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**REQUEST FOR BID FOR APPOINTMENT OF A DETAIL DESIGN AND CONSTRUCTION  
SUPERVISION PROFESSIONAL SERVICE PROVIDER: BERG RIVER-VOËLVLEI DAM  
AUGMENTATION SCHEME (BRVAS)**

<b>Bid Number:</b>	012/2023/PMID/DESIGNS/RFB
<b>Briefing Session</b>	Compulsory
<b>Briefing Session date and Time:</b>	05 December 2023 at 11:00 (GMT +2)
<b>Site Visit:</b>	Compulsory
<b>Site Visit Date and Time:</b>	05 December 2023 at 11:00 (GMT +2)
<b>Briefing Session and Site Visit Venue:</b>	Voelvllei Dam, Gouda, Western Cape, 6821 GPS: 33°20'55.88"S 19° 1'23.31"E <i>Tenderers shall meet at the venue at the stated time. Transport will not be provided. No latecomers will be accommodated.</i>
<b>Clarifications Deadline:</b>	08 February 2024
<b>Closing Date and Time:</b>	15 February 2024 at 14H00
<b>Bid Validity Period:</b>	84 Calendar days
<b>Bid Submission Physical Address:</b>	<i>Bid Submissions must be sent to:</i> TCTA Building 9, Byls Bridge Office Park, Olievenhoutbosch Rd, Centurion, 0157 <b>Bidders must complete Annexure DD on or before 08 February 2024 and return it to TCTA. Once this form is received, the bidder will receive a pin. This pin and a valid ID number/Driver's License will be required to gain access to the TCTA premises.</b>
<b>Enquiries:</b>	Name: Colbert Makhubele Email Address: <a href="mailto:tenders04@tcta.co.za">tenders04@tcta.co.za</a>
<b>Bid Submission</b>	<i>This bid will follow a two-envelope system (Envelope A &amp; B) Bid submission must be addressed to the Receiving Officer and marked RFB No.</i> <b>012/2023/PMID/DESIGNS/RFB</b> <b>Envelope A: Technical Proposal</b> 1 x original hardcopy 3 x Duplicate hardcopies 1 x electronic copy of all documents (USB flash disk) <b>Envelope B: Financial Proposal</b> 1 x original hardcopy 2 x Duplicate hardcopy 1 x electronic copy (USB flash disk)

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<b>ANNEXURES</b>	<b>SBD</b>	<b>DESCRIPTION</b>
A	N/A	OVERALL PROJECT IMPLEMENTATION APPROACH
B	N/A	LIST OF DELIVERABLES PER TASK
C	N/A	COMPANY EXPERIENCE
D	N/A	PERSONNEL EXPERIENCE: CVS OF KEY PERSONNEL
E	N/A	MANPOWER SCHEDULE
F	N/A	TAX COMPLIANCE STATUS PIN/CERTIFICATE
G	N/A	PROOF OF REGISTRATION ON THE NATIONAL TREASURY CENTRAL SUPPLIER DATABASE
H	N/A	SANAS VERIFIED B-BBEE CERTIFICATE(S) OR SWORN AFFIDAVIT(S)
I	N/A	JOINT VENTURE AGREEMENT OR MEMORANDUM OF AGREEMENT
J	N/A	POWER OF ATTORNEY
K	N/A	AUTHORITY FOR SIGNATORY
L	N/A	CONSTITUTION OF THE JOINT VENTURE OR CONSORTIUM
M	N/A	DECLARATION OF JOINT AND SEVERAL LIABILITY OF JOINT VENTURE OR CONSORTIUM MEMBERS
N	N/A	LETTER OF OFFER BY THE BIDDER
O	N/A	SUMMARY OF COST ESTIMATE
P	N/A	PERSONNEL COSTS
Q	N/A	DETAILS OF STAFF COST
R	N/A	PERSONNEL BILLING RATES
S	N/A	PERSONNEL MARK-UP FACTORS
T	N/A	DIRECT REIMBURSABLE COSTS
U	N/A	CASH FLOW
V	N/A	TRANSFORMATION PROPOSAL
W	N/A	PROGRAMME AND CHARTS
X	1	REQUEST FOR BID
Y	4	BIDDERS DISCLOSURE
Z	6.1	IN TERMS OF PPR 2022
AA	N/A	CERTIFICATE OF ATTENDANCE AT THE TENDER BRIEFING AND SITE INSPECTION
BB	N/A	RECORD OF ADDENDA
CC	N/A	AGREEMENT FORM AND APPENDICES AND THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT
DD	N/A	ACCESS FORM

## 1. DEFINITIONS, ACRONYMS AND ABBREVIATIONS

<b>B-BBEE</b>	Broad Based Black Economic Empowerment in terms of the Broad Based Black Economic Empowerment Act 53 of 2003 (B-BBEE Act).
<b>B-BBEE STATUS LEVEL OF CONTRIBUTOR</b>	The B-BBEE status received by a measured entity issued in terms of section 9(1) of the B-BBEE Act.
<b>BID SUBMISSION</b>	A bidder's written proposal in response to an Invitation for Bids (Request for Bids/Quotations/ Information etc.)
<b>BLACK PEOPLE</b>	Africans, Coloureds and Indians as defined in the Broad Based Black Economic Empowerment Act 53 of 2003
<b>CONSORTIUM OR JOINT VENTURE OR CONSORTIUM</b>	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;
<b>CONSULTANT</b>	A professional person appointed to provide technical and specialist advice or to assist with the design and implementation of projects. The legal status of this person can be an individual, a partnership, a corporation or a company.
<b>CONTRACT</b>	A legal agreement or National Treasury issued Standard Bid Document Number 7 signed by TCTA and a successful bidder. This term does not refer to the actual bid process.
<b>CONTRACT MANAGER</b>	A representative from the Requesting Department that will be responsible for monitoring the day-to-day activities related to the contract
<b>DESIGNATED SECTORS</b>	Sectors, sub-sectors or industries that have been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content.
<b>EME</b>	means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act
<b>PROCUREMENT SPECIALIST</b>	Any person in the Procurement Unit who is responsible for managing a bid process from start to finish
<b>PO</b>	A Purchase Order generated by the Procurement Unit after the conclusion of a successful bid process authorizing the expenditure against an awarded contract.
<b>QSE</b>	Means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
<b>RD</b>	A requesting department withing TCTA or its representative
<b>SUPPLIER</b>	A juristic person or legal entity that provides goods or services to TCTA.

