PIPES TO BE SECURELY TIED DOWN DURING CONCRETING TO PREVENT FLOATING.
- MINIMUM OF 14 DAYS CURING TIME.
- METHOD STATEMENT TO BE SUBMITTED FOR CONSTRUCTION PROCEDURE.
- FOR CONCRETE DETAILS SEE CND 4522
- 132-DOWELS HOLE DIAMETER ≥ 36 mm PERCUSSION DRILLED.

REINFORCEMENT

(To: SABS 820-1989 with amendments)
 R = Plain mild steel bars (Type A)
 (Y=250 MPa = 35 mm ϕ and (Y=250 MPa = 25 mm ϕ)
 T = Deformed mild steel
 (Y=250 MPa = 35 mm ϕ and (Y=250 MPa = 25 mm ϕ)
 Y = High yield steel
 (Type C: Class 2: Grade 1: (Y=450 MPa)
 Where: (Y=150 MPa)

EXAMPLE

20Y25-A63-100 T2

20 - Bars

T - High yield steel

25 - Diameter in mm

A63 - Bar mark number

100 - Spacing c/c in mm

T2 - Location

EF - Near face

IF - Inside face

TF - Far face

OF - Outside face

EF - Each face

TF - Top

OF - Bottom

EF - Cut to fit

TF - Cut to length

OF - Alternative bars required

ABR - Alternative bars required

COVER as specified

SECTION

SECTION NUMBER

SHEET NUMBER

01/2

Slope codes to SABS 820 (With latest amendments)									
Preferred shapes					Other shapes				
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

DIMENSIONS ARE GIVEN IN mm AND m.
 DIMENSIONS OF BARS ARE NOMINAL OUTSIDE DIMENSIONS.
 WHEN SO DESIRED, THE STANDARD RADIUS (R) FOR CORNERS MAY BE INCREASED, BUT SHALL NOT APPLY TO CHD ANCHORAGES.
 DIMENSIONS OF 1/2 OR 1/4 IN THIS DRAWING SHALL BE INDICATED AS DIMENSIONS OF 1/2 OR 1/4 IN THIS DRAWING.
 FOR WELDED MESH FABRIC, DIMENSIONS A & B DEFINE THE NET ENCLOSED AREA OF MESH. NO ALLOWANCE HAS BEEN MADE FOR LAPS.

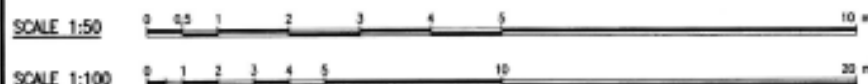
DEPARTMENT OF WATER AFFAIRS									
DAY BENDING SCHEDULE									
PROJECT: OLIFANTS-DOORN RIVER WRP					SHEET: 1/1				
STRUCTURE: PIPE ENCASEMENT E					DRAWN: E. V. VUUREN				
PLAN REF. NO.: CWD5021					CHECKED: C. HUTTEN				
Bar Location	Bar No.	Bar Size	Bar Length (m)	Bar Weight (kg)	Bar Weight (kg)	Bar Weight (kg)	Bar Weight (kg)	Bar Weight (kg)	Bar Weight (kg)
1	Y25-100	51	51	3 500	20	3 500			680
1	Y25-100	90	90	8 350	20	8 350			2 806
1	Y25-100	126	126	4 200	37	2 100	2 100		2 039
1	Y25-100	126	126	4 200	37	1 670	2 420		2 063

SUMMARY OF LENGTHS AND MASSES									
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y
Bar	Y	Bar	Y	Bar	Y	Bar	Y	Bar	Y

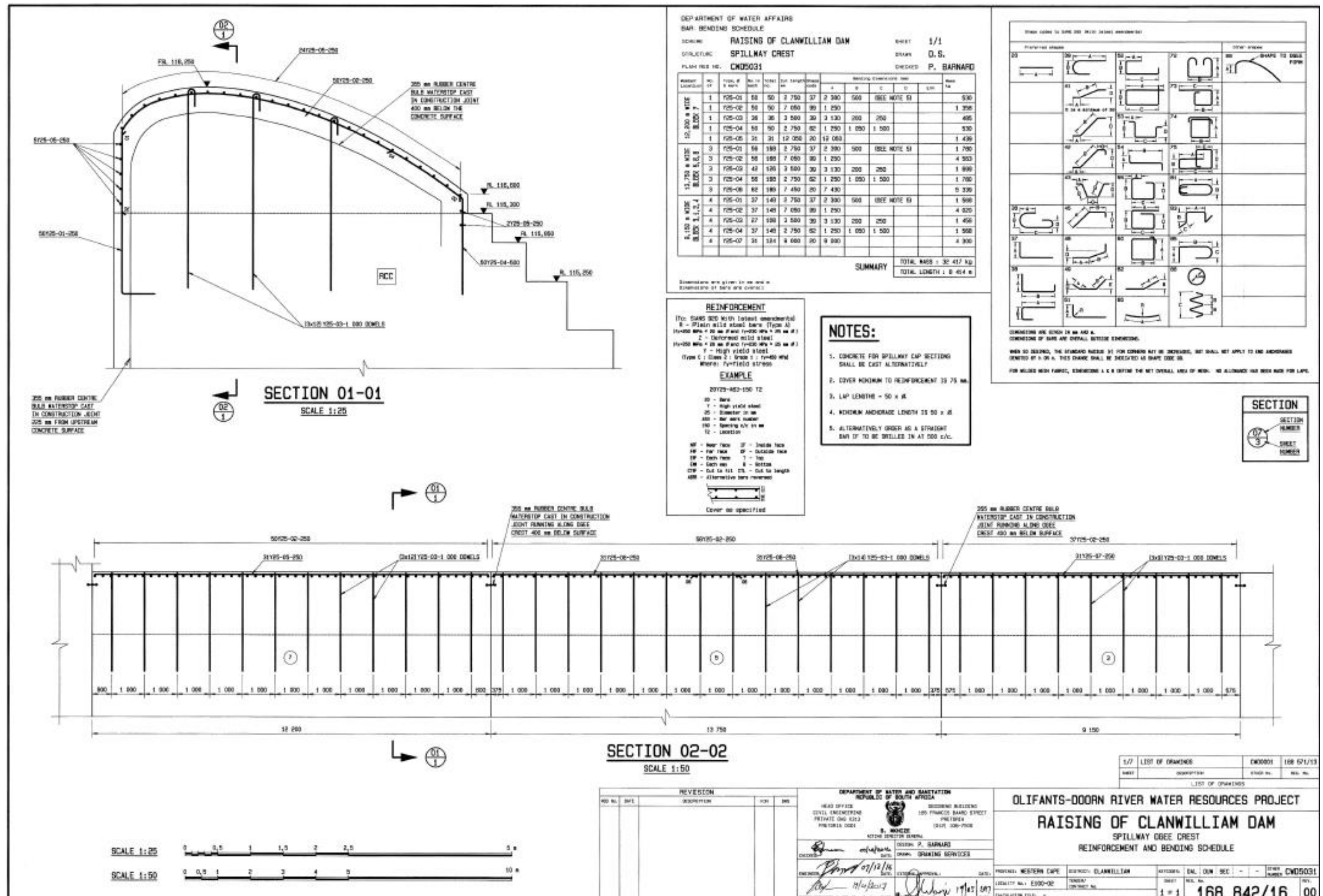
3/6	ENCASEMENT D	CWD5023	188 940/16
4/6	ENCASEMENT C	CWD5019	188 839/16
3/6	ENCASEMENT B	CWD5018	188 836/16
2/6	ENCASEMENT A	CWD5017	188 837/16
1/6	PIPE ENCASEMENT KEY PLAN	CWD5016	188 835/16
SHEET	DESCRIPTION	OTHER NO.	REC. NO.

LIST OF DRAWINGS

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT									
RAISING OF CLANWILLIAM DAM									
RIGHT BANK PIPE ENCASEMENT E									
REINFORCEMENT DETAILS									
PROJECT: WESTERN CAPE					DISTRICT: CLANWILLIAM				
LOCALITY NO.: E100-82					SHEET: 6 OF 6				
CALCULATION NO.: 30/2/E100-82/C/1/1					168 941/16				



CONSULTANT									
FUNCTION					REVISION				
DESIGNED: C. Hutten					DESCRIPTION				
DRAWN: E. V. VUUREN					FOR				
DESIGN CHECKED: C. Hutten					DATE				
APPROVAL - CONSULTANT					DEPARTMENT OF WATER AND SANITATION				
SIGNATURE: P. VILJOEN					REPUBLIC OF SOUTH AFRICA				
DATE: 7/11/16					HEAD OFFICE				
SIGNATURE: [Signature]					CIVIL ENGINEERING				
DATE: 7/11/16					PRIVATE BAG 5512				
SIGNATURE: [Signature]					PRETORIA 0001				
DATE: 7/11/16					S. MOORE				
SIGNATURE: [Signature]					NATIONAL DIRECTOR GENERAL				
DATE: 7/11/16					ENGINEERING SERVICES				
SIGNATURE: [Signature]					DRAWN: AUTOCAD				
DATE: 7/11/16					CHECKED: [Signature]				
SIGNATURE: [Signature]					DATE: 7/11/16				
DATE: 7/11/16					SHEET: 6 OF 6				



Dimensions are given in mm and in
inches on base are overall.

Observations are given in an end
Discussion of zero and growth

Questions are given in an oral or written form, and are usually:

Extensions are given in 6.6 and
Dimensions of Cells are 0-100.3

Calculations are given in an end
Calculations of bond are overall

DEPARTMENT OF WATER AND SANITATION REPUBLIC OF SOUTH AFRICA			
HEAD OFFICE CENTRAL ENGINEERING PRIVATE BAG 3002 PRETORIA 0001		DISTRICT ENGINEER 100 FRANCIS BAARD PRETORIA 012 330-7000	
TO: <i>Mr. J. J. J. J.</i> CHIEF, U. S. ENGINEERING PRETORIA	FROM: <i>P. P. P. P.</i> CHIEF, U. S. ENGINEERING PRETORIA	TO: <i>Mr. J. J. J. J.</i> CHIEF, U. S. ENGINEERING PRETORIA	FROM: <i>P. P. P. P.</i> CHIEF, U. S. ENGINEERING PRETORIA

REVISION				
REV. NO.	DATE	DESCRIPTION	FOR	BY
01	02/10	ISSUED FOR CONSTRUCTION	-	

[illegible]

NOTES:

1. COVER TO REINFORCEMENT IS 100 mm UNLESS OTHERWISE INDICATED.
2. MINIMUM LAP LENGTHS = 50 x Ø UNLESS OTHERWISE INDICATED.
3. MINIMUM ANCHORAGE LENGTHS = 50 x Ø UNLESS OTHERWISE INDICATED.
4. FOR CONCRETE DETAILS SEE CWD0156.

REINFORCEMENT

For bars 200 with lap/anchorage:
 R - Plain mild steel bars (Type A)
 (2000 MPa + 20 mm Ø and 1200 MPa + 20 mm Ø)
 I - Deformed mild steel
 (2000 MPa + 20 mm Ø and 1200 MPa + 20 mm Ø)
 Y - High yield steel
 (2000 MPa + 20 mm Ø and 1200 MPa + 20 mm Ø)
 Over L: Class S: Grade 1: 1200 MPa
 Where: fy = yield stress

EXAMPLE

20125-400-150 12

20 - Bars
 12 - High yield steel
 20 - Diameter of bar
 150 - Bar work number
 120 - Spacing in mm
 12 - Location

40 - Bar face 20 - Inside face
 12 - Bar face 20 - Outside face
 20 - Bar face 12 - Top
 12 - Bar face 20 - Bottom
 20 - Cut to fit 20 - Cut to length
 120 - Alternative bar number

Cover as specified

SECTION

SECTION
 05-05
 SHEET
 001

STANDARD REINFORCEMENT					OTHER REINFORCEMENT				
20	30	40	50	60	70	80	90	100	110
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100
12	16	20	25	32	40	50	63	80	100

REINFORCEMENT IS GIVEN IN mm AND m.
 DIMENSIONS OF BARS ARE OVERALL, UNLESS OTHERWISE SPECIFIED.
 WHEN NO DIMENSIONS ARE GIVEN, THE STANDARD PRACTICE IS: FOR CONCRETE, ALL DIMENSIONS SHALL BE IN mm, UNLESS OTHERWISE SPECIFIED.
 FOR WELDED REINFORCEMENT, DIMENSIONS ARE IN mm, UNLESS OTHERWISE SPECIFIED.

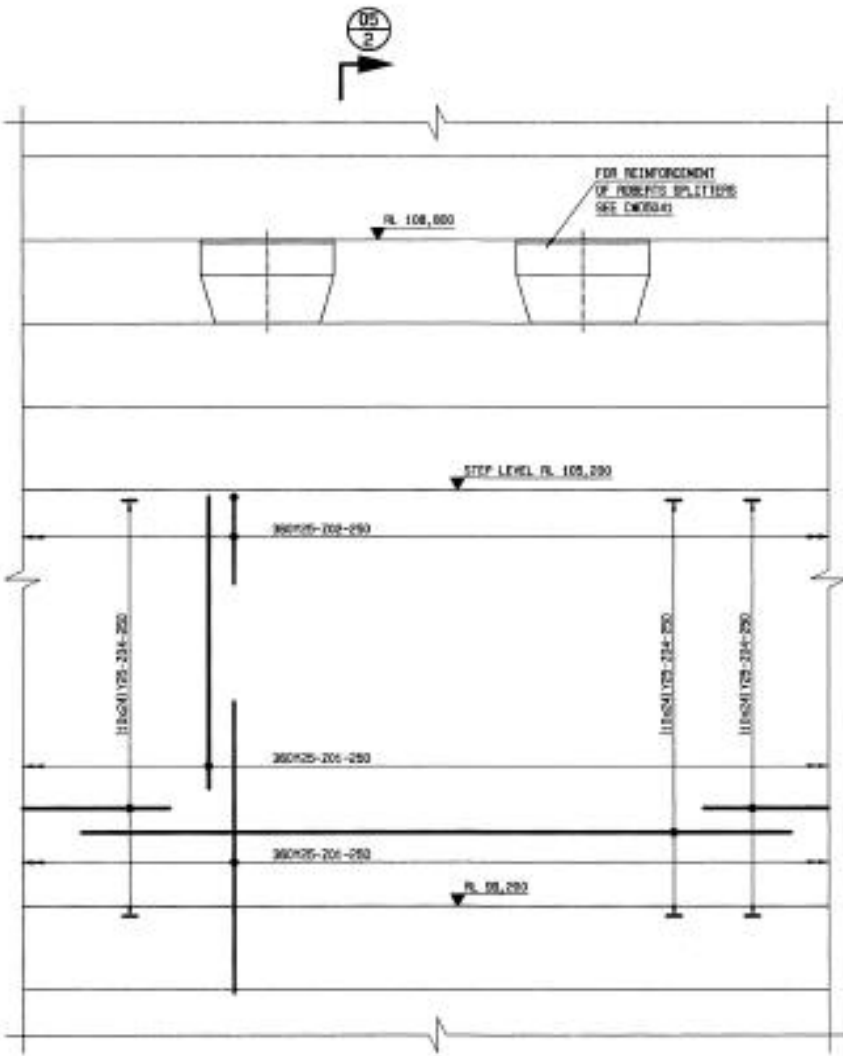
DEPARTMENT OF WATER AND SANITATION
 BAR BENDING SCHEDULE
 SHEET: 01
 STRUCTURE: OLIFANTS-DOORN RIVER WRP
 PLAN REF NO: CWD042
 CHECKED: D. JOHNSON
 P. BARNARD

Bar	Ref	Type	Length (m)	Qty	Weight (kg)	Remarks
1	125-201	300	720	4	200	11 042
1	125-202	300	300	2	400	3 398
1	125-203	300	900	2	500	8 218
10	125-204	44	440	10	150	17 154