<b>SPECIFIC GOALS</b>	Means specific goals as contemplated in section 2(1)(d) of the 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 and Development Programme as published in Government Gazette No. 16085 dated 23 November 1994.
<b>BRVAS</b>	The Berg River-Voëlvelei Dam Augmentation Scheme

## 2. PREPARATION OF BID SUBMISSIONS

- 2.1 Bidders are required to comply fully with this Request for Bid including annexures during submission to TCTA.
- 2.2 The bid should address all requirements as specified in the tender document. It should further be prepared in the following format:
- 2.2.1 The Functional Proposal (Envelope A) shall consist of functional, compliance, agreements, SBDs and administrative returnable information as per Table 3.1 below. It shall not include cost information or price(s) for the Services. The Financial Proposal (Envelope B) shall consist of price returnable information (as outlined in Table 3.1 below).
- 2.2.2 Bidders should ensure that all envelopes (A and B) are sealed upon return of the tender documents. Unsealed envelopes shall be returned to the tenderers and will not be considered. The tender proposal shall eventually form part of the Agreement and as such should be presented in a format that can easily be rewritten to be one mutually consistent document. Envelope B will only be opened during stage 5.
- 2.2.3 The validity of this tender is 84 calendar days from the tender closing date.
- 2.3 The Bid must be submitted on or before the tender closing date and time. Late submissions shall not be considered.
- 2.4 The Functional Proposal shall be sealed in an envelope marked, **“FUNCTIONAL PROPOSAL (ENVELOPE A):**
- 2.4.1 Submit one (1) original copy of the Functional proposal duly completed and signed.
- 2.4.2 Three (3) photocopies and one (1) digital copy (PDF version) on a USB flash memory storage device. The USB must contain the original proposal together with a cover letter and supporting documents (i.e., returnable documents & schedules) in a sealed package endorsed with the tender identification details.
- 2.4.3 The original Functional proposal, together with the cover letter and supporting documents, shall be marked:

**“ORIGINAL FUNCTIONAL PROPOSAL (ENVELOPE A) 012/2023/PMID/DESIGNS/RFB FOR THE PSP FOR DETAIL DESIGN AND CONSTRUCTION SUPERVISION OF BRVAS PROJECT”** and the name of the Tenderer shall be clearly shown.

2.4.4 The three (3) copies of the Functional Proposal, together with copies of the cover letter and supporting documents, shall be sealed in a separate envelope marked:

**“DUPLICATES OF FUNCTIONAL PROPOSAL FOR CONTRACT No. 012/2023/PMID/DESIGNS/RFB FOR THE PSP FOR DETAIL DESIGN AND CONSTRUCTION SUPERVISION OF BRVAS PROJECT”** and the name of the Consultant shall be clearly shown.

2.4.5 The Financial Proposal shall be sealed in a separate envelope. This envelope shall be marked, **“ORIGINAL FINANCIAL PROPOSAL (ENVELOPE B)”**

- Submit one (1) original set of Tender documents duly completed and signed, plus two (2) photocopies and one (1) digital copy (PDF version) on a USB flash memory storage device containing the original proposal together with a cover letter and supporting documents in a sealed package endorsed with the tender identification details:

**“ORIGINAL FINANCIAL PROPOSAL (ENVELOPE B) 012/2023/PMID/DESIGNS/RFB FOR THE PSP FOR DETAIL DESIGN AND CONSTRUCTION SUPERVISION OF BRVAS PROJECT”**

2.4.6 The duplicate Financial Proposals shall be sealed in a separate envelope within this envelope and marked: **“DUPLICATE FINANCIAL PROPOSALS”**

2.4.7 Both the “Original” and the “Duplicate” copies of the tender, each in their separate sealed envelopes, shall be placed in a single sealed envelope marked:

**“TENDER FOR CONTRACT No. 012/2023/PMID/DESIGNS/RFB FOR THE PSP FOR DETAIL DESIGN AND CONSTRUCTION SUPERVISION OF BRVAS PROJECT”**, and the name of the Tenderer shall be clearly shown.

2.5 Hard copies shall take preference over digital copies. All submitted copies (hardcopy and digital) must be identical to the original.

2.6 USB flash memory storage devices must be unencrypted, not password protected and free of any corruption/viruses.

2.7 The proposals, all supplementary documents and correspondences shall be drawn up and submitted in English.

2.8 TCTA will not be held liable to the Tenderer for any expenses, disbursements or costs incurred in preparing and submitting its tender proposal.

- 2.9 This Bid has six stages of evaluation summarised in the document below. Each stage reflects the process of evaluation. Bid submissions must be neat and legible and prepared in the same order as the stages of evaluation. Each stage must be clearly marked.
- 2.10 The bidder must complete and submit all the SBD forms in the annexures and provide their Tax Compliance Status Pin or the Central Supplier Database Master Registration Number for TCTA to verify the bidder's tax compliance.

### **3. BACKGROUND**

The Berg River-Voëlvlei Augmentation (BRVAS) Scheme consists of the abstraction of surplus winter water (after provision for the Environmental Water Requirements (EWRs) and downstream users) from a proposed low-level diversion weir across the Berg River and the pumped delivery of that water via a 6,3 km long rising main into Voëlvlei Dam. From the options investigated, the selected pipeline route has the least disruptive impact on current agricultural activities and the environmentally sensitive Renosterveld of the Voëlvlei Conservancy.

From feasibility reports, the initial position of the weir site was on a bend in the Berg River which is within the rock outcrops and had an advantage in the management of sedimentation. This was thought to be beneficial both from a weir foundation perspective as well as for the construction of the proposed pump station on the left bank.

Further studies and concept designs were developed to optimise all the BRVAS scheme components. The location of the weir has been optimised from detailed hydraulic studies which as a result, has moved further downstream. The new location thus ensures that the weir will self-scour at low flows, however, the foundation is now on deep alluvial deposits which require mitigatory measures to ensure structural stability.

The scheme operation is planned based on winter abstraction from the river whilst still being able to meet the downstream EWRs for the river and the estuary in both summer and winter. The water will be abstracted from the weir and pumped at a rate peak flow of 4.6 m<sup>3</sup>/s through a 1.5m diameter and 6.3 km long pipeline to Voëlvlei Dam. This will augment the yield of the Western Cape Water Supply System (WCWSS) by 23 million m<sup>3</sup> per annum.

The discharge location into the Voëlvlei Dam is located midway between the City of Cape Town (CCT) intake works and those of the Western Cape District Municipality (WCDM). This is an optimum position from a conveyance route and pumping perspective, as well as best for facilitating blending and mixing with the water in the dam to ensure that the best possible water quality conditions prevail at the intakes.



TCTA has appointed a professional service provider who will act as the Clients representative (i.e., Engineer). The consultant (who is to be procured as part of this bid) shall be required to work closely with the clients representative such that the full scope of services and the BRVAS project will be delivered successfully.

### 3.1 TRANSFORMATION

The bidder should demonstrate contribution to sustainable economic transformation by enhancing direct empowerment through ownership and control of enterprises and assets through providing meaningful business opportunities, through subcontracting, to Black Owned Entities, supporting the development and growth of EME's and QSE's, Fostering employment equity through creating employment opportunities for black people, and developing human resource through training and skills development opportunities for black people.

Please refer to the requirements and instructions on how to complete the form in **Annexure V**. TCTA will evaluate the bidder's company experience per Stage 3: Functionality.

### 3.2 OVERALL PROJECT IMPLEMENTATION APPROACH

The bidder should provide details of how they plan to implement the project and give list of all deliverables. Please refer to the requirements and instructions on how to complete the forms in Annexure A and Annexure B. TCTA will evaluate the bidder's overall project implementation approach per Stage 3: Functionality.

### 3.3 COMPANY EXPERIENCE

The bidder should have company experience in the design and construction supervision of comparable bulk water infrastructure projects including pumping stations, pipelines, dams/weirs and abstraction works. Please refer to the requirements and instructions on how to complete the form in Annexure C. TCTA will evaluate the bidder's company experience per Stage 3: Functionality.

### 3.4 PERSONNEL EXPERIENCE, ORGANOGRAM AND CVS

The bidder should provide details of all the personnel who will execute the required services. In addition, the bidder is required to submit the CVs of key personnel identified by TCTA for evaluation, i.e. **Stage 3: Functionality**. Please refer to the requirements and instructions on how to complete the forms and tables in **Annexure D**, including various appendices forming part of the FIDIC Client/Consultant Model Services Agreement (i.e. **Annexure CC: Agreement Form** and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

### 3.5 MANPOWER SCHEDULE

The bidder should provide a manpower or staffing form/schedule to execute the required services. Please refer to the requirements and instructions on how to complete the form/schedule in Annexure E, including various appendices forming part of the FIDIC Client/Consultant Model Services Agreement (i.e. **Annexure CC**: Agreement Form and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

### 3.6 SANAS Verified B-BBEE Certificate(s) or Sworn Affidavit(s)

The bidder must provide the certificate(s) or affidavit(s) as per the requirements of **Stage 4: Specific Goals** below.

#### 3.6.1 Joint Venture Agreement or Memorandum of Understanding and Declaration of Joint and Several Liability

The bidder should provide the relevant agreement/memorandum and declaration (**Annexure I**) if bidding as a joint venture or consortium per the requirements of the Conditions of Bid (“Joint venture or consortium agreement”) below.

#### 3.6.2 Power of Attorney and Authority for Signatory

The bidder should provide the relevant documents per **Annexure J** and **Annexure K**.

### 3.7 LETTER OF OFFER BY THE BIDDER

The bidder must provide the letter of offer per the FIDIC Client/Consultant Model Services Agreement. Please refer to the requirements in **Annexure N**.

### 3.8 SUMMARY OF COST ESTIMATE

The bidder must provide a summary of the estimate per the form/schedule in **Annexure O**, including various appendices forming part of the FIDIC Client/Consultant Model Services Agreement (i.e. **Annexure CC**: Agreement Form and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

### 3.9 PERSONNEL COSTS

The bidder should provide the costs of all personnel per the forms/schedules in **Annexure P**. Please refer to the requirements and instructions on how to complete the forms/schedules in **Annexure P**.

### 3.10 DETAILS OF STAFF COST

The bidder should provide the of staff cost for all personnel per the form/schedule in **Annexure Q**. Please refer to the requirements and instructions on how to complete the form/schedule in **Annexure Q**.

### 3.11 PERSONNEL BILLING RATES

The bidder should provide the billing rates for all personnel per the form/schedule in **Annexure R**. Please refer to the requirements and instructions on how to complete the form/schedule in **Annexure R**.

### 3.12 PERSONNEL MARK-UP FACTORS

The bidder should provide the mark-up factors for all personnel per the form/schedule in **Annexure S**. Please refer to the requirements and instructions on how to complete the form/schedule in **Annexure S**.

### 3.13 DIRECT REIMBURSABLE COSTS

The bidder should provide their direct reimbursable costs. Please refer to the requirements and instructions on how to complete the form/schedule in **Annexure T**, including various appendices forming part of the FIDIC Client/Consultant Model Services Agreement (i.e. **Annexure CC**: Agreement Form and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

### 3.14 CASH FLOW

The bidder should provide a cash flow based on the manpower schedule and programme and charts requirements below. Please refer to the requirements in **Annexure U**, including various appendices forming part of the FIDIC Client/Consultant Model Services Agreement (i.e. **Annexure CC**: Agreement Form and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

### 3.15 PROGRAMME AND CHARTS

The bidder should provide charts and graphs for the execution of the services, i.e. time schedule of services (programme). Please refer to the requirements in **Annexure W**, including various appendices forming part of the FIDIC Client/Consultant Model Services Agreement (i.e. **Annexure CC**: Agreement Form and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

### 3.16 PROOF OF REGISTRATION WITH NATIONAL TREASURY CENTRAL SUPPLIER DATABASE (CSD)

The bidder should provide proof of registration with National Treasury CSD.

### 3.17 AGREEMENT FORM AND APPENDICES AND THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT

The bidder must use the agreement form and appendices (Scope of Services; Personnel, Equipment, Facilities and Services of Others to be Provided by the Client; Remuneration and Payment; Time Schedule of Services; and The Conditions of the Client/Consultant Model Services Agreement) to compile the bid (**Annexure CC**).