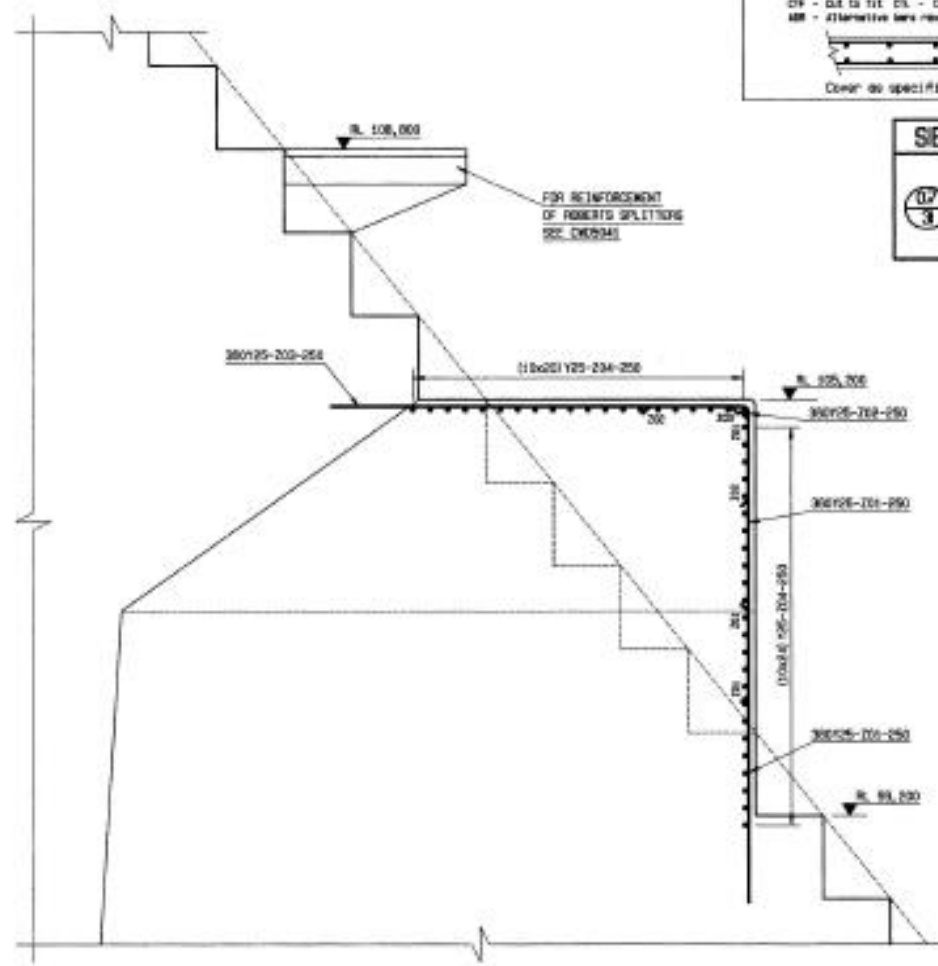
SUMMARY OF LENGTHS AND WEIGHTS									
Bar	Ref	Type	Length (m)	Qty	Weight (kg)	Bar	Ref	Type	Length (m)
20	10	504	40	548					
TOTAL	1000	548	40	548	TOTAL	1000	548	40	548

1/7	LIST OF DRAWINGS	CWD001	108 571/73
1/7	DESCRIPTION	CWD001	108 571/73

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT									
RAISING OF CLANWILLIAM DAM									
SPILLWAY STEP									
REINFORCEMENT									
PROVINCE: WESTERN CAPE	CONTRACT: CLANWILLIAM	CLIENT: DET SEC COM	OTHER: CWD042						
LOCALITY: 2300-02	CONTRACT NO:	SHEET: 2 OF 2	168 896/16	00					
CALCULATION FILE: 26/02/2009-02/01/1									



ELEVATION OF SPILLWAY STEP
 SCALE 1:50



SECTION 05-05
 SCALE 1:50

SCALE 1:50

REVISION			
NO.	DATE	DESCRIPTION	BY
1	10/12/2007	ISSUED FOR TENDER	P. BARNARD
2	10/12/2007	ISSUED FOR TENDER	P. BARNARD

DEPARTMENT OF WATER AND SANITATION			
PUBLIC WORKS			
HEAD OFFICE	100 RIVER STREET	PRETORIA 001	011 550 1234
REGIONAL OFFICE	100 RIVER STREET	PRETORIA 001	011 550 1234
PROJECT OFFICE	100 RIVER STREET	PRETORIA 001	011 550 1234

HATCH LOCATION	NO. OF	TYPE OF HATCH	NO. IN BATCH	TOTAL TONN	EST. TONNAGE PER	EMERG. CAP.	BOMBING DEMONSTRATION DATA					REMARKS	
							A	B	C	D	E/F		
	1	T22-C01	25	25	8 500	39	8 500	150	220				1 480
INTAKE TUNER	1	T25-T01	234	234	8 500	39	8 250	125	200				5 855
	1	T25-T02	1 126	1 126	10 050	20	10 050						43 284
	1	T25-T03	1 180	1 180	10 000	20	10 000						44 350
	1	T25-T04	576	576	7 550	20	7 550						16 743
	1	T25-T05	252	252	6 250	20	6 250						8 798
	1	T25-T06	360	360	4 500	37	1 250	3 280					8 757
	1	T25-T07	100	100	4 800	20	4 800						1 269
	1	T25-T08	535	535	2 480	37	1 260	1 220					5 320
	1	T25-T09	43	43	3 750	37	1 860	2 890					881
	1	T25-T10	284	284	5 290	20	5 290						6 020
	1	T25-T11	45	45	4 500	20	4 680						849
	1	T25-T12	31	31	5 400	82	3 500		2 320	1 880			844
	1	T25-T13	15	15	8 380	20	8 320						540
	1	T25-T14	17	17	10 750	20	10 750						754
	1	T25-T15	14	14	4 100	37	1 380	2 730					221
	1	T25-T16	68	68	7 050	20	7 040						1 791
1	T25-T17	17	17	10 250	20	10 250						871	
1	T25-T18	17	17	8 080	20	8 030						585	
1	T25-T19	48	48	5 300	20	5 280						879	
1	T25-T20	214	214	3 150	20	3 150						2 585	
1	T25-T21	6	6	3 600	37	1 250	2 300					81	
1	T25-T22	6	6	3 600	37	1 250	2 300					81	
1	T25-T23	174	174	3 350	20	3 350						2 844	
1	T25-T24	9 124	9 124	5 450	20	5 450						107 564	
1	T25-T25	103	103	8 280	20	8 280						2 867	
1	T25-T26	203	203	8 250	20	8 250						7 733	
1	T25-T27	570	570	5 850	20	5 850						12 573	
1	T25-T28	570	570	3 150	38	1 000	250	1 500				7 019	
1	T25-T29	570	570	2 900	29	2 900						6 453	
1	T25-T30	570	570	5 650	38	1 820	2 500	1 820				12 573	
1	T25-T31	1 526	1 526	3 000	38	200	125	2 500	125	200		17 668	

Pitney Box(es)	No. of Floor	Type of Floor	No. of Rooms	Total Area	GFA Area	No. of Rooms	Building Elements				Total Area										
							A	B	C	D											
EMERGENCY GATE CONTROL ROOM FLOOR	1	125-F01	363	363	2	450	37	1	250	1	250					3	336				
	1	125-F02	35	35	2	150	20	2	150								1	066			
	1	125-F03	74	74	2	450	37	1	250	1	250							606			
	1	125-F04	44	44	3	250	37	1	250	2	050							555			
	1	125-F05	20	20	2	300	20	2	300									213			
	1	125-F06	49	49	2	100	27	1	250	1	500							324			
	1	125-F07	34	34	2	100	20	2	090									1	181		
	1	125-F08	70	70	2	850	20	2	540									1	917		
	1	125-F09	5	5	2	350	20	2	330										185		
	1	125-F10	24	24	3	850	37	1	250	2	850								356		
	1	125-F11	24	24	4	150	37	1	250	2	050								303		
	1	125-F12	56	56	10	050	20	10	050										2	167	
	1	125-F13	123	123	8	300	20	2	300										2	930	
	1	125-F14	46	46	3	100	20	3	100											548	
	1	125-F15	46	46	3	800	37	1	250	2	000									567	
	1	125-F16	46	46	2	750	37	1	250	1	250									487	
	1	125-F17	10	10	2	100	37	1	250	1	300									119	
	1	125-F18	11	11	4	300	592	1	250	40	550	1	900	530						178	
	1	125-F19	4	4	4	700	38	2	200	430	2	200								72	
	1	132-F20	616	616	3	700	20	3	700											14	382
	1	125-F21	11	11	5	192	20	5	192												219
	1	125-F22	22	22	4	400	37	1	250	3	200										373
	1	125-F23	20	20	2	800	592	2	800	800		1	400	390	410						377
	1	125-F24	20	20	4	850	592	1	540	800		1	150	280	410						359
	1	132-F25	40	40	3	100	37	500	2	800											792
	1	125-F26	12	12	3	850	38	1	880	700		1	880								170
	1	125-F27	11	11	3	300	692	1	000	530	200		530								
	1	125-F28	9	9	3	700	75	700	450	900	550	960									82
	1	125-F29	11	11	2	150	80	100	800												98
	1	125-F30	53	53	3	500	38	1	680	250		1	680								459
1	125-F31	38	38	2	700	90	250	520												215	
1	125-F32	38	38	5	700	90	900	1	880											535	
1	125-F33	44	44	5	100	37	1	250	3	800										869	

Sector/Location	No. of	Type of	No. in	Total	Cost	Length	Phase	Sensory Experience and					Notes
								A	B	C	D	E/F	
INTAKE TOWER	1	125-132	288	288	3 850	37	1 250	2 030					4 284
	1	125-133	288	288	5 750	504	1 500	150	1 620		1 300	6 399	
	1	125-134	34	34	4 450	554	1 500	150	1 620		1 300	713	
	1	125-135	255	255	7 450	558	1 250	300	150	1 520	1 300	7 314	
	1	125-136	545	545	4 050	20	4 030					5 205	
	1	125-137	85	85	5 100	43	1 350	425	1 740	200	1 250	1 884	
	1	125-138	34	34	5 650	41	1 350	425	3 040	300		740	
	1	125-139	153	151	5 150	20	5 150					2 894	
	1	125-140	153	151	7 850	20	7 850					4 447	
	1	125-141	153	151	5 800	38	1 400	2 750	1 400			3 258	
	1	125-142	153	151	8 600	20	8 600					5 331	
	1	125-143	21	21	5 150	37	1 250	3 340				435	
	1	125-144	124	124	3 350	20	3 350					1 599	
	1	125-145	162	162	4 150	20	4 150					2 589	
	1	125-146	162	162	4 200	37	1 450	2 790				2 620	
	1	125-147	162	162	5 450	37	2 700	2 790				3 399	
	1	125-148	500	500	8 700	37	2 150	8 500				15 748	
	1	125-149	32	32	5 100	20	5 100					628	
	1	125-150	315	315	8 600	29	8 600					10 430	
	1	125-151	147	147	9 400	37	2 150	7 890				5 320	
1	125-152	153	151	8 450	29	8 430					3 988		
1	125-153	153	151	9 650	29	9 630					3 562		
1	125-154	10	10	7 200	41	2 880	450	3 910	200		277		
1	125-155	260	260	5 050	592	1 700	1 240	990	1 500	530	5 058		
1	125-156	10	10	4 050	37	1 700	2 380				155		
1	125-157	241	241	5 000	29	4 900					4 639		
1	125-158	150	149	5 150	37	1 250	3 540				3 351		
1	125-159	180	189	3 150	37	1 400	1 750				2 582		
1	125-160	21	21	8 350	38	4 300	1 625	800			513		
1	125-161	12	12	4 200	25	4 200					184		
1	125-162	34	34	4 400	25	4 400					575		
1	125-163	20	20	8 750	25	8 750					520		
1	125-164	10	10	5 000	38	2 900	1 625	800			151		

[illegible][illegible]

SUMMARY OF LENGTHS AND MASSES								
Team Y			Team R			Team -		
BIRTH	L IN	WEIGHT	BIRTH	L IN	WEIGHT	BIRTH	L IN	WEIGHT
108	1 527	2 469						
120	600	2 288						
125	137 170	528 595						
132	2 839	17 924						
TOTAL MASS	kg	661 974	TOTAL MASS	kg		TOTAL MASS	kg	

DEMONSTRATIONS ARE GIVEN IN HAND AND IN DEMONSTRATIONS OF SHIPS ARE OVERALL OUTSIDE DEMONSTRATIONS.

WHEN SO REQUIRED, THE STANDARD PAGES (1) FOR COPIES MAY BE INDEXED, BUT SHALL NOT APPLY TO END ANCHORS (2) IDENTIFIED BY A OR A. THIS CHANGE SHALL BE INDICATED BY SHIP CODES.

FOR VESSEL HIGH FUEL, DEMONSTRATIONS A & B DEFINE THE NET ENVELOPE CODE BY HIGH. NO ALLOWANCE HAS BEEN MADE FOR LA

2. ALTHOUGH THE WELDING SCHEDULES WERE PREPARED WITH CARE, MISTAKES MAY HAVE BEEN MADE THEREFORE, BEFORE SHOPPING AND BEFORE CUTTING AND WELDING OF REINFORCEMENT COMMENCED THE CONTRACTOR MUST CHECK ALL SCHEDULES TO ENSURE CORRECTNESS BY TYPE OF REINFORCEMENT AND WELDING CONNECTIONS.

IN CASE CHANGES ARE NECESSARY, THEY SHOULD CONFORM TO THE REQUIREMENTS SHOWN ON THE DRAWINGS AND BE IN ACCORDANCE WITH SANS 10144 (WITH THE LATEST AMENDMENTS).

ALL SOMETHING SHALL BE DONE IN ACCORDANCE WITH: SAME 280 WITH THE LATEST AMENDMENTS.

2. FOUR TYPES OF REINFORCING STEEL CAN BE SPECIFIED ON REINFORCEMENT DRAWINGS AND SCHEDULES (IN ACCORDANCE WITH BARS 800 AND BARS 1004 WITH THE LATEST AMENDMENTS) *viz.*:

8 REINFORCEMENT SHALL BE TYPE A1: HOT ROLLED WELD STEEL BARS OF PLAIN ROUNO CROSS-SECTION HAVING A MINIMUM YIELD STRESS OF 250 MPa FOR BARS OF DIAMETER UP TO AND INCLUDING 20 mm AND HAVING A MINIMUM YIELD STRESS OF 230 MPa FOR BARS WITH DIAMETER GREATER THAN OR EQUAL TO 25 mm.

2 REINFORCEMENT SHALL BE TYPE 65 GRADE 60 HOT ROLLED DEFORMED MILD STEEL BARS HAVING A MINIMUM YIELD STRESS AS FOR TYPE A.

9 REINFORCEMENT SHALL BE TYPE 1; CLASS 2; GRADE 1; HOT ROLLED DEFORMED HIGH YIELD STRESS STEEL BARS HAVING A MINIMUM YIELD STRESS OR A MINIMUM 0.2% PROOF STRESS OF 450 MPa.

REF. ALL STEEL FABRIC SHALL BE IN ACCORDANCE WITH ASTM A36 (WITH THE LATEST AMENDMENTS) PARTING A MINIMUM 0.25 POUND STRESS OF 480 MPa.

FOR EXAMPLE: R30 DESIGNATES A 30 mm DIAMETER PLAIN ROUNDED BAR OF MILD STEEL.
Z30 DESIGNATES A 30 mm DIAMETER DEFORMED BAR OF MILD STEEL.

REF. 655 DENOTES FABRIC REFERENCE 655 (MESH).