## 4. SCOPE OF WORK

### 4.1 DETAILED DESCRIPTION OF GOODS/SERVICES

Bidders will be required to provide engineering, project management, environmental, social and other specialist services under the following tasks:

- Task 1: Tender Design and Documentation
- Task 2: Detailed Design
- Task 3: Construction Supervision
- Task 4: Assessment and close out
- Task 5: Project Management
- Task 6: Transformation

Refer to Appendix 1: Scope of Services forming part of the FIDIC Client/Consultant Model Services Agreement (i.e., **Annexure CC**: Agreement Form and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

### 4.2 DELIVERABLES

The key outputs will, amongst other things, include the following:

- Inception Report/s based on the review outcome of the Feasibility and Conceptual design.
- Environmental Management Documentation (i.e., Environmental Method Statements, Environmental Management Plans Amendments & etc).
- Tender design and documentation
- Detailed designs, construction supervision and assessment and close out reports.
- Development of black South Africans, enterprises, and suppliers.

Refer to various appendices forming part of the FIDIC Client/Consultant Model Services Agreement (i.e., **Annexure CC**: Agreement Form and appendices, and the Conditions of the Client/Consultant Model Services Agreement).

## 5. STAGE 1: ATTENDANCE OF COMPULSORY BRIEFING SESSION

TCTA will refer to both the attendance register and signed certificate of attendance of the Briefing Sessions (**As per Annexure AA**) to confirm if a bidder attended the compulsory briefing session.

**Failure to attend the compulsory briefing session will result in a bidder being disqualified at this stage and not evaluated further.**

## 6. STAGE 2: RETURNABLES

**ALL RETURNABLES ARE REQUIRED FOR PURPOSES OF EVALUATION IRRESPECTIVE OF WHETHER THEY ARE DESIGNATED MANDATORY OR NOT.**

The following documents must be filled in and/or a copy submitted as part of the compliance requirement.

*Table 3.1: List of returnables*

ANNEXURE	DOCUMENT TYPE	DESCRIPTION	ACTION	STATUS
A	Functionality	OVERALL PROJECT IMPLEMENTATION APPROACH	Provide information	Mandatory
B	Functionality	LIST OF DELIVERABLES PER TASK	Provide Information	Mandatory
C	Functionality	COMPANY EXPERIENCE	Complete Form	Mandatory
D	Functionality	PERSONNEL EXPERIENCE: CVS OF KEY PERSONNEL	Complete Form and attach Copies	Mandatory
E	Price	MANPOWER SCHEDULE	Attach Copy	Mandatory
F	Compliance	TAX COMPLIANCE STATUS PIN/CERTIFICATE	Attach Copy/Provide information	Non-Mandatory
G	Compliance	PROOF OF REGISTRATION ON THE NATIONAL TREASURY CENTRAL SUPPLIER DATABASE	Attach Copy	Non-Mandatory
H	Compliance	SANAS VERIFIED B-BBEE CERTIFICATE(S) OR SWORN AFFIDAVIT(S)	Attach Copy	Non-Mandatory
I	Agreement	JOINT VENTURE AGREEMENT OR MEMORANDUM OF AGREEMENT AND DECLARATION OF JOINT AND SEVERAL LIABILITY	Attach Copy	Non-Mandatory
J	Agreement	POWER OF ATTORNEY	Attach Copy where applicable	Non-Mandatory
K	Agreement	AUTHORITY FOR SIGNATORY	Attach Copy where applicable	Non-Mandatory
L	Agreement	CONSTITUTION OF THE JOINT VENTURE OR CONSORTIUM	Attach Copy where applicable	Non-Mandatory
M	Agreement	DECLARATION OF JOINT AND SEVERAL LIABILITY OF JOINT VENTURE OR CONSORTIUM MEMBERS	Attach Copy where applicable	Non-Mandatory

ANNEXURE	DOCUMENT TYPE	DESCRIPTION	ACTION	STATUS
N	Price	LETTER OF OFFER BY THE BIDDER	Complete Form	Mandatory
O	Price	SUMMARY OF COST ESTIMATE	Complete Form	Mandatory
P	Price	PERSONNEL COSTS	Complete Form	Mandatory
Q	Price	DETAILS OF STAFF COST	Complete Form	Mandatory
R	Price	PERSONNEL BILLING RATES	Complete Form	Mandatory
S	Price	PERSONNEL MARK-UP FACTORS	Complete Form	Mandatory
T	Price	DIRECT REIMBURSABLE COSTS	Complete Form	Mandatory
U	Price	CASH FLOW	Complete Form	Mandatory
V	Compliance	TRANSFORMATION PROPOSAL	Complete Form	Mandatory
W	Compliance	PROGRAMME AND CHARTS	Provide information	Non-Mandatory
X	SBD 1	REQUEST FOR BID	Complete Form	Mandatory
Y	SDB 4	BIDDERS DISCLOSURE	Complete Form	Mandatory
Z	SBD 6.1	SPECIFIC GOALS IN TERMS OF PPR 2022	Complete Form	Mandatory
AA	Compliance	CERTIFICATE OF ATTENDANCE AT THE TENDER BRIEFING AND SITE INSPECTION	Attach form	Mandatory
BB	Compliance	RECORD OF ADDENDA	Complete Form	Non-Mandatory
CC	Compliance	AGREEMENT FORM AND APPENDICES AND THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT	Complete Form	Mandatory
DD	Administrative	ACCESS FORM	Complete Form	Non-Mandatory

Furthermore, bidders are made aware that some non-mandatory documents may not be required for evaluations, however information contained is used to validate the content details of the submissions that are evaluated.

Any bidder who fails to submit a mandatory document will be disqualified at this stage and not evaluated further. Furthermore, any bidder who fails to submit a non-mandatory document will receive zero points where that document is linked to specific functionality and/or specific goals evaluation criteria.

## 7. STAGE 3: FUNCTIONALITY

TCTA will evaluate the submissions for functional capacity and capability in terms of the functional criteria set out below.

- i) The tenderer's overall project implementation approach as per relevant Annexure A and B.
- ii) The Tenderer's experience in the scope of services as per the relevant **Annexure C**.
- iii) The qualifications and competence of key personnel proposed to fulfil the scope of services as per **Annexure D** (CV declaration to be completed and signed to qualify for the award of points).