FILL IN ALL INFORMATION				
REC. NO.	DATE	RECORD POSITION	PAGE	

1/7	LIST OF DRAWINGS	000001	100 57
SHEET	DESCRIPTION	DRAWING NO.	REV.
LIST OF DRAWINGS			

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRETORIA 001
PRETORIA 001



NORTHWIND BUILDING
105 FRANCIS BAARD ST
PRETORIA
(011) 700-7500

S. MUGGE
ACTING DIRECTOR GENERAL

 16/1/2016
CHIEF: ☒ DATE:

 16/1/2016
DEPUTY: ☒ DATE:

 16/1/2016
EXT. ☒ / DEPUTY CHIEF: ☒

NAME: **DRAWING SERVICES**

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT

RAISING OF CLANWILLIAM DAM

INTAKE TOWER
REINFORCEMENT
BENDING SCHEDULE



SECTION 05-05
SCALE 1:10

SUMMARY OF LENGTHS AND MASSES								
Type Y			Type R			Type M		
BRID	L (m)	Mass (kg)	BRID	L (m)	Mass (kg)	BRID	L (m)	Mass (kg)
Y12	4 344	3 868				M12	701	832
TOTAL MASS	(kg)	4 101	TOTAL MASS	(kg)		TOTAL MASS	(kg)	832

1. ANCHOR HOLES TO BE DRILLED SLIGHTLY DOWNWARD ANGLED BETWEEN 15° AND 20° TO THE HORIZONTAL - 110 mm DEEP.
2. ANCHOR HOLES TO BE CLEARED OF DIRT AND FOREIGN MATTER BEFORE PLACING OF THE SPECIFIED CHEMICAL ANCHORS WITH THE USE OF WATER AND AIR.
3. CONCRETE FACE TO BE SCABBLED TO THE SATISFACTION OF THE ENGINEER, BEFORE PLACING OF THE SECOND STAGE CONCRETE.
4. MIP WOLTI HIT-WY 150 CHEMICAL ANCHORS (STAINLESS STEEL RODS) OR EQUAL TO BE USED.
5. ALL WELD STEEL BUILT-IN PLATES INCLUDING THE WELDING FOR GLIDES AND PROFILES TO BE PAINTED WITH MULTIPURPOSE EPOXY OR EQUAL (SEE DW66666).
6. NO CONCRETE SHALL BE POURED UNLESS THE ENGINEER HAS INSPECTED AND GIVEN WRITTEN APPROVAL.
7. ALL BARS TO BE CUT TO FIT AROUND PIPES.
8. MINIMUM REINFORCEMENT COVER TO CONCRETE = 75 mm.
9. SECONDARY CONCRETE: SHOWN/AS COMPENSATED BRIDE 30/15.
10. FOR INSTALLATION SPECIFICATIONS AND TOLERANCES OF GLIDES AND CEILING FRAMES SEE MECHANICAL DRAWINGS FOR DETAILS.
11. EXTENT OF REINFORCEMENT:
LEFT HAND STACK RL 86,500 - RL 124,750.
RIGHT HAND STACK RL 86,500 - RL 124,750.

1/7	LIST OF DRAWINGS	ONC0001	100 571/13
04407	DESCRIPTION	OTHER NO.	REV. NO.
LIST OF DRAWINGS			

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT
RAISING OF CLANWILLIAM DAM
INTAKE TOWER
REINFORCEMENT OF SECONDARY CONCRETE

PROVINCE: WESTERN CAPE	DISTRICT: CLAMWILLIAM	EXTENDED: EWL: OUM: REI: - - OTHER: MANDS: CWD5092
LEGALITY NO.: G100-02	FOCUS/ CONTACT NO.	REV.
COLLECTION FILE: 20/2/100-02/1/1	SHEET: 2 = 2	168 765/16 00

[illegible]

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CENT. ENGINEERING
PRIVATE BAG 2035
PRETORIA 0001



SECOND FLOOR
505 SCHIMMEL STREET
PRETORIA
(012) 300-7000

D. KOSHTING
DIRECTOR GENERAL

DESIGN: A DE LANGE

CHECKED:  DATE:  14/04/2007

DATE: 2007/04/10

PROJECT:  DATE:  20/04/2007

PROJECT:  DATE:  20/04/2007

REINFORCEMENT

(To: SANS 900 with latest amendments)

2 = Plain mild steel
($f_{yk} = 235 \text{ N/mm}^2$ and $f_{yk} = 235 \text{ N/mm}^2$ at 25 mm dia.)
Z = Deformed mild steel
($f_{yk} = 235 \text{ N/mm}^2$ and $f_{yk} = 235 \text{ N/mm}^2$ at 25 mm dia.)
T = High yield steel
(Type 2: Class 1; Grade 1: $f_{yk} = 460 \text{ N/mm}^2$)
Where: f_{yk} = Yield stress

EXAMPLE

20Y25-A82-150 T2

20 - Mass
T - High yield steel
A8 - Diameter in mm
150 - Bar mark number
T2 - Spacing in mm
T2 - Location

MF - Near face IF - Outside face
TF - Far face OF - Outside face
EF - End face T - Top
BF - End face B - Bottom
CP - Cut to fit CT - Cut to length
alt - Alternative bars reversed

Figure 9.10: Reinforced concrete slab

SCALE 1:20

Station Location	No. of st	Type, # of wires	No. of lines	Total No. of lines	Cable length m	Braid size	Series No. Standard size (mm)					Mass kg
							A	B	C	D	E/F	
EMERGENCY GATE CONTROL ROOM	1	132-R01	554	554	5 050	20	5 050					20 450
	1	132-R02	55	55	5 050	20	5 050					2 030
	1	132-R03	541	541	5 050	20	5 050					18 257
	1	132-R04	340	340	3 200	20	3 170					5 665
	1	132-R05	88	88	2 350	20	2 350					1 424
	1	132-R06	0	0	3 500	20	3 500					177
	1	125-R07	100	100	3 500	36	1 250	1 100	1 250			2 156
	1	125-R08	72	72	2 050	20	2 050					790
	1	125-R09	48	48	4 300	20	4 200					758
	1	125-R10	204	204	2 000	36	1 250	500	1 250			2 501
	1	125-R11	88	88	2 500	36	1 250	950	1 250			5 080
	1	125-R12	202	202	12 500	20	12 490					14 053
	1	125-R13	14	14	5 700	20	5 680					307
	1	125-R14	7	7	3 400	20	3 400					92
	1	125-R15	0	0	8 000	36	2 700	1 150	2 700			209
	1	125-R16	340	340	1 750	88A	370	250	1 250	125		2 201
	1	125-R17	25	25	4 150	36	1 550	1 150	1 550			366
	1	125-R18	58	58	4 300	36	1 050	1 150	1 050			268
	1	125-R19	40	40	4 400	60	1 100	1 000				678
	1	125-R20	308	308	2 450	37	1 250	1 250				3 735
	1	125-R21	156	156	3 250	36	1 250	850	1 250			5 077
	1	125-R22	236	236	10 850	20	10 850					6 131
	1	125-R23	68	68	3 200	80	950	850				838
	1	125-R24	108	108	3 200	36	1 250	800	1 250			2 316
	1	132-R25	0	0	3 150	20	3 150					158
	1	125-R26	48	48	7 000	20	6 980					1 240
	1	125-R27	40	40	5 700	20	5 700					878
	1	125-R28	136	136	3 000	37	1 250	2 500				1 920
	1	132-R29	52	52	10 250	20	10 230					778
	1	132-R30	24	24	12 850	20	12 850					3 915
	1	125-R31	4	4	7 500	20	7 500					116
	1	125-R32	58	58	4 000	20	4 000					245
1	125-R33	108	108	1 900	20	1 900					1 206	

[illegible][illegible][illegible][illegible]

SUMMARY OF LENGTHS AND MASSES								
Type Y			Type R			Type —		
Born	L (in)	Mass (kg)	Born	L (in)	Mass (kg)	Born	L (in)	Mass (kg)
116	471	743						
120	731	1 682						
125	513 552	52 499						
132	8 652	54 522						
TOTAL MASS	Kg	108 575	TOTAL MASS	Kg		TOTAL MASS	Kg	

CONCRETEWORK ARE GIVEN IN MM AND M.
CONCRETEWORK OF CURB AND OVERALL EXTERIOR DIMENSIONS.

WHEN SO ORDERED, THE STANDARD RADIUS: 31' FOR CORNERS MAY BE INCREASED, BUT SHALL NOT APPLY TO THE ANCHORAGE DETAIL BY A 91' 6". TYPED CHANGE SHALL BE INDICATED AS SHAWP CODE 06.

FOR MILLED HIGH FRICTION, DIMENSIONS A & B DEFINE THE NET INTERNAL AREA OF HIGH. NO ALLOWANCE HAS BEEN MADE FOR LAPS.

NOTES

- ALTHOUGH THE REMENDS SCHEDULES WERE PREPARED WITH CARE, MISTAKES MAY HAVE BEEN MADE THEREFORE, BEFORE ORDERING AND BEFORE CUTTING AND BENDING OF REINFORCEMENT COMMENCED THE CONTRACTOR MUST CHECK ALL SCHEDULES TO ENSURE CORRECTNESS OF TYPE OF REINFORCEMENT AND BENDING DIMENSIONS.
- IN CASE CHANGES ARE NECESSARY, THEY SHOULD CONFORM TO THE REQUIREMENTS SHOWN ON THE DRAWINGS AND BE IN ACCORDANCE WITH SABS 10144 (WITH THE LATEST AMENDMENTS).
- ALL REMENDS SHALL BE DONE IN ACCORDANCE WITH SABS 800 WITH THE LATEST AMENDMENTS.
- FOR TYPE OF REINFORCEMENT STEEL CAN BE SPECIFIED ON REINFORCEMENT DRAWINGS AND REMENDS SCHEDULES IN ACCORDANCE WITH SABS 800 AND SABS 1004 WITH THE LATEST AMENDMENTS viz.
- REINFORCEMENT SHALL BE OF TYPE A: HOT ROLLED WELD STEEL BARS OF PLAIN ROUND CROSS-SECTION HAVING A REMENDS YIELD STRESS OF 250 MPa FOR BARS OF DIAMETER UP TO AND INCLUDING 20 mm AND HAVING A REMENDS YIELD STRESS OF 230 MPa FOR BARS WITH DIAMETER GREATER THAN OR EQUAL TO 25 mm.
- REINFORCEMENT SHALL BE OF TYPE B: GRADE 3: HOT ROLLED DEFORMED WELD STEEL BARS HAVING A REMENDS YIELD STRESS AS FOR TYPE A.
- REINFORCEMENT SHALL BE OF TYPE C: GRADE 2: GRADE 3: HOT ROLLED DEFORMED HIGH YIELD STRESS STEEL BARS HAVING A REMENDS YIELD STRESS ON A REMENDS 0.2% PROOF STRESS OF 450 MPa.

MPa, ALL STEEL FABRIC SHALL BE IN ACCORDANCE WITH SABS 9024 (WITH THE LATEST AMENDMENTS) HAVING A REMENDS 0.2% PROOF STRESS OF 450 MPa.

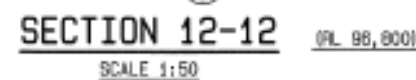
FOR EXAMPLE: 100 DENOTES A 20 mm DIAMETER PLAIN ROUND BAR OF WELD STEEL.
250 DENOTES A 12 mm DIAMETER DEFORMED BAR OF WELD STEEL.
170 DENOTES A 16 mm DIAMETER DEFORMED BAR OF HIGH YIELD STEEL.
195, 205 DENOTES FABRIC REMENDS 0.2% MPa.

REVISION		Page	Date
Rev. No.	Rev. D		

[illegible]

1/7	LIST OF DRAWINGS	DW00001	100 07/01/13
0001	DESCRIPTION	DRG. NO.	
LIST OF DRAWINGS			

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT									
RAISING OF CLANWILLIAM DAM									
EMERGENCY GATE CONTROL ROOM									
REINFORCEMENT									
BENDING SCHEDULE									
PROVIDED: WESTERN CAPE	DISTRICT: CLANWILLIAM	BYGIBBS:	DAL	OLW	SEC	FEI	BOX	STAMP NUMBER	CMD05115
UTILITY No.: E100-Q2	TENDER/ CONTRACT No.:	INSET	REL. No.						
CALCULATION FILE: 05/0/E100-02/01/1		15°15	168	928	16				00



NOTES:

1. COVER TO REINFORCEMENT IS 75 mm UNLESS OTHERWISE INDICATED.
2. MINIMUM LAP LENGTH = 50 x Ø UNLESS OTHERWISE INDICATED.
3. MINIMUM ANCHORAGE LENGTHS = 50 x Ø UNLESS OTHERWISE INDICATED.
4. ALL REINFORCEMENT IS TO BE CUT TO FIT AROUND PIPES.
5. FOR MECHANICAL EMBEDDED PARTS SEE MECHANICAL DRAWINGS.
6. F25-001 ROWELS TO BE PROVIDED AT:
5 500 mm C/C, 2 500 mm DEEP INFO ROCK.
(SEE CHS4284 AND CHS4285 FOR DETAILS)
7. F25-002 STOBLS TO BE PROVIDED AT:
5 400 mm C/C IN FLOOR OF CRAMBL.
8. F10-003 LINKS TO BE PROVIDED AT:
5 400 mm C/C IN 2 m THICK OUTSIDE WALLS.
9. F10-004 LINKS TO BE PROVIDED AT:
5 400 mm C/C IN 2.5 m THICK INSIDE WALL.

LEGEND:

CONSTRUCTION
JOINT 12.0

SECTION

SECTION
NUMBER

SHEET
NUMBER

[illegible][illegible]

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT			
RAISING OF CLANWILLIAM DAM			
LEFT BANK OUTLET WORKS: FLOW METER CHAMBER			
REINFORCING			
SECTION 12-12 AND ROOF			
PROPOSED: WESTERN CAPE	CORRECT: CLANWILLIAM	REMOVED: DIM. / SUM. / SEC. / - / - / -	OTHER NUMBER: CND531
LEGALLY NO.: E108-02	TURNING (CONTING. SL)	SHEET NO. 10 OF 12	REV. NO. 175 333/17

NOTES:

- COVER TO REINFORCEMENT IS 50 mm UNLESS OTHERWISE INDICATED.
- MINIMUM LAP LENGTHS = $50 \times \phi$, UNLESS OTHERWISE INDICATED.
- MINIMUM ANCHORAGE LENGTHS = $50 \times \phi$, UNLESS OTHERWISE INDICATED.
- ALL REINFORCEMENT IS TO BE CUT TO FIT AROUND PIPES.

SECTION

SECTION
NUMBER
07
3
SHEET
NUMBER

DEPARTMENT OF WATER AFFAIRS
BAR BENDING SCHEDULE

SCHEME CLANNWILLIAM DAM SHEET 1
STRUCTURE OFFTAKE CHAMBER ROOF SLAB AND BEAMS DRAWN F.M. LOTZ
PLAN RES. NO. 20/2/E100-02/C/1/1/2 CHECKED D. JOHNSON

BAR NO.	NO. OF BARS	TYPE OF BARS	NO. OF SPACERS	TYPE OF SPACERS	OUT. LENGTH (mm)	BAR NO.	NO. OF BARS	TYPE OF BARS	NO. OF SPACERS	TYPE OF SPACERS	OUT. LENGTH (mm)	BAR NO.
1	2	Y12-01	33	66	11 000	20	11 000					045
2	8	Y12-02	14	84	8 000	20	8 000					057
3	2	Y12-03	33	66	1 300	58	600	150	600			79
4	8	Y12-04	14	84	1 300	58	600	120	600			97
5	4	Y25-05	8	32	8 300	58	200	8 000	200			1 023
6	4	Y16-06	4	16	8 000	20	8 000					252
7	2	Y12-07	33	66	2 350	60	700	400		250		128
8	2	Y12-08	33	66	2 150	60	700	300		250		126
9	1	Y10-09	72	72	1 450	62	300	110	475	475		64

(Dimensions are given in mm and m)
(Dimensions of bars are given in mm)

SUMMARY OF LENGTHS AND MASSES

Type Y			Type R			Type mm		
Bar	L (m)	mass (kg)	Bar	L (m)	mass (kg)	Bar	L (m)	mass (kg)
Y10	104	84						
Y12	1 896	1 678						
Y16	128	202						
Y25	255	1 023						
TOTAL MASS	kg	2 967	TOTAL MASS	kg		TOTAL MASS	kg	

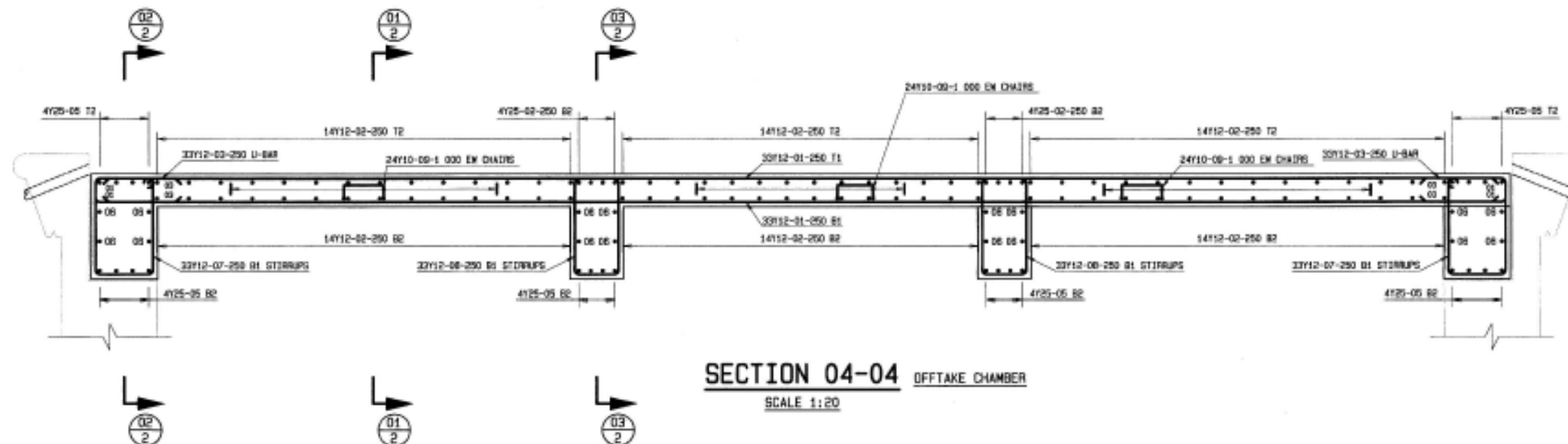
NOTES

- ALTHOUGH THE BENDING SCHEDULES WERE PREPARED WITH CARE, MISTAKES MAY HAVE BEEN MADE THEREFORE, BEFORE ORDERING AND BEFORE CUTTING AND BENDING OF REINFORCEMENT, THE CONTRACTOR MUST CHECK ALL SCHEDULES TO ENSURE CORRECTNESS OF TYPE OF REINFORCEMENT AND BENDING CONNECTIONS.
- IN CASE CHANGES ARE NECESSARY, THEY SHOULD CONFORM TO THE REQUIREMENTS SHOWN ON THE DRAWINGS AND BE IN ACCORDANCE WITH SABS 0141 WITH THE LATEST AMENDMENTS.
- ALL BENDING SHALL BE DONE IN ACCORDANCE WITH SABS 01 WITH THE LATEST AMENDMENTS.
- FOUR TYPES OF REINFORCING STEEL CAN BE SPECIFIED ON REINFORCEMENT DRAWINGS AND BENDING SCHEDULES IN ACCORDANCE WITH SABS 020 AND SABS 3024 WITH THE LATEST AMENDMENTS:
 - REINFORCEMENT SHALL BE TYPE A: HOT ROLLED WELD STEEL, BARS OF PLAIN ROUND CROSS-SECTION HAVING A NOMINAL YIELD STRESS OF 250 MPa FOR BARS OF DIAMETER UP TO AND INCLUDING 20 mm AND HAVING A NOMINAL YIELD STRESS OF 250 MPa FOR BARS WITH DIAMETER GREATER THAN OR EQUAL TO 25 mm.
 - REINFORCEMENT SHALL BE TYPE B: GRADE 1: HOT ROLLED DEFORMED WELD STEEL, BARS HAVING A NOMINAL YIELD STRESS AS FOR TYPE A.
 - REINFORCEMENT SHALL BE TYPE C: CLASS 2: GRADE 1: HOT ROLLED DEFORMED HIGH YIELD STRESS STEEL, BARS HAVING A NOMINAL YIELD STRESS OR A NOMINAL 0.2% PROOF STRESS OF 450 MPa.
 - REF. ALL STEEL FABRIC SHALL BE IN ACCORDANCE WITH SABS 1504-1574 WITH THE LATEST AMENDMENTS HAVING A NOMINAL 0.2% PROOF STRESS OF 450 MPa.

FOR EXAMPLE: 20S DENOTES A 20 mm DIAMETER PLAIN ROUND BAR OF WELD STEEL.
21A DENOTES A 21 mm DIAMETER DEFORMED BAR OF WELD STEEL.
12S DENOTES A 12 mm DIAMETER DEFORMED BAR OF HIGH TENSILE STEEL.
REF. SABS DENOTES PUBLISHED REFERENCES AND DESIGNS.

Preformed shapes	Other shapes
20	45
21	46
22	47
23	48
24	49
25	50
26	51
27	52
28	53
29	54
30	55
31	56
32	57
33	58
34	59
35	60
36	61
37	62
38	63
39	64
40	65
41	66
42	67
43	68
44	69
45	70
46	71
47	72
48	73
49	74
50	75
51	76
52	77
53	78
54	79
55	80
56	81
57	82
58	83
59	84
60	85
61	86
62	87
63	88
64	89
65	90
66	91
67	92
68	93
69	94
70	95
71	96
72	97
73	98
74	99
75	100
76	101
77	102
78	103
79	104
80	105
81	106
82	107
83	108
84	109
85	110
86	111
87	112
88	113
89	114
90	115
91	116
92	117
93	118
94	119
95	120
96	121
97	122
98	123
99	124
100	125

SHAPES ARE GIVEN IN mm and m.
SHAPES OF BARS ARE OVERALL OUTSIDE DIMENSIONS.
UNDER CERTAIN CIRCUMSTANCES WHERE HIGH YIELD STRESSORS MIGHT BE DESIRED, THE STANDARD RADIUS (i.e. 100 mm) FOR WELD STEEL AND 50 mm FOR HIGH YIELD STEEL MAY BE INCREASED TO 75 mm BUT THIS SHALL NOT APPLY TO END ANCHORAGES IDENTIFIED BY 'E' OR 'A'. THIS CHANGE SHOULD BE INDICATED BY ADDING THE LETTER 'S' AFTER THE SHAPE CODE NUMBER.
FOR WELDED HIGH TENSILE, DIMENSIONS A & B OFFSET THE NET OVERALL AREA OF HOLES. NO ALLOWANCE HAS BEEN MADE FOR LAPS.



REINFORCEMENT

(To: SABS 020 With latest amendments)
R = Plain mild steel bars (Type A)
fy=250 MPa + 20 mm of and fy=250 MPa + 25 mm of
Z = Deformed mild steel
fy=250 MPa + 20 mm of and fy=250 MPa + 25 mm of
Y = High yield steel
(Type C: Class 2: Grade 1: fy=450 MPa)
Where: fy=field stress

EXAMPLE

20Y25-483-150 T2

20 - Bars
Y - High yield steel
25 - Diameter of bar
483 - Bar work number
150 - Spacing c/c in mm
T2 - Location

MF - Near face DF - Double face
PF - Far face OF - Outside face
EF - Each face TF - Top
EN - Each way BT - Bottom
ETP - Cut to fit CTL - Cut to length
AR - All reinforcement bars reversed

Cover* not specified

SCALE 1:20



REV. NO.	DATE	DESCRIPTION	FOR	BY
1	15/06/2017	REVISION		

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG 003
PRETORIA 0001

SECTION BUILDINGS
185 FRANCIS BAARD STREET
PRETORIA
1010 350-7500

D. NASHITHO
DIRECTOR GENERAL

DESIGN F.M. LOTZ
DATE 04/05/2017
CHECKED DATE 15/06/2017
DRAWN DATE 14/07/2017

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT

RAISING OF CLANNWILLIAM DAM
LEFT BANK OFFTAKE CHAMBER ROOF SLAB
BENDING SCHEDULE

PROVIDED: WESTERN CAPE EXTRACT: CLANNWILLIAM
LOCALITY No: E100-02 SHEET: 3 OF 3
CALCULATION FILE: 20/2/E100-02/C/1/1/2

KEYWORDS: DSR REC ROD SCH SEC OTHER: CWD5363
SHEET NO. 168 813/16
FILE NO. 00

Dimensions are given in mm and in
fractions of inch (in square)

Dimensions are given in cm and in.
Dimensions of bars are given.

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT											
RAISING OF CLANWILLIAM DAM											
LB RETAINING WALL REINFORCEMENT DETAIL BENDING SCHEDULE											
WORK:	WESTERN CAPE	DISTRICT:	CLANWILLIAM	CMD00005	DRN.	BAL	RED	BCH	-I	OTHER NUMBER:	CMD6401
SHEET NO.:	E180-02	DESIGNER'S CONTRACT No.:	-	9 of 9	REV. No.						
ISSUANCE DATE:	20/2/E180-02/C/1/1				175 453/19						

DEPARTMENT OF WATER AND SANITATION
BAR BENDING SCHEDULE

SCHEME RAISING OF CLANNWILLIAM DAM SHEET 1
STRUCTURE RIGHT BANK FLOW METER CHAMBER DRAWN P. RADPHALA
PLAN REF NO. 168 976/16 CHECKED R. DE LANDE

REINFORCING BAR	NO. OF	TYPE, # & SIZE	NO. IN EACH	TOTAL LENGTH (m)	TOTAL MASS (kg)	BENDING DIMENSIONS (mm)					TOTAL MASS (kg)
						A	B	C	D	E/F	
1	Y25-01	105	195	7 200	20	7 200					5 067
1	Y25-02	133	133	8 300	20	8 160					2 037
1	Y25-03	133	110	3 900	37	3 900	2 250				1 462
1	Y25-04	93	93	2 450	37	1 250	1 250				500
1	Y25-05	133	110	3 450	37	1 250	2 250				1 465
1	Y25-06	15	15	8 100	20	8 100					341
1	Y25-07	164	164	5 450	20	5 450					3 445
1	Y25-08	20	20	3 300	20	3 300					254
1	Y18-09	104	104	2 100	38	800	550	800			345
1	Y25-10	20	20	4 900	37	1 750	2 550				502
1	Y25-11	36	36	2 900	32	2 900	340				402
1	Y25-12	31	31	5 200	20	5 200					380
2	Y25-13	16	32	1 950	37	750	850				123
2	Y25-14	16	32	1 800	37	800	850				126
1	Y25-15	16	16	1 800	20	1 800					63
8	Y25-16	7	56	2 750	20	2 750					380
3	Y25-17	8	24	3 200	20	3 200					280
2	Y25-18	8	12	5 200	37	800	4 450				154
1	Y25-19	20	20	2 950	37	1 750	1 250				323
2	Y18-20	8	16	2 850	38	850	600				67
2	Y18-21	14	28	2 150	38	800	600	800			65
4	Y25-22	12	48	1 800	20	1 800					220
4	Y25-23	16	64	1 250	20	1 250					308
1	Y25-24	298	298	2 450	37	1 250	1 250				1 700
4	Y25-25	8	8	3 100	20	3 100					60

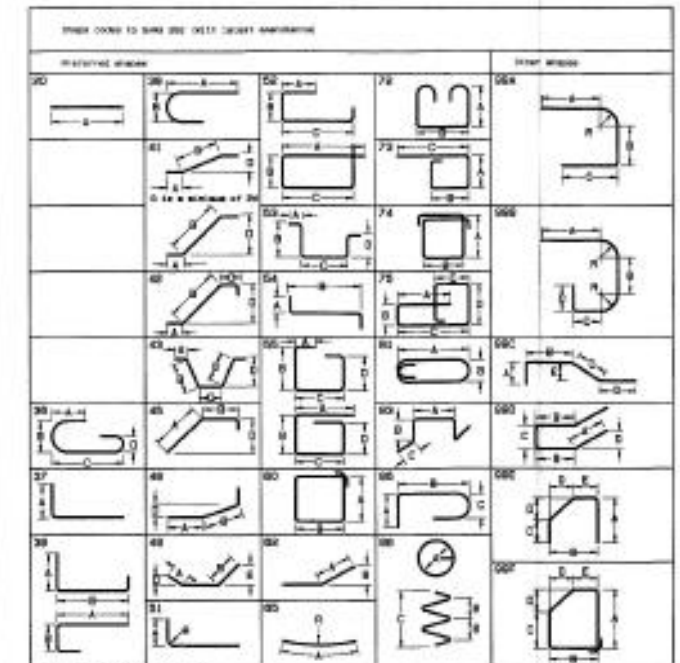
Dimensions are given in mm and all dimensions are to centre line.

DEPARTMENT OF WATER AND SANITATION
BAR BENDING SCHEDULE

SCHEME RAISING OF CLANNWILLIAM DAM SHEET 2
STRUCTURE RIGHT BANK FLOW METER CHAMBER DRAWN P. RADPHALA
PLAN REF NO. 168 976/16 CHECKED R. DE LANDE

SUMMARY OF LENGTHS AND MASSES

TYPE Y			TYPE R			TYPE M		
NO.	LEN.	MASS (kg)	NO.	LEN.	MASS (kg)	NO.	LEN.	MASS (kg)
Y25	321	507						
Y25	2 886	7 116						
Y25	2 413	6 208						
TOTAL MASS (kg)		15 823	TOTAL MASS (kg)			TOTAL MASS (kg)		



CONNECTIONS ARE GIVEN IN mm and all dimensions are to centre line.
CONNECTIONS OF BARS ARE GIVEN IN mm and all dimensions are to centre line.
WHEN SO ORDERED, THE STANDARD RADIUS R/1 FOR CORNERS MAY BE INCREASED, BUT SHALL NOT APPLY TO THE UNDERBARS ORDERED BY R OR A. THIS CHANGE SHALL BE INDICATED BY SHAPE CODE WL.
FOR WELDED WISH FABRIC, CONNECTIONS A & B DEFINE THE NET OVERALL AREA OF WELD. NO ALLOWANCE HAS BEEN MADE FOR LAP.

NOTES

- ALTHOUGH THE BENDING SCHEDULES WERE PREPARED WITH CARE, MISTAKES MAY HAVE BEEN MADE THEREFORE, BEFORE ORDERING AND BEFORE CUTTING AND BENDING OF REINFORCEMENT, THE CONTRACTOR MUST CHECK ALL SCHEDULES TO ENSURE CORRECTNESS OF TYPE OF REINFORCEMENT AND BENDING CONNECTIONS.
- IN CASE CHANGES ARE NECESSARY, THEY SHOULD CONFORM TO THE REQUIREMENTS SHOWN IN THE ORDERING AND BE IN ACCORDANCE WITH SANS 10244 (WITH THE LATEST AMENDMENTS).
- ALL BENDING SHALL BE DONE IN ACCORDANCE WITH SANS 10244 (WITH THE LATEST AMENDMENTS).
- FOUR TYPES OF REINFORCING STEEL CAN BE SPECIFIED ON REINFORCEMENT DRAWINGS AND BENDING SCHEDULES (IN ACCORDANCE WITH SANS 800 AND SANS 10244 WITH THE LATEST AMENDMENTS): Y25, Y20, Y18 AND Y16.
- REINFORCEMENT SHALL BE TYPE A: HOT ROLLED WELD STEEL, BARS OF PLAIN ROUND CROSS-SECTION HAVING A NOMINAL YIELD STRESS OF 355 MPa FOR BARS OF DIAMETER UP TO 16 mm AND HAVING A NOMINAL YIELD STRESS OF 355 MPa FOR BARS WITH DIAMETER GREATER THAN OR EQUAL TO 20 mm.
- REINFORCEMENT SHALL BE TYPE B: GRADE 1: HOT ROLLED DEFORMED WELD STEEL, BARS HAVING A NOMINAL YIELD STRESS OF 355 MPa.
- REINFORCEMENT SHALL BE TYPE C: GRADE 1: HOT ROLLED DEFORMED HIGH YIELD STRESS STEEL, BARS HAVING A NOMINAL YIELD STRESS OF 460 MPa.
- NOT: ALL STEEL FABRIC SHALL BE IN ACCORDANCE WITH SANS 10244 (WITH THE LATEST AMENDMENTS) HAVING A NOMINAL 6.25 PROOF STRESS OF 460 MPa.
- FOR EXAMPLE: 160 DIAMETER 4 16 mm DIAMETER PLAIN ROUND BAR OF WELD STEEL, 160 DIAMETER 4 16 mm DIAMETER DEFORMED BAR OF WELD STEEL, 160 DIAMETER 4 16 mm DIAMETER DEFORMED BAR OF HIGH TENSILE STEEL, REF. SEE SCHEDULE FABRIC REFERENCE 800 mm.