Table 3.2: Functionality Evaluation Criteria and Weighting: Technical

CATEGORY	EVALUATION CRITERIA	MAXIMUM POINTS
<b>1.OVERALL PROJECT IMPLEMENTATION APPROACH</b> (See annexure A & B)	<ul style="list-style-type: none"> <li>• Understanding of the Project 2 points.</li> <li>• Organisational Structure (1 point)</li> <li>• Project Implementation (5 points)</li> <li>• Professional Staff (2 points).</li> </ul>	10
<b>2.TENDERER'S EXPERIENCE (INCLUDING SUB-CONTRACTORS, IF ANY.</b> (See annexure C)	Design and construction supervision of completed bulk water infrastructure projects not older than 20 years and have a contract value $\geq$ R 300 million (VAT inclusive). 1 point for every project not older than 20 years to a maximum of six (6) points.  An additional 1 point for every FIDIC (Red Book) Contract with a contract value $\geq$ R 300 million (VAT inclusive) to a maximum of 4 points.	10
	Design and construction supervision of completed comparable bulk water infrastructure projects including pumping stations, pipelines, dams/weirs and abstraction works not older than 20 years. Refer to Annexure C. <b>Welded Steel Pipelines with dia. <math>\geq</math> 800mm and longer than 3 km</b> 2 points per project not older than 20 years to a maximum of 10 points <b>Pumping Station <math>\geq</math> 1MW</b> 2 points per project to a maximum of 10 points <b>Category 2 Mass Concrete Dams/Weirs as per Dam Safety Regulations</b> 2 points per project to a maximum of 10 points	30
<b>3. KEY PERSONNEL</b> (See Annexure D)	Refer to the ECSA website for NQF-level qualification requirements	
<b>CHIEF RESIDENT ENGINEER</b>	The incumbent shall have at least an NQF 7 qualification in engineering (civil) and at least 10 years of professional experience as a Chief Resident Engineer, in bulk water projects 0 point for the first 9 years of professional experience <ul style="list-style-type: none"> <li>• 1 point for the first 10 years as a Chief Resident Engineer in the construction of bulk water projects</li> <li>• 1 point for every additional year of experience to a maximum of 9 points</li> </ul>	15

CATEGORY	EVALUATION CRITERIA	MAXIMUM POINTS
	<ul style="list-style-type: none"> <li>1 additional point for experience with FIDIC Redbook per project to a maximum of 5 points.</li> </ul> <p>Statutory professional registration (Pr.Eng and Pr.CPM/Pr.CM) within the built environment or internationally recognised equivalent is a prerequisite for the candidate proposed for this position. Failure to submit proof of professional registration (certificate or registration number), nil point will be awarded.</p>	
<b>CHIEF DESIGN ENGINEER</b>	<p>The incumbent shall have an NQF 7 engineering (civil) qualification and at least 10 years of professional design experience, design integration and management of major works in bulk water infrastructure projects including:</p> <ul style="list-style-type: none"> <li>Pumping stations <math>\geq</math> 1MW; and</li> <li>Pipelines with diameter of 800 mm and length <math>&gt;</math>3 km</li> <li>Weir</li> </ul> <ul style="list-style-type: none"> <li>0 point for the first 9 years</li> <li>1 point for the first 10 years.</li> <li>1 additional point for every additional year of experience to a maximum of 5 points.</li> <li>1 point for pumping stations <math>\geq</math>1MW to a maximum of 3 points.</li> <li>1 point for the pipelines with diameter of 800 mm and length <math>&gt;</math>3 km to a maximum of 3 points.</li> <li>1 point for a weir to a maximum of 3 points.</li> </ul> <p><b>Statutory professional registration (Pr.Eng or internationally recognised equivalent) within the built environment is a prerequisite for the candidate proposed for this position. Failure to submit proof of professional registration (certificate or registration number), nil point will awarded</b></p>	15
<b>PIPELINE DESIGN ENGINEER</b>	<p>The incumbent shall have at least an NQF 7 qualification in engineering (civil) and at least 10 years of professional experience in the planning, design and implementation of large diameter pipelines including Pipelines with diameter of 800 mm and length <math>&gt;</math>3 km</p> <ul style="list-style-type: none"> <li>0 point for the less than 10 years of experience.</li> <li>1 point for the first 10 years of professional experience in planning, design and implementation of large diameter pipelines (<math>\geq</math> 800mm and longer than 3 km).</li> <li>1 additional point for every additional year of experience to a maximum of 4 points.</li> </ul> <p><b>Statutory professional registration (Pr.Eng or internationally recognised equivalent) within the built environment is a prerequisite for the candidate proposed for this position. Failure to submit proof of professional registration (certificate or registration number), nil point will awarded.</b></p>	5
<b>DAM/WEIR DESIGN ENGINEER</b>	<p>The incumbent must be professionally registered with ECSA as Pr Eng, or internationally recognised equivalent and shall have at least an NQF 7 engineering (civil) qualification with at least 10 years professional experience in dam/weir design.</p> <ul style="list-style-type: none"> <li>Nil points will be allocated if the incumbent is not professionally registered as Pr. Eng with ECSA, or internationally recognised equivalent.</li> </ul>	6



CATEGORY	EVALUATION CRITERIA	MAXIMUM POINTS
	<ul style="list-style-type: none"> <li>• 0 point for less than 10 years of experience</li> <li>• 1 point for the first 10 years of professional experience in dam/weir design.</li> <li>• 1 additional point for every additional year of experience to a maximum of 4 points.</li> <li>• 1 additional point for diversion weir design.</li> </ul>	
<b>PUMPING STATION DESIGN ENGINEER</b>	<p>The incumbent shall have at least an NQF 7 engineering (mechanical) qualification and at least 5 years of professional experience in pumping station planning, design and implementation of pumping stations larger than 1MW.</p> <ul style="list-style-type: none"> <li>• 0 point for less than 5 years professional experience</li> <li>• 1 point for the first 5 years.</li> <li>• 1 additional point for every additional year of experience to a maximum of 4 points.</li> </ul> <p><b>Statutory professional registration (Pr.Eng or internationally recognised equivalent) within the built environment is a prerequisite for the candidate proposed for this position. Failure to submit proof of professional registration (certificate or registration number), nil point will awarded.</b></p>	5
<b>GEOTECHNICAL ENGINEER</b>	<p>The incumbent shall have an NQF 7 engineering (civil) qualification and at least 10 years overall experience in Geotechnical investigations, mapping and designs of Mega Infrastructure Projects.</p> <ul style="list-style-type: none"> <li>• 0 point for less than 10 years professional experience</li> <li>• 1 point for the first 10 years.</li> <li>• 1 point for every additional 2 years of design experience up to a maximum of 3 points.</li> </ul> <p><b>Statutory professional registration (Pr.Eng or internationally recognised equivalent) within the built environment is a prerequisite for the candidate proposed for this position. Failure to submit proof of professional registration (certificate or registration number), nil point will be awarded.</b></p>	4
<b>ELECTRICAL DESIGN ENGINEER</b>	<p>The incumbent shall have at least an NQF 7 electrical engineering qualification and at least 5 years of professional experience in the design and implementation of electrical, control and instrumentation and communication installations of pumping stations and systems larger than 1MW.</p> <ul style="list-style-type: none"> <li>• 0 point for less than 5 years of professional experience</li> <li>• 1 point for the first 5 years of professional experience.</li> <li>• 1 additional point for every additional year of experience to a maximum of 4 points.</li> </ul> <p><b>Statutory professional registration (Pr.Eng or internationally recognised equivalent) within the built environment is a prerequisite for the candidate proposed for this position. Failure to submit proof of professional registration (certificate or registration number), nil point will be awarded.</b></p>	5
<b>ENVIRONMENTAL LEAD</b>	<p>The incumbent shall have at least an NQF 8 qualification in Natural Sciences or similar and at least 5 years of professional experience in environmental and social management and monitoring of infrastructure projects.</p> <ul style="list-style-type: none"> <li>• 0 point for less than 5 years of professional experience.</li> </ul>	5

CATEGORY	EVALUATION CRITERIA	MAXIMUM POINTS
	<ul style="list-style-type: none"> <li>• 1 point for the first 5 years.</li> <li>• 1 additional point for every additional year of experience to a maximum of 3 points.</li> <li>• 1 additional point for professional registration: PrSciNat. or international equivalent</li> </ul> <p><b>Statutory professional registration with EAPASA is a prerequisite for the candidate proposed for this position. Failure to submit proof of professional registration, nil point will be awarded.</b></p>	

**Bidders who fail to meet the minimum threshold for the following sub-criterion will be disqualified and not evaluated further:**

- A minimum score of 6 out of 10 for Project Implementation approach.
- A minimum score of 18 points out of 30 points for Company Experience; and
- A minimum score of 36 out of 60 of the Key Personnel.

## 7.1 CLIENT'S MINIMUM REQUIREMENT FOR PSP RESOURCES

The Tenderer's Manpower Schedule in the proposal shall be aligned with the Client's Indicative Programme (**Annexure W** and **Appendix 4**) for the various activities and associated tasks. The number of proposed resources for the various tasks should be sufficient to provide the Services for the indicated timeframes and is at the discretion of the Tenderer.

## 8. STAGE 4: SPECIFIC GOALS

The specific goals for this bid are as follows:

### 8.1 B-BBEE

8.1.1. The following table will be used to calculate the points out of 10 for B-BBEE of the bidding entity:

B-BBEE Status Level of Contributor	Number of Points
1	10
2	9
3	6
4	5
5	4
6	3
7	2
8	1
Non-compliant contributor	0

- 8.1.2. A joint venture or consortium must submit a consolidated B-BBEE certificate based on the weighted members participation in order to earn B-BBEE points.
- 8.1.3. All B-BBEE certificates must be obtained from verification agencies accredited by SANAS unless the bidder is an EME or QSE in which case they must submit a validly commissioned affidavit.

**Any bidder that does not meet the above-mentioned specific goals will not be disqualified but will be scored 0 for specific goals.**

## **9. STAGE 5: PRICE**

- 9.1 TCTA will treat the bids in terms of the Preferential Procurement Policy Framework Act, No.5 of 2000 (PPPFA).
- 9.2 If the price offered by the highest scoring bidder is not market related, TCTA may negotiate a market-related price.
- 9.3 Price must be reflected Excluding and Including VAT.
- 9.4 All prices must include disbursements.
- 9.5 Prices must be firm and in Rands.

### **9.2. Preferential Points Calculation**

- 9.2.1. The following formula must be used to calculate the points out of 90 for price in bids with a Rand value above R50 million, inclusive of all applicable taxes:

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

Where-

$P_s$  = Points scored for price of bid under consideration;

$P_t$  = Price of bid under consideration; and

$P_{\min}$  = Price of lowest acceptable bid.

- 9.2.2. The 90/10 preference point system will apply.
- 9.2.3. The weighting of the Preferential points calculation is as follows:

<b>Specific Goals</b>	<b>= 10</b>
<b>Price</b>	<b>= 90</b>
<b>Bidder's Score</b>	<b>= __/100</b>

## **10. STAGE 6: SUPPLIER VETTING**

TCTA will disqualify a bidder who/whose:

- 10.1 Submits fraudulent information or information that they do not have to authority to submit;
- 10.2 Is listed on National Treasury's list of Blacklisted Suppliers or Defaulters or similar;
- 10.3 Poses a risk in terms of any vetting process conducted either by TCTA internally or the National Intelligence Agency;
- 10.4 Has a director and/or shareholder who is employed by any organ of state. This does not apply to any organ of state acting as a bidder. If a bidder has a director and/or shareholder who is employed by an organ of state, they must submit a letter from the relevant organ of state stating that they are allowed to do remunerative work outside of their employment contract and that they are not prohibited from doing business with other organs of state; and
- 10.5 Tax affairs are not in order at the time of award after being requested to resolve the non-compliance status with SARS within the prescribed period.
- 10.6 Assisted TCTA with creating, advising, consulting on and/or providing input to the Contract under the RFP NO: TCTA 021-041 during any part of the bid document on behalf of TCTA.

## **11. CONDITION OF BID**

Any bid submission that does not meet the conditions of bid may be rejected and not evaluated at all. Such a bid submission will not be acceptable.

### **11.1 COSTS OF BIDDING**

- 11.1.1 Bidders shall bear their own costs, disbursements and expenses associated with the preparation and submission of the Bid Submissions, including submission of any additional information requested by TCTA or attending the compulsory briefing session.
- 11.1.2 TCTA shall not under any circumstances be liable nor assume liability to any Bidder for costs, disbursements and/or expenses incurred by Bidders regardless of the outcome of the Bid process or by virtue of cancellation and/or postponement of the Bid process. Where applicable a non-refundable fee for documents may be charged.

### **11.2 CLARIFICATIONS**

- 11.2.1 All questions or queries regarding the Request for Bid must be directed to the person stated on the front page of this document, stating the relevant Bid number in the subject field, before the stipulated closing date and time of the Request for Bid. No e-mails, faxes and/or telephone calls should be directed to any other employees of TCTA.