NO.	DATE	DESCRIPTION	FOR	BY

DEPARTMENT OF WATER AND SANITATION
REPUBLIC OF SOUTH AFRICA

HEAD OFFICE
CIVIL ENGINEERING
PRIVATE BAG 2024
PRETORIA 0001

REGIONAL BUILDING
100 FRANCIS BAARD STREET
PHILIPSBURG
2421 300-7500

E. MOKHEE
ACTING DIRECTOR GENERAL

24/12/2014
24/12/2014
24/12/2014
24/12/2014
24/12/2014
24/12/2014
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24/12/2014

1/7 LIST OF DRAWINGS CWD001 500 571/13

SHEET DESCRIPTION OTHER NO. REV. NO.

LIST OF DRAWINGS

OLIFANTS-ODORN RIVER WATER RESOURCES PROJECT

RAISING OF CLANNWILLIAM DAM
RIGHT BANK FLOW METER CHAMBER
REINFORCEMENT DETAILS: BENDING SCHEDULE

PROVINCE: WESTERN CAPE DISTRICT: CLANNWILLIAM

QUALITY No.: E390-02

DATE: 20/12/2014

20/12/2014

168 976/16 00

Coordinates are given in xy and z
 Coordinates of ions are omitted

Overdoses are given in 4s and 4s
Overdoses of 4s are overall

Questions are given in an oral
 (examples of lists are given)

Dimensions are given in mm and in
Dimensions of bars are overall

Dimensions are given in an array
Dimensions of bars are stored.

SUMMARY OF LENGTHS AND MASSES								
Type Y			Type R			Type -		
BEPS	LSM	MASS (kg)	BEPS	LSM	MASS (kg)	BEPS	LSM	MASS (kg)
128	6 684	15 350						
TOTAL MASS	(kg)	15 350	TOTAL MASS	(kg)		TOTAL MASS	(kg)	

CONNECTIONS W/RE GIVEN IN SEE SHEET 2.
CONNECTIONS OF BARS ARE DETAIL, OUTSIDE DIMENSIONS.

WHEN SO DESIGNED, THE STANDARD RAILING 1/1 FOR CONCRETE MAY BE INCREASED, BUT SHALL NOT APPLY TO END ARCHWASERS
IDENTIFIED BY C OR F. THESE CHANGES SHALL BE INDICATED AS SHOWN CODE 08.

FOR WELDED WEAIR FACES, DIMENSIONS A & B DEFINE THE NET OVERALL AREA OF WEAR. NO ALLOWANCE HAS BEEN MADE FOR LAP.

REVISION					
NO.	REV.	DATE	DESCRIPTION	BY	CHKD.

1/7	LIST OF DRAWINGS	000000	100 571/
0001	DESCRIPTION	OTHER NO.	REL. NO.
LIST OF DRAWINGS			

DEPARTMENT OF WATER AND SANITATION
BAR BENDING SCHEDULE

SCHEME RAISING OF CLANWILLIAM DAM SHEET 1
STRUCTURE SPILLWAY APRON DRAWN D. JOHNSON
PLAN REF. NO. CWD5701 TO CWD5719 CHECKED M. POYO

Bar No.	Bar ID	Type of Bar	Length (m)	Weight (kg)	Remarks	Bar No.	Bar ID	Type of Bar	Length (m)	Weight (kg)	Remarks
1	120-A01	72	13 000	39	12 450	260	420				5 900
1	120-A02	316	316	6 200	20	6 200					4 030
1	120-A03	140	140	2 450	45	1 180	320	1 000	835		847
1	120-A04	244	244	8 800	37	1 180	7 440				5 183
1	120-A05	58	58	6 700	904	1 700	2 350	1 540	1 100	835	960
1	120-A06	58	58	5 500	904	1 700	2 350	340	1 100	835	708
1	120-A07	140	140	2 150	37	1 100	1 150				743
4	120-B01	58	204	13 000	39	12 450	260	420			18 375
4	120-B02	248	248	5 800	20	5 800					14 211
4	120-B03	118	472	2 450	45	1 180	320	1 000	835		3 066
4	120-B04	112	448	7 500	37	1 180	8 430				8 410
4	120-B05	112	448	6 450	20	6 430					7 137
4	120-B06	106	424	2 500	45	1 180	340	1 000	835		2 618
4	120-B07	118	472	2 150	37	1 100	1 150				2 567
1	120-C01	70	70	13 000	39	12 450	260	420			5 742
1	120-C02	288	288	5 800	20	5 800					4 126
1	120-C03	136	136	2 450	45	1 180	320	1 000	835		828
1	120-C04	112	112	8 800	37	1 180	7 430				2 379
1	120-C05	112	112	7 450	20	7 430					2 081
1	120-C06	106	106	2 500	45	1 180	340	1 000	835		665
1	120-C07	136	136	2 150	37	1 100	1 150				733
1	120-D01	72	72	13 000	39	12 450	260	420			5 900
1	120-D02	316	316	6 200	20	6 200					4 030
1	120-D03	140	140	2 450	45	1 180	320	1 000	835		847
1	120-D04	244	244	8 800	37	1 180	7 440				2 592
1	120-D05	58	58	6 700	904	1 700	2 350	1 540	1 100	835	2 245
1	120-D06	58	58	5 500	904	1 700	2 350	340	1 000	835	716
1	120-D07	140	140	2 150	37	1 100	1 150				743
1	120-D08	118	118	5 850	39	1 780	2 350	1 780			1 578

Dimensions are given in mm and
Dimensions of bars are overall

DEPARTMENT OF WATER AND SANITATION
BAR BENDING SCHEDULE

SCHEME RAISING OF CLANWILLIAM DAM SHEET 4
STRUCTURE SPILLWAY APRON DRAWN D. JOHNSON
PLAN REF. NO. CWD5701 TO CWD5719 CHECKED M. POYO

Bar No.	Bar ID	Type of Bar	Length (m)	Weight (kg)	Remarks	Bar No.	Bar ID	Type of Bar	Length (m)	Weight (kg)	Remarks
5	120-J01	53	53	13 000	39	12 450	260	420			4 348
1	120-J02	88	88	6 950	37	1 180	4 900				1 395
1	120-J03	140	140	2 450	45	1 180	320	1 000	835		847
1	120-J04	70	70	2 150	988	1 180	1 150	1 000			372
1	120-J05	80	80	8 800	37	1 180	7 440				1 686
1	120-J06	88	88	5 400	20	5 400					1 147
1	120-J07	70	70	6 250	37	1 180	5 100				1 085
1	120-J08	70	70	2 300	82	1 180	1 150	1 000			380
1	120-J09	70	70	2 500	988	1 180	1 150	2 350			665
1	120-J10	70	70	2 350	82	1 180	1 150	2 150			578
1	120-J11	74	74	5 850	39	1 780	2 350	1 780			1 069
1	120-J12	104	104	2 500	45	1 180	340	1 000	835		642
1	120-J13	45	45	4 950	80	850					508
1	120-J14	30	30	2 950	37	1 180	1 080				226
1	120-J15	80	80	7 450	20	7 440					1 472
1	120-J16	30	30	4 350	38	1 780	850	1 780			302
1	120-J17	30	30	4 350	38	1 880	1 050	1 880			302
1	120-K01	88	88	13 000	39	12 450	260	420			2 133
1	120-K02	90	90	3 300	37	1 180	2 150				734
1	120-K03	12	12	6 700	984	1 700	2 350	1 540	1 100	835	186
1	120-K04	70	70	2 150	988	1 180	1 150	1 000			372
1	120-K05	80	80	8 800	37	1 180	7 440				1 275
1	120-K06	57	57	5 250	37	1 180	4 130				738
1	120-K07	70	70	2 500	37	1 180	2 250				665
1	120-K08	70	70	2 300	82	1 180	1 150	1 000			360
1	120-K09	80	80	4 950	80	850	1 350				674
1	120-K10	12	12	5 500	984	1 780	2 350	340	1 100	835	183
1	120-K11	15	15	4 250	984	1 930	2 280	1 930	710		157
1	120-K12	15	15	4 800	984	1 930	2 280	340	1 000	710	179

Dimensions are given in mm and
Dimensions of bars are overall

DEPARTMENT OF WATER AND SANITATION
BAR BENDING SCHEDULE

SCHEME RAISING OF CLANWILLIAM DAM SHEET 2
STRUCTURE SPILLWAY APRON DRAWN D. JOHNSON
PLAN REF. NO. CWD5701 TO CWD5719 CHECKED M. POYO

Bar No.	Bar ID	Type of Bar	Length (m)	Weight (kg)	Remarks	Bar No.	Bar ID	Type of Bar	Length (m)	Weight (kg)	Remarks
1	120-E01	54	54	13 000	39	12 450	260	420			4 430
1	120-E02	88	88	6 950	37	1 180	4 900				1 345
1	120-E03	140	140	2 450	45	1 180	320	1 000	835		847
1	120-E04	70	70	2 150	988	1 180	1 150	1 000			372
1	120-E05	100	100	8 800	37	1 180	7 440				2 369
1	120-E06	70	70	5 400	20	5 400					834
1	120-E07	70	70	8 250	37	1 180	5 100				1 801
1	120-E08	70	70	2 200	82	1 180	1 150	1 000			380
1	120-E09	70	70	3 500	988	1 180	1 150	2 350			905
1	120-E10	70	70	3 250	82	1 180	1 150	2 150			970
1	120-E11	37	37	8 700	984	1 780	2 350	1 540	1 100	835	812
1	120-E12	37	37	5 500	984	1 780	2 350	340	1 100	835	903
1	120-E13	68	68	4 550	80	850	1 350				874
1	120-E14	38	38	3 350	37	1 180	2 350				348
1	120-E15	15	15	4 850	984	1 930	2 280	340	1 100	835	179
1	120-E16	15	15	4 850	984	1 930	2 280	340	1 100	835	172
2	120-F01	48	48	13 000	39	12 450	260	420			8 338
2	120-F02	66	66	6 950	37	1 180	4 900				1 943
2	120-F03	118	118	2 450	45	1 180	320	1 000	835		1 426
2	120-F04	58	118	2 150	988	1 180	1 150	1 000			827
2	120-F05	68	168	7 500	37	1 180	8 430				3 934
2	120-F06	48	80	5 400	20	5 400					1 957
2	120-F07	58	118	8 250	37	1 180	5 100				1 822
2	120-F08	58	118	2 200	82	1 180	1 150	1 000			841
2	120-F09	58	118	3 500	988	1 180	1 150	2 350			1 820
2	120-F10	58	118	3 250	82	1 180	1 150	2 150			978
2	120-F11	68	168	8 450	20	8 430					2 540
2	120-F12	74	148	2 500	45	1 180	340	1 000	835		914
2	120-F13	48	80	4 550	80	850	1 350				1 911
2	120-F14	38	80	3 850	984	1 780	850	340	1 000	705	971

Dimensions are given in mm and
Dimensions of bars are overall

DEPARTMENT OF WATER AND SANITATION
BAR BENDING SCHEDULE

SCHEME RAISING OF CLANWILLIAM DAM SHEET 5
STRUCTURE SPILLWAY APRON DRAWN D. JOHNSON
PLAN REF. NO. CWD5701 TO CWD5719 CHECKED M. POYO

Member Identification	Bar ID	Type of Bar	No. of Scales	Total No.	DIA	Length (mm)	Stress (N/mm²)	Strain (mm/mm)				Remarks
								A	B	C	D	
BLOCK L	2	120-L01	25	50	13 000	39	12 450	260	420			4 102
	2	120-L02	66	130	3 300	37	1 180	2 150				1 800
	2	120-L03	24	48	2 500	45	1 180	340	1 000	835		296
	2	120-L04	58	118	2 150	988	1 180	1 150	1 000			827
	2	120-L05	28	60	7 500	37	1 180	8 430				1 126
	2	120-L06	48	80	5 250	37	1 180	4 130				1 193
	2	120-L07	58	118	3 500	37	1 180	2 350				1 820
	2	120-L08	58	118	2 200	82	1 180	1 150	1 000			841
	2	120-L09	68	120	4 550	80	850	1 350				1 340
	2	120-L10	28	60	8 450	20	8 430					969
BLOCK M	1	120-M01	30	30	13 000	39	12 450	260	420			2 825
	1	120-M02	75	75	3 300	37	1 180	2 150				811
	1	120-M03	54	54	2 500	45	1 180	340	1 000	835		333
	1	120-M04	68	68	2 150	988	1 180	1 150	1 000			380
	1	120-M05	28	30	8 800	37	1 180	7 430				937
	1	120-M06	68	68	5 250	37	1 180	4 130				882
	1	120-M07	68	68	3 500	37	1 180	2 350				937
	1	120-M08	68	68	2 200	82	1 180	1 150	1 000			375
	1	120-M09	45	45	4 550	80	850	1 350				908
	1	120-M10	90	90	2 500	37	1 180	1 350				999
	1	120-M11	20	20	7 450	20	7 430					852
BLOCK N	2	120-N01	25	50	13 000	39	12 450	260	420			4 102
	2	120-N02	66	130	3 300	37	1 180	2 150				1 800
	2	120-N03	24	48	2 500	45	1 180	340	1 000	835		296
	2	120-N04	58	118	2 150	988	1 180	1 150	1 000			827
	2	120-N05	28	60	7 500	37	1 180	8 430				1 126
	2	120-N06	48	80	5 250	37	1 180	4 130				1 193
	2	120-N07	58	118	3 500	37	1 180	2 350				1 820
	2	120-N08	58	118	2 200	82	1 180	1 150	1 000			841
	2	120-N09	68	120	4 550	80	850	1 350				908
	2	120-N10	28	60	8 450	20	8 430					969
	2	120-N11	20	20	7 450	20	7 430					852

Dimensions are given in mm and in
Dimensions of hole are overall

Dimensions are given in mm and m.
Dimensions of hole are given.

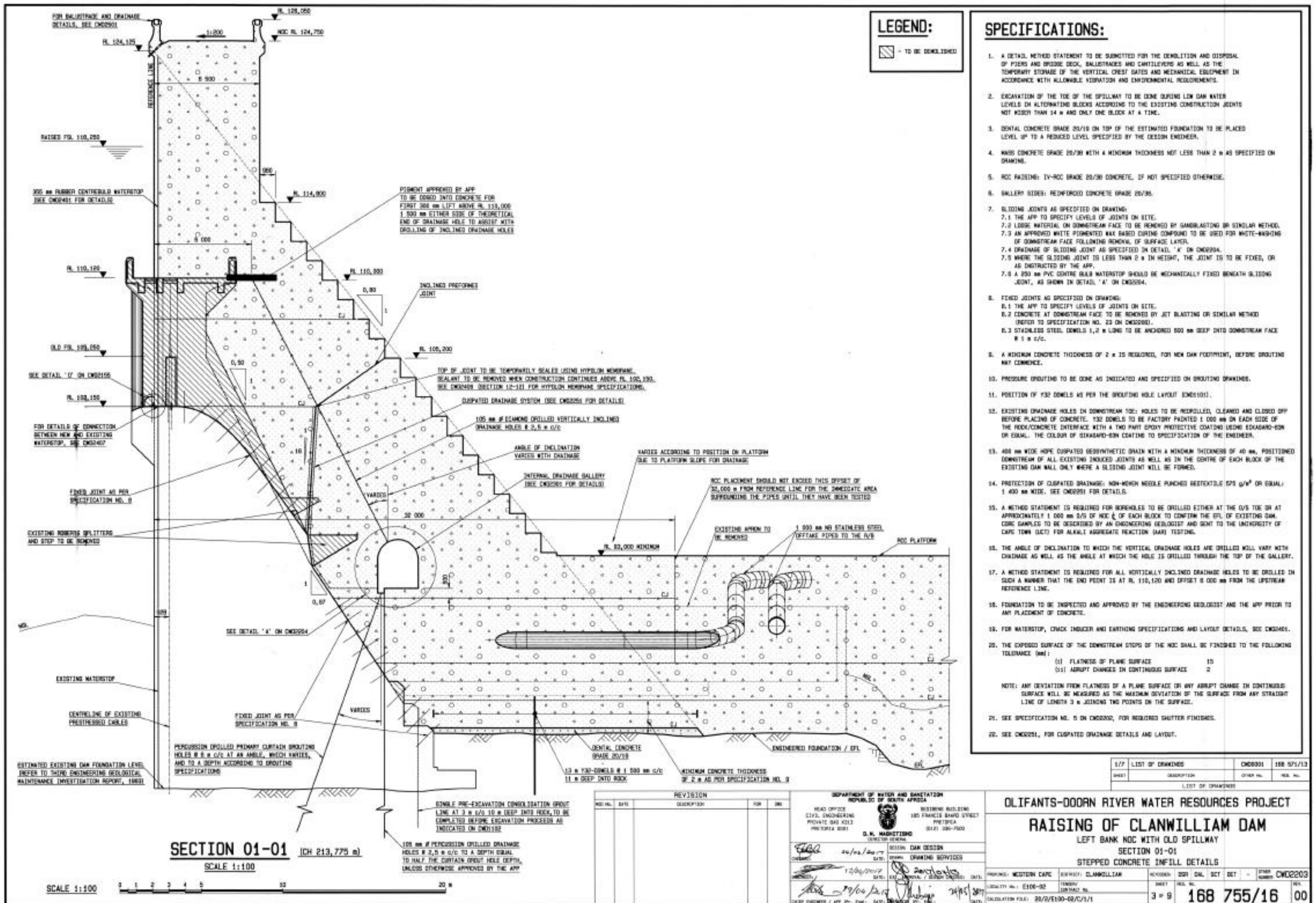
Dimensions are given in mm and
Dimensions of box are overall

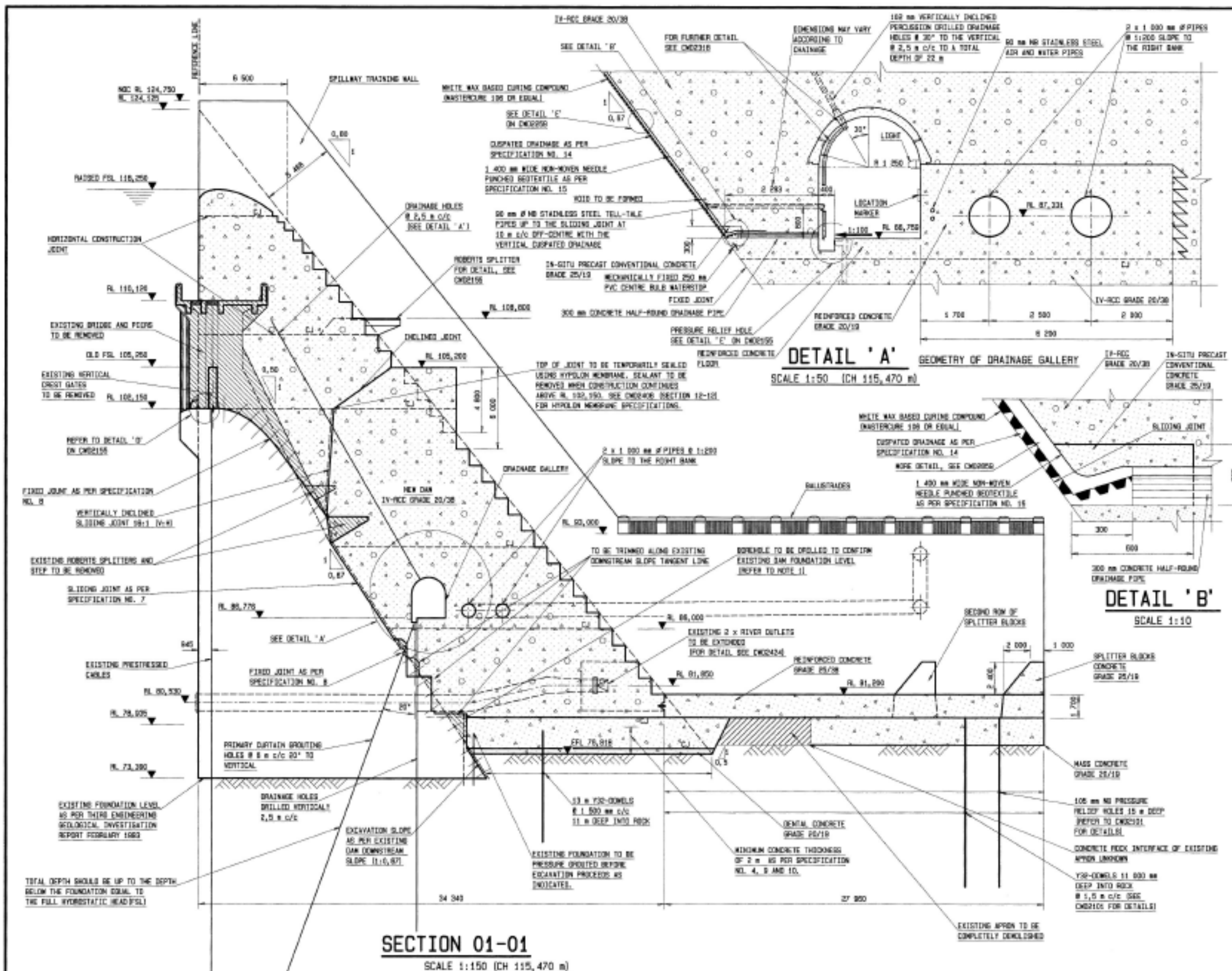
Dimensions are given in mm and in
Dimensions of both are given

Dimensions are given in mm and m.
Dimensions of bars are overall.

[illegible]

LOCALITY No: E108-02	TINDER/ CONTRACT No: -	DIST 5 of 5	REG. No. 169 030/1
CALCULATION FILE: 30/2/E108-02/C/1/1			





SPECIFICATIONS:

- A DETAIL METHOD STATEMENT TO BE SUBMITTED FOR THE DEMOLITION AND DISPOSAL OF PILES AND BRIDGE ROCK, GULLYWAYS AND CANTILEVERS AS WELL AS THE TEMPORARY STORAGE OF THE VERTICAL CRIST GATES AND MECHANICAL EQUIPMENT IN ACCORDANCE WITH ALLOWABLE VIBRATION AND ENVIRONMENTAL REQUIREMENTS (SMF).
 - EXCAVATION OF THE TOE OF THE SPILLWAY TO BE DONE DURING LOW DAM WATER LEVELS IN ALTERNATING BLOCKS ACCORDING TO THE EXISTING CONSTRUCTION JOINTS NOT WIDER THAN 14 m AND ONLY ONE BLOCK AT A TIME.
 - DENTAL CONCRETE GRADE 20/10 ON TOP OF THE ESTIMATED FOUNDATION TO BE PLACED LEVEL UP TO A REDUCED LEVEL SPECIFIED BY THE ENGINEER.
 - MASS CONCRETE GRADE 20/30 WITH A MINIMUM THICKNESS NOT LESS THAN 2 m AS SPECIFIED.
 - 14-REC RAISING: GRADE 20/30 CONCRETE IF NOT SPECIFIED OTHERWISE.
 - PIPE ENCASEMENT AND 0/5 GALLERY SIDE TO BE REINFORCED CONCRETE GRADE 20/10 AND GRADE 20/30 UPS OF GALLERY AS SPECIFIED IN DETAIL 'A'.
 - SLIDING JOINT AS SPECIFIED ON DRAWING:
7.1 THE APP TO SPECIFY LEVELS OF JOINT ON SITE.
7.2 ALL LOOSE MATERIAL AND AIR PRODUCTS AT THE DOWNSTREAM FACE TO BE REMOVED BY SANDBLASTING OR SIMILAR METHODS.
7.3 AN APPROVED WHITE-POSSMENT WAX-BASED CURING COMPOUND TO BE USED FOR WHITE-WASHING OF DOWNSTREAM FACE FOLLOWING REMOVAL OF SURFACE LAYER.
7.4 DRAINAGE OF SLIDING JOINT AS SPECIFIED IN DETAIL 'A' ON CH02150.
7.5 WHERE THE SLIDING JOINT IS LESS THAN 2 m IN HEIGHT, THE JOINT IS TO BE FIXED, OR AS INSTRUCTED BY THE APP.
7.6 A 200 mm PVC CENTRE BULK WATERSTOP SHOULD BE MECHANICALLY FIXED BENEATH SLIDING JOINT, SEE DETAIL 'A' ON CH02150.
 - FIXED JOINTS AS SPECIFIED ON DRAWING:
8.1 THE DESIGN ENGINEER OR APP TO SPECIFY LEVELS OF JOINT ON SITE.
8.2 CONCRETE AT DOWNSTREAM FACE TO BE REMOVED BY HYDRO-JET BLASTING OR SIMILAR APPROVED METHOD (REFER TO SPECIFICATION NO. 3 ON CH02154).
8.3 STAINLESS STEEL Y20-DOWELS 1,2 m LONG TO BE ANCHORED 600 mm DEEP INTO DOWNSTREAM FACE # 1 m c/c.
 - A MINIMUM CONCRETE THICKNESS OF 2 m IS REQUIRED BEFORE CONSOLIDATION GRouting ANY COMMENCE.
 - PRESSURE GRouting TO BE DONE AS INDICATED AND SPECIFIED ON GRouting DRAWINGS.
 - POSITION OF Y20 DOWELS TO BE LOGGED FOR THE PURPOSE OF GRouting AND INSTALLATION OF APPROX DOWELS AND PRESSURE RELIEF HOLES, SEE CH02105 AND CH02106.
 - Y20 DOWELS TO BE FACTORY PAINTED 1 000 mm ON EACH SIDE OF THE ROCK/CONCRETE INTERFACE WITH A TWO PART EPOXY PROTECTIVE COATING USING DEXAMER-CON OR EQUAL. THE COLOUR OF DEXAMER-CON COATING TO SPECIFICATION OF THE ENGINEER.
 - EXISTING DRAINAGE HOLES IN DOWNSTREAM TOE: HOLES TO BE REDRELLED, CLEANED AND FLUSHED BEFORE PLACING OF CONCRETE ABOVE THAT LEVEL MAY COMMENCE.
 - 400 mm WIDE HOPE CLIPPED GEOSYNTHETIC DRAIN WITH A MINIMUM THICKNESS OF 40 mm, POSITIONED DOWNSTREAM OF ALL EXISTING CONSTRUCTION JOINTS AS WELL AS IN THE CENTRE OF EACH BLOCK OF THE EXISTING DAM WALL ONLY WHERE A SLIDING JOINT WILL BE FORMED (REFER TO CH02254).
 - NON-MOVEN NEEDLE PUNCHED GEOTEXTILE: 575 G/M² OR EQUAL: 1 400 mm WIDE.
 - A METHOD STATEMENT IS REQUIRED FOR BOREHOLES TO BE DRILLED EITHER AT THE 0/5 TOE OR AT APPROXIMATELY 1 000 mm 0/5 OF NOC (E) OF EACH BLOCK TO CONFORM THE SPL OF EXISTING DAM. CORE SAMPLES TO BE DESCRIBED BY AN ENGINEERING GEOLOGIST AND SENT TO THE UNIVERSITY OF CAPE TOWN (UCT) FOR ALKALI AGGREGATE REACTION (AAR) TESTING.
 - FOUNDATION TO BE INSPECTED AND APPROVED BY THE ENGINEERING GEOLOGIST AND APP PRIOR TO ANY PLACEMENT OF CONCRETE.
 - FOR WATERSTOP, CRACK INDICATOR AND EARTHING SPECIFICATIONS AND LAYOUT DETAILS SEE CH02401.
 - THE EXPOSED SURFACE OF THE DOWNSTREAM STEPS OF THE NOC SHALL BE FINISHED TO THE FOLLOWING TOLERANCE (mm):
(i) FLATNESS OF PLANE SURFACE 15
(ii) ABRUPT CHANGES IN CONTINUOUS SURFACE 2
- NOTE: ANY DEVIATION FROM FLATNESS OF A PLANE SURFACE OR ANY ABRUPT CHANGE IN CONTINUOUS SURFACE WILL BE MEASURED AS THE MAXIMUM DEVIATION OF THE SURFACE FROM ANY STRAIGHT LINE OF LENGTH 3 m JOINING TWO POINTS ON THE SURFACE.
20. SEE SPECIFICATIONS ON CH02151 FOR REQUIRED SHUTTER FINISHES.
21. SEE CH02254 FOR CLIPPED DRAINAGE DETAILS AND LAYOUT.

1/7	LIST OF DRAWINGS	CH02006	168 575/13
SHEET	DESCRIPTION	CHECKED	REV. NO.
LIST OF DRAWINGS			

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT

RAISING OF CLANWILLIAM DAM

SPILLWAY
SECTION 01-01 AT CH 115,470 m

PROVINCE: WESTERN CAPE	DISTRICT: CLANWILLIAM	REVISION: 01	SET: SEC: CON: DAL: -	STAFF: CWD2152
SECURITY No.: E108-02	TOWN: CAPE TOWN	SHEET: 2	REV. No.: 6	168 709/15
CALCULATION FILE: 20/2/2010-02/C/S/1				00

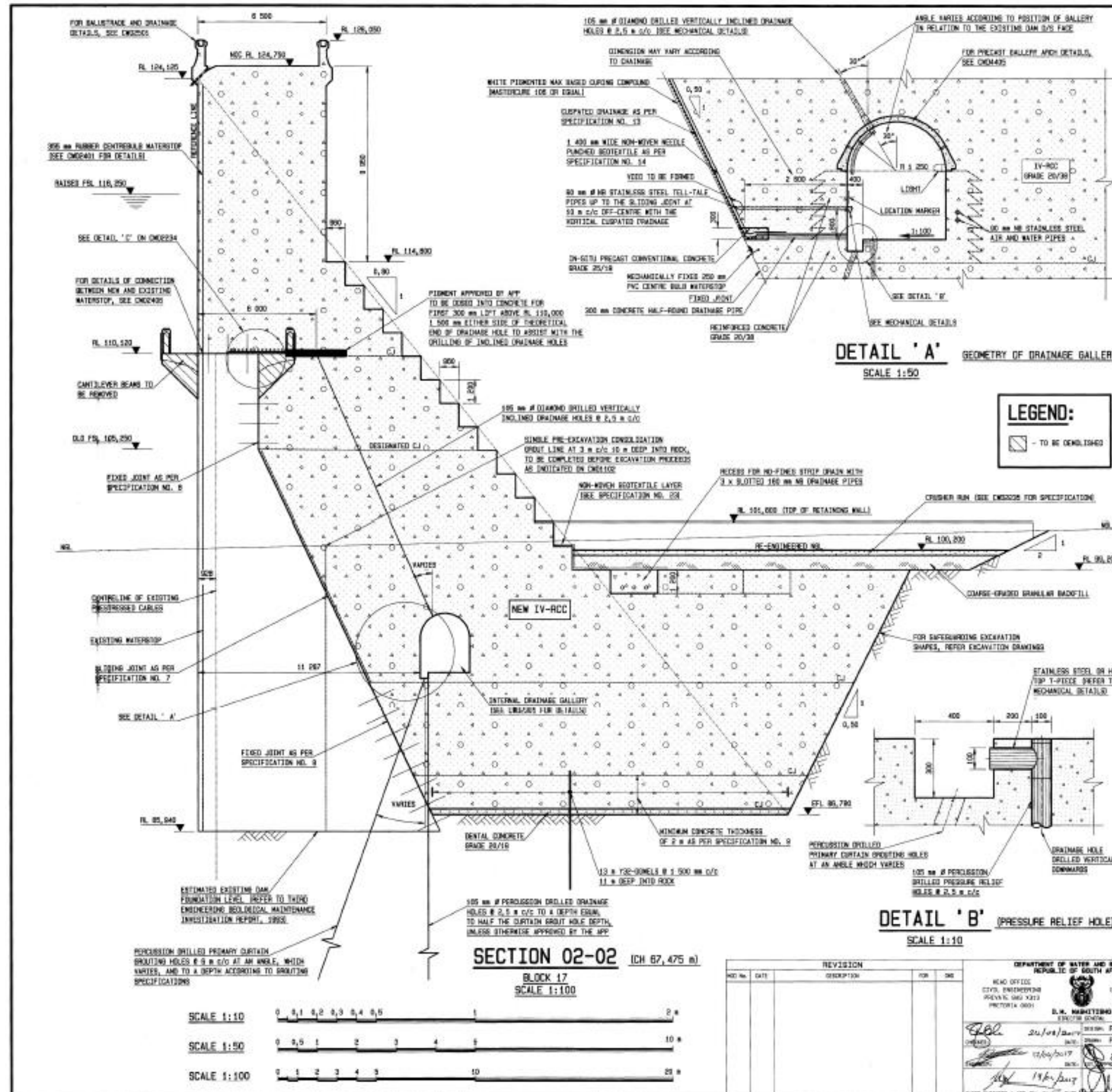
SPECIFICATIONS:

- A DETAIL METHOD STATEMENT TO BE SUBMITTED FOR THE DEMOLITION AND DISPOSAL OF PIERS AND BRIDGE DECK, BALUSTRADES AND CANTILEVERS AS WELL AS THE TEMPORARY STORAGE OF THE VERTICAL CRIST GATES AND MECHANICAL EQUIPMENT IN ACCORDANCE WITH ALLOWABLE VIBRATION AND ENVIRONMENTAL REQUIREMENTS.
- EXCAVATION OF THE TOE OF THE SPILLWAY TO BE DONE DURING LOW DAM WATER LEVELS IN ALTERNATING BLOCKS ACCORDING TO THE EXISTING CONSTRUCTION JOINTS NOT MORE THAN 14 m AND ONLY ONE BLOCK AT A TIME.
- CONCRETE GRADE 20/25 ON TOP OF THE EXISTING FOUNDATION TO BE PLACED LEVEL UP TO A REDUCED LEVEL SPECIFIED BY THE DESIGN ENGINEER.
- BASE CONCRETE GRADE 20/25 WITH A MINIMUM THICKNESS NOT LESS THAN 2 m AS SPECIFIED ON DRAWING.
- NO. RAISING: IV-RCC GRADE 20/25 CONCRETE, IF NOT SPECIFIED OTHERWISE.
- GALLERY SIDES: REINFORCED CONCRETE GRADE 20/25.
- SLIDING JOINTS AS SPECIFIED ON DRAWING:
 - THE APP TO SPECIFY LEVELS OF JOINTS ON SITE.
 - LOOSE MATERIAL ON DOWNSTREAM FACE TO BE REMOVED BY SANDBLASTING OR SIMILAR METHOD.
 - AN APPROVED WHITE PIGMENTED MAX BASED CURING COMPOUND TO BE USED FOR WHITE-WASHING OF DOWNSTREAM FACE FOLLOWING REMOVAL OF SURFACE LAYER.
 - DRAINAGE OF SLIDING JOINT AS SPECIFIED IN DETAIL 'A'.
 - WHERE THE SLIDING JOINT IS LESS THAN 2 m IN HEIGHT, THE JOINT IS TO BE FIXED, OR AS INSTRUCTED BY THE APP.
 - A 250 mm PVC CENTRE BULL WATERSTOP SHOULD BE MECHANICALLY FIXED BENEATH SLIDING JOINT, AS SHOWN IN DETAIL 'A'.
- FIXED JOINTS AS SPECIFIED ON DRAWING:
 - THE APP TO SPECIFY LEVELS OF JOINTS ON SITE.
 - CONCRETE AT DOWNSTREAM FACE TO BE REMOVED BY JET BLASTING OR SIMILAR METHOD.
 - REFER TO SPECIFICATION NO. 25 ON CHS2233.
 - 3 STAINLESS STEEL DOWELS 1,2 m LONG TO BE ANCHORED 800 mm DEEP INTO DOWNSTREAM FACE @ 1 m c/c.
- A MINIMUM CONCRETE THICKNESS OF 2 m IS REQUIRED, FOR NEW DAM FOOTPRINT, BEFORE GROUTING MAY COMMENCE.
- PRESSURE GROUTING TO BE DONE AS INDICATED AND SPECIFIED ON GROUTING DRAWINGS.
- POSITION OF 132 DOWELS AS PER THE GROUTING HOLE LAYOUT (CHS11501).
- EXISTING DRAINAGE HOLES IN DOWNSTREAM TOE: HOLES TO BE REDRILLED, CLEANED AND CLOSED OFF BEFORE PLACING OF CONCRETE. 132 DOWELS TO BE FACTORY PAINTED 1 000 mm ON EACH SIDE OF THE ROCK/CONCRETE INTERFACE WITH A TWO PART EPOXY PROTECTIVE COATING USING SIKADUR-BON OR EQUAL. THE COLOUR OF SIKADUR-BON COATING TO SPECIFICATION OF THE ENGINEER.
- 400 mm WIDE HOPE CURTAINED GEOSYNTHETIC DRAIN WITH A MINIMUM THICKNESS OF 40 mm, POSITIONED DOWNSTREAM OF ALL EXISTING INDUCED JOINTS AS WELL AS IN THE CENTRE OF EACH BLOCK OF THE EXISTING DAM WALL ONLY WHERE A SLIDING JOINT WILL BE FORMED.
- PROTECTION OF CLIPATED DRAINAGE: NON-WOVEN NEEDLE PUNCHED GEOTEXTILE 575 g/m² OR EQUAL: 1 400 mm WIDE. SEE CHS2251 FOR DETAILS.
- A METHOD STATEMENT IS REQUIRED FOR BOREHOLES TO BE DRILLED EITHER AT THE D/S TOE OR AT APPROXIMATELY 1 000 mm D/S OF NOC & OF EACH BLOCK TO CONFIRM THE EFL OF EXISTING DAM. CORE SAMPLES TO BE DESCRIBED BY AN ENGINEERING GEOLOGIST AND SENT TO THE UNIVERSITY OF CAPE TOWN (UCT) FOR ALKALI AGGREGATE REACTION (AAR) TESTING.
- THE ANGLE OF INCLINATION TO WHICH THE VERTICAL DRAINAGE HOLES ARE DRILLED WILL VARY WITH CHAINAGE AS WELL AS THE ANGLE AT WHICH THE HOLE IS DRILLED THROUGH THE TOP OF THE GALLERY.
- A METHOD STATEMENT IS REQUIRED FOR ALL VERTICALLY INCLINED DRAINAGE HOLES TO BE DRILLED IN SUCH A MANNER THAT THE END POINT IS AT RL 110,120 AND OFFSET 6 000 mm FROM THE UPSTREAM REFERENCE LINE.
- FOUNDATION TO BE INSPECTED AND APPROVED BY THE ENGINEERING GEOLOGIST AND THE APP PRIOR TO ANY PLACEMENT OF CONCRETE.
- FOR WATERSTOP, CHECK INDEXER AND EARTHWORK SPECIFICATIONS AND LAYOUT DETAILS. SEE CHS2401.
- THE EXPOSED SURFACE OF THE DOWNSTREAM STEPS OF THE NOC SHALL BE FINISHED TO THE FOLLOWING TOLERANCE (mm):

(i) FLATNESS OF PLANE SURFACE	25
(ii) ABRUPT CHANGES IN CONTINUOUS SURFACE	2

NOTE: ANY DEVIATION FROM FLATNESS OF A PLANE SURFACE OR ANY ABRUPT CHANGE IN CONTINUOUS SURFACE SHALL BE MEASURED AS THE MAXIMUM DEVIATION OF THE SURFACE FROM ANY STRAIGHT LINE OF LENGTH 3 m JOINING TWO POINTS ON THE SURFACE.

- SEE SPECIFICATION NO. 5 ON CHS2233, FOR REQUIRED FINISHES.
- SEE CHS2251, FOR CLIPATED DRAINAGE DETAILS AND LAYOUT.
- NOC NO-FINES TOE DRAIN TO BE COVERED WITH NON-WOVEN NEEDLE PUNCHED GEOTEXTILE 575 g/m² OR EQUAL: 7 000 mm WIDE.
- COFFER DAM HEIGHT TO BE BASED ON THE 1:250 YEAR FLOOD OF 1 000 m³/s WITH 4 OF THE 12 GATES CLOSED.



SPECIFICATIONS:

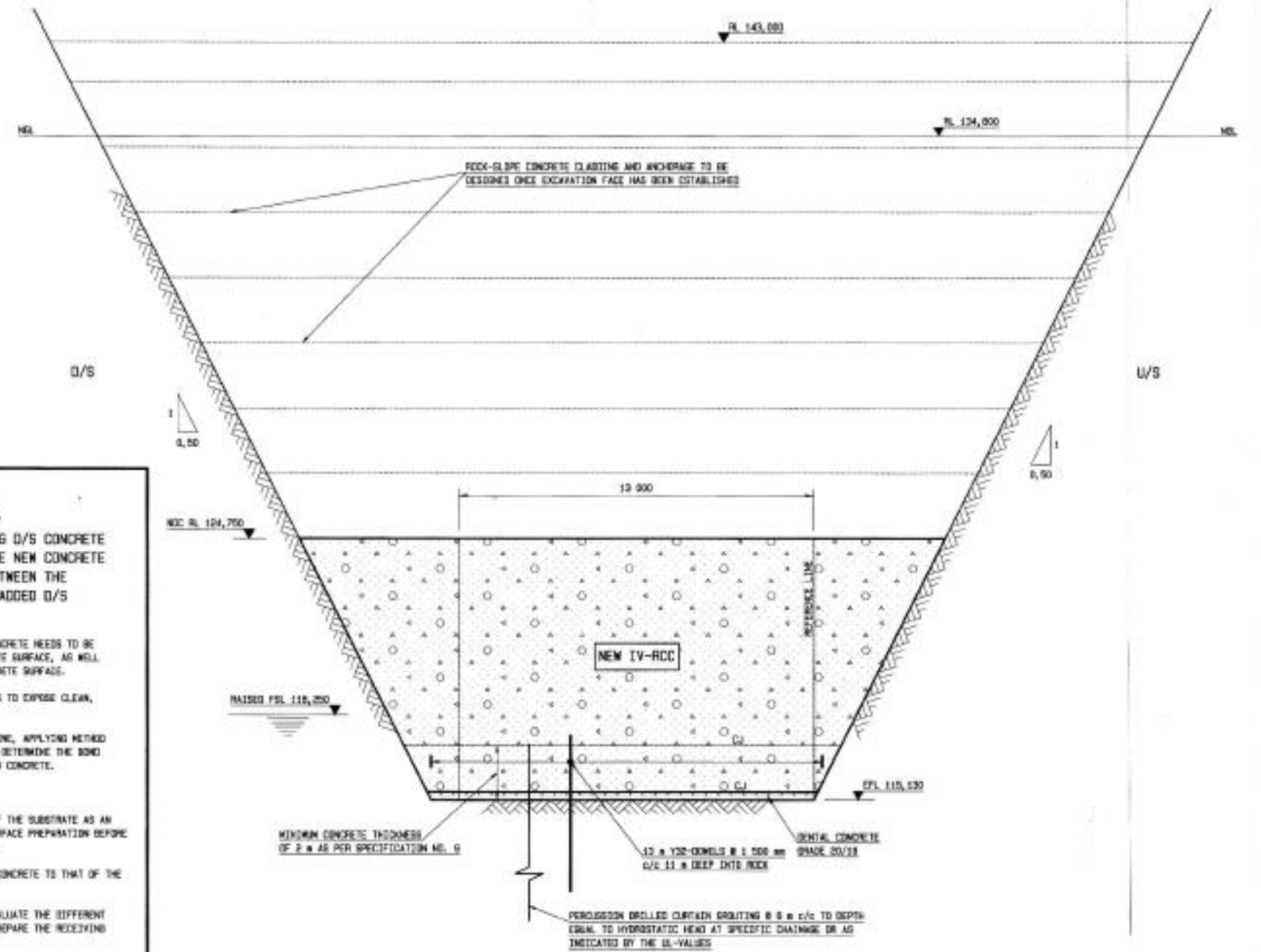
- A DETAIL METHOD STATEMENT TO BE SUBMITTED FOR THE DEMOLITION AND DISPOSAL OF PIERS AND BRIDGE DECK, BALUSTRADES AND CANTILEVERS AS WELL AS THE TEMPORARY STORAGE OF THE VERTICAL CREST GATES AND MECHANICAL EQUIPMENT IN ACCORDANCE WITH ALLOWABLE VIBRATION AND ENVIRONMENTAL REQUIREMENTS.
- EXCAVATION OF THE TOE OF THE SPILLWAY TO BE DONE DURING LOW DAM WATER LEVELS IN ALTERNATING BLOCKS ACCORDING TO THE EXISTING CONSTRUCTION JOINTS NOT WIDER THAN 14 m AND ONLY ONE BLOCK AT A TIME.
- DEMOL CONCRETE GRADE 20/30 ON TOP OF THE ESTIMATED FOUNDATION TO BE PLACED LEVEL UP TO A REDUCED LEVEL SPECIFIED BY THE DESIGN ENGINEER.
- MASS CONCRETE GRADE 20/30 WITH A MINIMUM THICKNESS NOT LESS THAN 2 m AS SPECIFIED ON DRAWING.
- RCC RAISING: 17-RCC GRADE 20/30 CONCRETE, IF NOT SPECIFIED OTHERWISE.
- GALLERY SIDES: REINFORCED CONCRETE GRADE 20/30.
- SLIDING JOINTS AS SPECIFIED ON DRAWING:
 - THE APP TO SPECIFY LEVELS OF JOINTS ON SITE.
 - LOOSE MATERIAL ON DOWNSTREAM FACE TO BE REMOVED BY SANDBLASTING OR SIMILAR METHOD.
 - AN APPROVED WHITE FORMERED MAX BASED CURING COMPOUND TO BE USED FOR WHITE-WASHING OF DOWNSTREAM FACE FOLLOWING REMOVAL OF SURFACE LAYER.
 - DRAINAGE OF SLIDING JOINT AS SPECIFIED IN DETAIL 'A' ON CWD2236.
 - WHERE THE SLIDING JOINT IS LESS THAN 2 m IN HEIGHT, THE JOINT IS TO BE FIXED, OR AS INSTRUCTED BY THE APP.
 - A 250 mm PVC CENTRE GULL WATERSTOP SHOULD BE MECHANICALLY FIXED BENEATH SLIDING JOINT, AS SHOWN IN DETAIL 'A' ON CWD2236.
- FIXED JOINTS AS SPECIFIED ON DRAWING:
 - THE APP TO SPECIFY LEVELS OF JOINTS ON SITE.
 - CONCRETE AT DOWNSTREAM FACE TO BE REMOVED BY JET BLASTING OR SIMILAR METHOD REFER TO SPECIFICATION NO. 251.
 - STAINLESS STEEL DOWELS 12 m LONG TO BE ANCHORED 600 mm DEEP INTO DOWNSTREAM FACE @ 1 m c/c.
- A MINIMUM CONCRETE THICKNESS OF 2 m IS REQUIRED, FOR NEW DAM FOOTPRINT, BEFORE BROUING MAY COMMENCE.
- PRESSURE BROUING TO BE DONE AS INDICATED AND SPECIFIED ON BROUING DRAWINGS.
- POSITION OF 132 DOWELS AS PER THE BROUING HOLE LAYOUT (CWD101).
- EXISTING DRAINAGE HOLES IN DOWNSTREAM TOE: HOLES TO BE REDRILLED, CLEANED AND CLOSED OFF BEFORE PLACING OF CONCRETE. 132 DOWELS TO BE FACTORY PAINTED 1 000 mm ON EACH SIDE OF THE ROCK/CONCRETE INTERFACE WITH A TWO PART EPOXY PROTECTIVE COATING USING SIKADUR-CON OR EQUAL. THE COLOUR OF SIKADUR-CON COATING TO SPECIFICATION OF THE ENGINEER.
- 400 mm WIDE HOPE DRAPED GEOSYNTHETIC DRAIN WITH A MINIMUM THICKNESS OF 40 mm, POSITIONED DOWNSTREAM OF ALL EXISTING INDUCED JOINTS AS WELL AS IN THE CENTRE OF EACH BLOCK OF THE EXISTING DAM WALL ONLY WHERE A SLIDING JOINT WILL BE FORMED.
- PROTECTION OF DRAPED DRAINAGE: NON-WOVEN NEEDLE PUNCHED GEOTEXTILE 575 g/m² OR EQUAL: 1 400 mm WIDE. SEE CWD2236 FOR DETAILS.
- A METHOD STATEMENT IS REQUIRED FOR BOREHOLES TO BE DRILLED EITHER AT THE D/S TOE OR AT APPROXIMATELY 1 000 mm D/S OF NOC & OF EACH BLOCK TO CONFORM THE EFL OF EXISTING DAM. CORE SAMPLES TO BE DESCRIBED BY AN ENGINEERING GEOLOGIST AND SENT TO THE UNIVERSITY OF CAPE TOWN (UCT) FOR ALKALI AGGREGATE REACTION (AAR) TESTING.
- THE ANGLE OF INCLINATION TO WHICH THE VERTICAL DRAINAGE HOLES ARE DRILLED WILL VARY WITH CHAINAGE AS WELL AS THE ANGLE AT WHICH THE HOLE IS DRILLED THROUGH THE TOP OF THE GALLERY.
- A METHOD STATEMENT IS REQUIRED FOR ALL VERTICALLY INCLINED DRAINAGE HOLES TO BE DRILLED IN SUCH A MANNER THAT THE END POINT IS AT RL 115,120 AND OFFSET 8 000 mm FROM THE UPSTREAM REFERENCE LINE.
- FOUNDATION TO BE INSPECTED AND APPROVED BY THE ENGINEERING GEOLOGIST AND THE APP PRIOR TO ANY PLACEMENT OF CONCRETE.
- FOR WATERSTOP, CRACK INDUCER AND EARTHING SPECIFICATIONS AND LAYOUT DETAILS, SEE CWD2401.
- THE EXPOSED SURFACE OF THE DOWNSTREAM STEPS OF THE NOC SHALL BE FINISHED TO THE FOLLOWING TOLERANCE (mm):

(1) FLATNESS OF PLANE SURFACE	15
(2) ABRUPT CHANGES IN CONTINUOUS SURFACE	2

 NOTE: ANY DEVIATION FROM FLATNESS OF A PLANE SURFACE OR ANY ABRUPT CHANGE IN CONTINUOUS SURFACE WILL BE MEASURED AS THE MAXIMUM DEVIATION OF THE SURFACE FROM ANY STRAIGHT LINE OF LENGTH 3 m JOINING TWO POINTS ON THE SURFACE.
- SEE SPECIFICATION NO. 5 ON CWD2236, FOR REQUIRED BAUTER FINISHES.
- SEE CWD2236, FOR DRAPED DRAINAGE DETAILS AND LAYOUT.
- NOC NO-TOUCH TOE DRAIN TO BE COVERED WITH NON-WOVEN NEEDLE PUNCHED GEOTEXTILE 575 g/m² OR EQUAL: 7 000 mm WIDE.
- COPPER DAM HEIGHT TO BE BASED ON THE 1:200 YEAR FLOOD OF 1 983 m³/s WITH 4 OF THE 13 GATES CLOSED.