- 11.2.2 TCTA shall not be liable nor assume liability for any failure to respond to any questions and/or queries raised by potential Bidders.
- 11.2.3 Should a Bidder fail to complete the annexures TCTA may call upon the Bidder to complete and submit such annexures except where such annexures are indicated as mandatory or are required for purposes of functional and preferential points evaluation. TCTA reserves the right to request clarity and to clarify any ambiguities in the documents that have already been submitted. If a Bidder fails to submit any of the requested documents and / or annexures duly completed within 5 (five) working days of being called upon to do so, then the TCTA may disqualify the Bidder.

### **11.3 AMENDMENTS**

- 11.3.1 TCTA reserves the right, in its sole and absolute discretion, to amend any terms and conditions of the Request for Bid and/or to stipulate additional requirements, provided that such amended terms and conditions and/or additional requirements are placed on TCTA's website at least 10 (ten) business days prior to the stipulated closing date and time.
- 11.3.2 Any amended terms and conditions and/or stipulation of additional requirements by TCTA shall be deemed to form part of this Request for Bid.
- 11.3.3 TCTA shall not be liable, nor assume liability of any nature whatsoever, for the failure of a Bidder to receive information if sent to the e-mail, fax or postal address supplied.
- 11.3.4 TCTA reserves the right to stipulate additional Bid requirements as it deems appropriate in its sole and absolute discretion.
- 11.3.5 TCTA shall not be liable nor assume liability to any potential Bidder/s for any failure by such Bidder/s to receive any request for additional information.
- 11.3.6 In the event that TCTA amends its Bid requirements or requests additional information, any Bidder shall be entitled to withdraw its Bid Submission submitted by it prior to the stipulated closing date and time and re-submit a replacement Bid Submission by not later than the stipulated closing date and time.

### **11.4 MODIFICATION, ALTERATION OR SUBSTITUTION AND/OR WITHDRAWAL OF A BID SUBMISSION**

- 11.4.1 Any Bidder shall be entitled to withdraw or modify its Bid Submission at any time prior to the stipulated closing date and time.
- 11.4.2 Any amendment or alteration to the Bid documents must be received before the closing date and time of the Bid as stipulated in the conditions of Bid. The words "Amendment to Bid" and the description of the Bid must be clearly reflected on the envelope containing the documents or courier packaging as referred to above.

- 11.4.3 No modification, alteration or substitution of Bid Submissions will be permitted after the stipulated closing date and time.
- 11.4.4 TCTA reserves the right to request Bids for clarification needed to evaluate their Bids, however, such request for clarification shall not allow or entitle Bidders to change the substance or price of their Bids after Bid opening. Any request for clarification and the Bidder's responses will be made in writing.

## **11.5 VALIDITY PERIOD**

- 11.5.1 All Bid Submissions must remain valid from the stipulated closing date and time of the Request for Bid for the period stated in this Bid. Each Bid Submission will constitute an irrevocable offer which remains open for acceptance by TCTA during the validity period.
- 11.5.2 If TCTA issues a request to extend the validity period, failure to respond to such a request shall be deemed to be an approval to extend the bid validity period on the same terms and conditions as per your original bid submission.
- 11.5.3 If a bidder rejects the extension of validity period with no further comments. The bidder's rejection shall be accepted as a withdrawal from the bid process.
- 11.5.4 If a bidder rejects the extension of the validity period and requests an adjustment to their bid price. Such adjustment must be in line with the Consumer Price Index applicable at the time of request for extension and/or a recognised industry pricing guide. Adjustments outside of these parameters or for any other reason will not be acceptable and the bidders original bid price shall be deemed to be applicable for the extended validity period.

## **11.6 DISCLAIMER - PROTECTION OF PERSONAL INFORMATION ACT**

- 11.6.1 By participating in this bid process, you hereby acknowledge that you have read and accept the following Protection of Personal Information (POPI) disclaimer.
- 11.6.2 You (the Bidder, herein after referred to in the first person for purposes of this disclaimer) understand and agree that all information provided, whether personal or otherwise, may be used and processed by TCTA and such use may include placing such information in the public domain.
- 11.6.3 Further by partaking in this process you specifically agree that the TCTA will use such information provided by you, irrespective of the nature of such information.
- 11.6.4 TCTA shall take all reasonable measures to protect the personal information of users and for the purpose of this disclaimer "personal information" shall be defined as detailed in the Promotion of Access to Information Act, Act 2 of 2000 ("PAIA") and the Protection of Personal Information Act, Act 4 of 2013 ("POPI").

11.6.5 As per the POPI Act personal information refers to information that identifies or relates specifically to you as a person or data subject, for example, your name, age, gender, identity number and your email address.

11.6.6 The TCTA may collect the following information about you:

- i) Your name, address, contact details, date of birth, place of birth, identity number, passport number, bank details, details about your employment, tax number and financial information;
- ii) Information about your beneficial owner if we are required to do so in terms of POPIA.
- iii) Records of correspondence or enquiries from you or anyone acting on your behalf.
- iv) Details of transactions you carry out with us.
- v) Details of contracts you carry out with us; and
- vi) Sensitive or special categories of personal information, including biometric information, such as images, fingerprints, and voiceprints.

11.6.7 If you are under 18 years old, please do not provide us with any personal information unless you have the permission of your parent or legal guardian to do so.

Collection of Personal Information is done for the following reasons:

11.6.8 **Employee and Contractor Information**

- i) To Remunerate the person.
- ii) To comply with laws authorising or requiring such processing, including (but not limited to) the Basic Conditions of Employment Act 75 of 1997; the Labour Relations Act 66 of 1995 as amended; the Employment Equity Act 55 of 1998; the Occupational Health and Safety Act 85 of 1993, the Income Tax Act 58 of 1962 and the VAT Act 89 of 1991.
- iii) To Admit the person to the Pension Fund and/or Medical Aid providers, if applicable.
- iv) To conduct criminal, credit, employment reference and other related reference checks.
- v) To provide value added services such as human resource administration, training, performance reviews, talent management and other reasons related to the management of employees and/or contractors.

11.6.9 **Client Information**

- i) To render client related services and administration of client accounts.
- ii) To conduct criminal, credit, reference, and other related reference checks.
- iii) To authenticate the client.