SPECIFICATIONS:

- PREPARATION OF THE EXISTING D/S CONCRETE SURFACE IN ORDER TO RECEIVE NEW CONCRETE TO CREATE A FIXED JOINT BETWEEN THE EXISTING DAM WALL AND THE ADDED D/S PORTION:
 - TESTS NEED TO BE DONE ON HOW MUCH CONCRETE NEEDS TO BE REMOVED FROM THE EXISTING D/S CONCRETE SURFACE, AS WELL AS THE ROUGHNESS OF THE EXPOSED CONCRETE SURFACE.
 - THE ACH OF THE SURFACE PREPARATION IS TO EXPOSE CLEAN, SOUND, COARSE AGGREGATE.
 - THE "PULL-OFF METHOD" NEEDS TO BE DONE, APPLYING METHOD WITH C 1583-04 WHICH MUST BE USED TO DETERMINE THE BOND STRENGTH BETWEEN THE EXISTING AND NEW CONCRETE.
 - THIS TEST METHOD DETERMINES THE:
 - NEAR-SURFACE TENSILE STRENGTH OF THE SUBSTRATE AS AN INDICATOR OF THE ADEQUACY OF SURFACE PREPARATION BEFORE ADDING THE DOWNSTREAM CONCRETE;
 - THE BOND STRENGTH OF THE ADDED CONCRETE TO THAT OF THE SUBSTRATE.
 - THE ABOVE METHOD SHALL BE USED TO EVALUATE THE DIFFERENT METHODS PROPOSED TO BE FOLLOWED TO PREPARE THE RECEIVING CONCRETE SURFACES.
 - THE REFERENCE WILL BE A SURFACE WHERE ONLY CONTAMINANTS ON THE EXISTING CONCRETE SURFACE ARE REMOVED BY WASHING THE OLD CONCRETE.
 - TEST SECTIONS TO BE AT LEAST 1,5 m x 1,5 m FOR EACH METHOD OF SURFACE PREPARATION.
 - THE PULL-OFF TEST MUST BE PERFORMED ON AT LEAST 10 POSITIONS IN EACH TEST AREA.
 - EACH PULL-OFF TEST TO BE CARRIED OUT ON AT LEAST A 100 mm HD TEST SPECIMEN.
 - BEFORE THE ABOVE TEST SECTIONS ARE PREPARED, SKELTON CORES TO BE DRILLED AT THE DOWNSTREAM FACE AND TREATING IT WITH PHENOLPHTHALEIN INDICATOR SOLUTION, TO DETERMINE THE POSSIBLE EXTENT OF CARBONATION DUE TO POSSIBLE AAR (ALKALI-AGGREGATE REACTION) INDUCED AND OTHER MICRO-CRACKS.



SECTION 06-06 (CH -10,400 m)

BLOCK 33
SCALE 1:100

SCALE 1:100



1/7	LIST OF DRAWINGS	DW0001	168 571/13
DRAW	DESCRIPTION	STAMP NO.	REV. NO.

LIST OF DRAWINGS

OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT

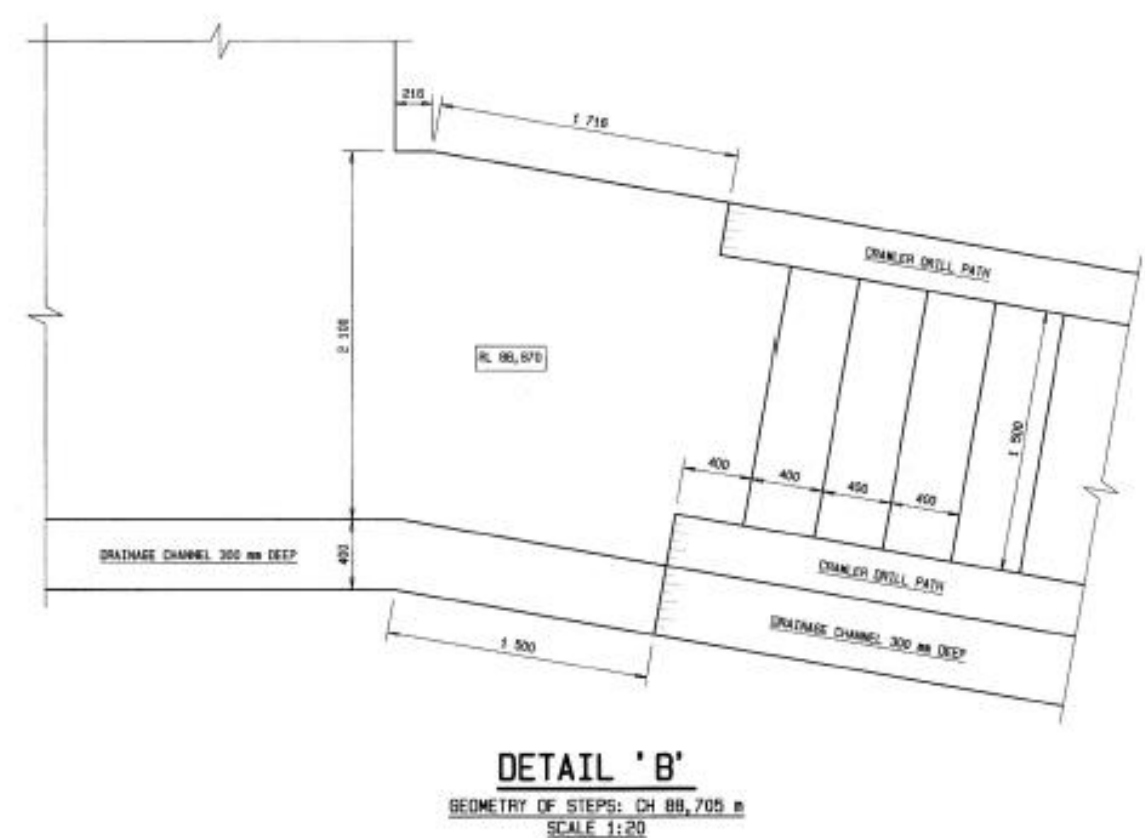
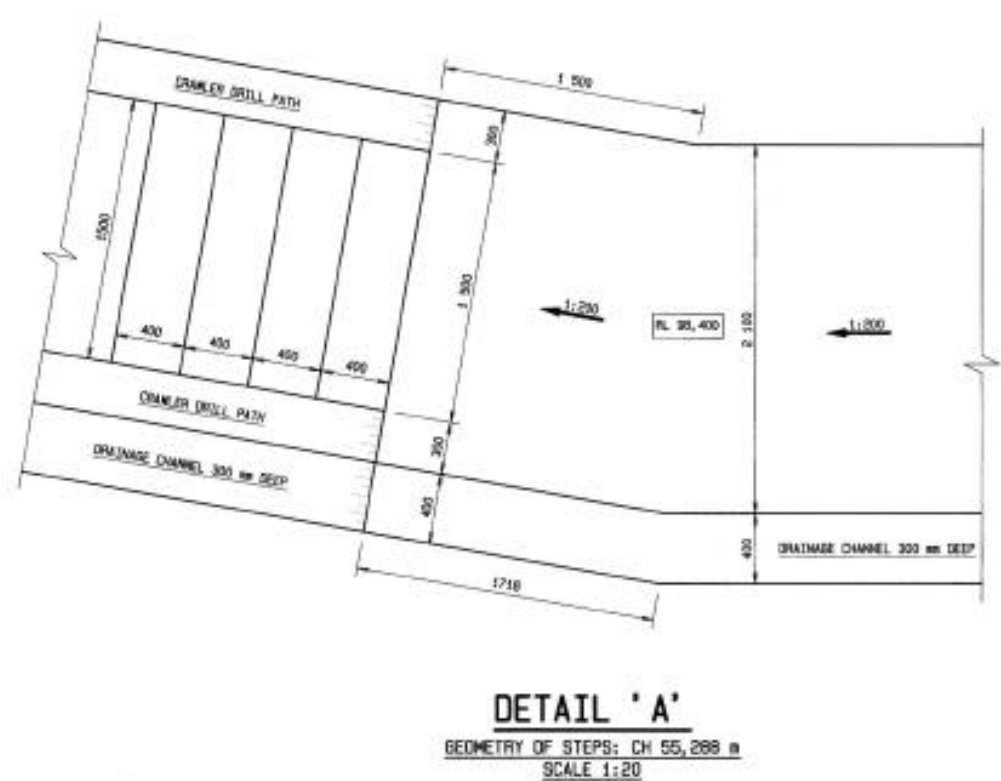
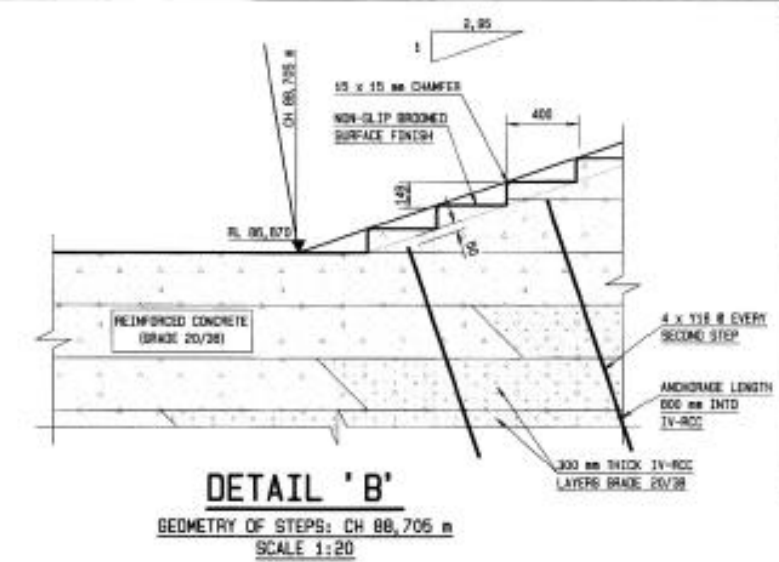
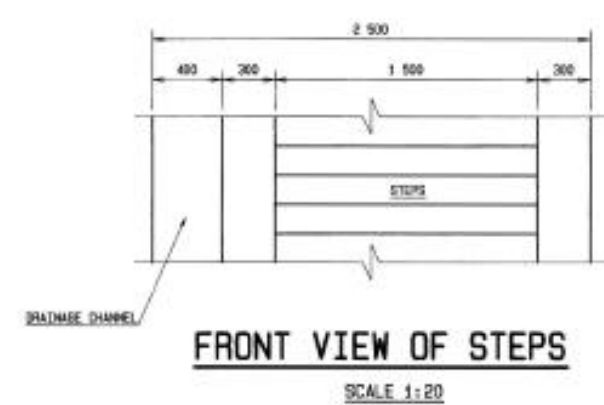
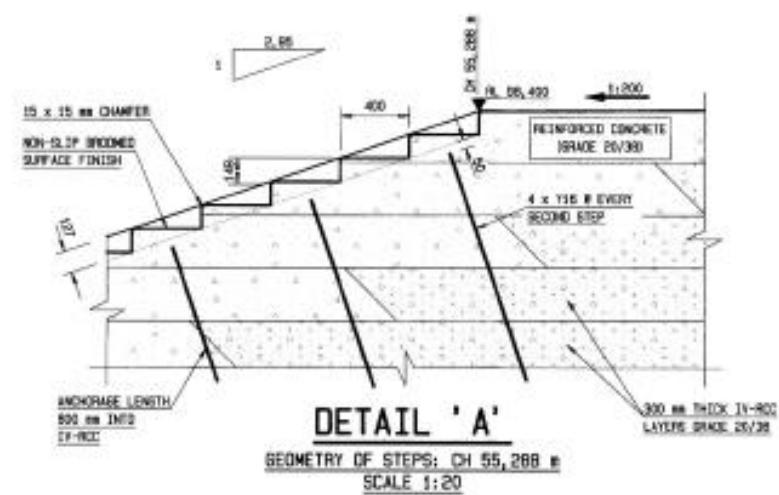
RAISING OF CLANWILLIAM DAM

RIGHT BANK NOC
STEPPED CONCRETE INFILL DETAILS

PROJECT: WESTERN CAPE	DISTRICT: CLANWILLIAM	REVISION: 1	DATE: 20/02/2010	BY: [Signature]	CHKD: [Signature]	APPD: [Signature]	REV. NO.
LOCALITY NO.: E100-02	CONTRACT NO.	6 OF 8	168 676/15	00			

NOTES:

1. SEE CWD2314 FOR GENERAL LAYOUT.
 2. ALL STEPS TO BE PROVIDED WITH ∇ SHUTTERS.
 3. ALL STEPS TO BE PROVIDED WITH ∇ SURFACE FINISH.
 4. ALL EDGES OF THE STEPS TO BE FINISHED OFF USING A 15 x 15 mm CHAMFER.
 5. CONCRETE FINISHES SHALL BE AS FOLLOWS, EXCEPT WHERE OTHERWISE SHOWN:
CLASSES F2 AND G2 TO SURFACES EXPOSED TO VIEW.
CLASSES F1 AND G1 TO SURFACES AGAINST WHICH BACKFILL OR FURTHER CONCRETE WILL BE PLACED.
- OTHER FINISHES ARE INDICATED ON THE DRAWINGS TYPICALLY AS FOLLOWS:
- ∇ CLASS F3 ∇ CLASS G4



SCALE 1:20 0 0.5 1 1.5 2 4 m

REVISION				DEPARTMENT OF WATER AND SANITATION REPUBLIC OF SOUTH AFRICA				OLIFANTS-DOORN RIVER WATER RESOURCES PROJECT			
NO.	DATE	DESCRIPTION	BY	CHK	HEAD OFFICE CIVIL ENGINEERING PRIVATE BAG 4013 PRETORIA 0001	SECONDARY BUILDING 185 FRANCIS BAARD STREET PRETORIA 0001 200-7500		PROJECT NO.	CONTRACT NO.	REVISION	DATE
1	10/05/2017	DESIGN	F.M. LOTZ					168 856/16	00		
2	19/05/2017	DESIGN	F.M. LOTZ					168 856/16	00		
3	14/04/2017	DESIGN	F.M. LOTZ					168 856/16	00		