- iv) To provide the client with information which TCTA believes may be of interest to the client, such as information relating to public awareness campaigns and matters of public interest in which TCTA is involved or has decided to lend its support to.

#### **11.6.10 Supplier and Third-Party Contractor/Service Provider Information**

- i) To secure the products and services of the supplier/service provider or contractor as part of TCTA's product and service offering.
- ii) To manage the TCTA supply chain and relationship with the supplier and/or contractor for any purposes required by law by virtue of the relationship between the supplier and TCTA.
- iii) To render services relating to the administration of supplier supplier/service provider or contractor accounts.
- iv) To provide the supplier/service provider or contractor with information which TCTA believes may be of interest, such as information relating to public awareness campaigns and matters of public interest in which TCTA is involved or has decided to lend its support to.

#### **11.6.11 Sources of Personal Information**

Personal information may be collected from the following sources:

- i) Directly from the person when he/she applies for any TCTA related employment, provide services to TCTA, submit forms requests or transactions, use our websites, or make use of any of the TCTA services.
- ii) From public registers, credit bureaus and law enforcement agencies and any other organisation from which TCTA may acquire your information.
- iii) From people and entities employed by TCTA to provide services to TCTA which may be legally entitled to provide TCTA with personal information.

#### **11.6.12 The Storage of Personal Information**

All personal information collected by TCTA will be stored as follows:

- i) In a secure and safe manner according to strict information security principles with safeguards to ensure its privacy and confidentiality.
- ii) For no longer than is necessary to achieve the purpose for which it was collected unless further retention is:
- iii) Required by law or contractual obligation.
- iv) Otherwise reasonably required by TCTA for lawful purposes related to its functions and activities.
- v) Retained further with the person's consent:



- vi) After which the information will be de-identified and disposed of as per the TCTA Records policy.

#### **11.6.13 Sharing of Personal Information**

- 11.6.13.1 Any information supplied to TCTA will be treated as confidential and TCTA will not disclose information unless legally permitted thereto. No information will be transferred to a Third Party without the explicit consent of the data subject unless legally obliged thereto. By providing the personal information, the data subject agrees that TCTA may transfer the information to the following people and organisations in pursuit of the data processing purposes set out in our Policy on the Protection of Personal Information.
- 11.6.13.2 To the divisions and departments in TCTA, including directors, employees, contractors, agents, auditors, legal and other professional advisors who are authorised to process this information.
- 11.6.13.3 To financial and government organisations who may request information from TCTA, in which case the data subject will be notified in advance; the provision of such information, including banks, governmental, judicial, regulatory and law enforcement bodies including the South African Revenue services and the National Credit Regulator.
- 11.6.13.4 To persons employed by TCTA to provide services on our behalf and that adhere to principles like TCTA regarding the treatment of personal information.
- 11.6.13.5 To any person to whom TCTA cede, delegate, transfer or assign any of our rights or obligations pertaining to products and/or services provided to the person or contracts concluded with the person.
- 11.6.13.6 To any person who acts as legal guardian, executor of an estate, curator or in a similar capacity.
- 11.6.13.7 To any person or persons who may be permitted by applicable law or that you may consent to, including persons or entities who may request such information to evaluate the credit worthiness of the person.

#### **11.6.14 Your Rights regarding your Personal Information**

- 11.6.14.1 A data subject (employee, contractor, supplier and/or customer) has the following rights to his/her personal information collected, processed, and stored by TCTA:
- 11.6.14.2 Right of access to and the right to rectify or update the personal information collected.

11.6.14.3 The right to object at any time to the processing of the personal information in which event the consequences of the objection will be explained to the data subject.

11.6.14.4 The right to request TCTA to no longer process the personal information of the data subject should the information not be required for further processing or by law.

#### **11.6.15 General Conditions pertaining to Personal Information**

11.6.15.1 TCTA accepts no liability whatsoever for any loss, damage (whether direct, indirect, special, or consequential) and/or expenses of any nature whatsoever which may arise because of, or which may be attributable directly or indirectly from information made available on this document, or actions or transaction resulting there from.

11.6.16 This disclaimer shall be read together with the TCTA terms and conditions also available on the TCTA website <https://www.tcta.co.za> .

### **11.7 CONFLICTS OF INTEREST**

11.7.1 Bidders are required to provide professional, objective and impartial advice/services and at all times and to hold the client's interest's paramount, without any consideration for future work and strictly avoid conflicts with other assignments or their own corporate interests.

11.7.2 Bidders may not be appointed for any bid that would be in conflict with their prior or current obligations to other clients, or that may place them in a position of not being able to carry out the scope of work in the best interest of TCTA. The bidders appointment will be in the sole discretion of TCTA having considered the bidders connection to their earlier obligations to TCTA and shall be considered by Procurement on a case by case basis.

11.7.3 Without limitation on the generality of this rule, bidders should not be participating in the bid process and/or be appointed where the bidder:

11.7.3.1 Has been engaged by the accounting officer/authority to provide goods or works for a project and any of its affiliates, should be disqualified from providing consulting services for the same project.

11.7.3.2 Has been appointed to provide consulting services for the preparation or implementation of a project and any of its affiliates, should be disqualified from subsequently providing goods or works or services related to the initial assignment (other than a continuation of the firm's earlier consulting services as described below) for the same project, unless the various firms (consultants, contractors, or suppliers) are performing the contractor's obligations under a turnkey or design-and-build contract;

11.7.3.3 Bidders or any of their affiliates should not be hired for any assignment which, by its nature, may be in conflict with another assignment of that entity. As an example, bidders may be appointed to prepare an engineering design for an infrastructure project should not be engaged to prepare an independent environmental assessment for the same project, and bidders assisting a client in the privatization of public assets should not purchase, nor advise purchasers of such assets.

11.7.4 The limitation of participation shall not apply to bidders who are organs of state.

## **11.8 RIGHT NOT TO AWARD**

TCTA reserves the right, at its sole discretion, not to award to any of the Bidders or to cancel a Bid:

11.8.1 Due to changed circumstances; there is no longer a need for the goods, or the services specified in the invitation;

11.8.2 Funds are no longer available to cover the total envisaged expenditure;

11.8.3 No acceptable Bid is received; or

11.8.4 There are material irregularities in the Bid process

## **11.9 SUBCONTRACTING AFTER AWARD**

The successful bidder:

11.9.1 May only subcontract this scope of work no less than 6 (six) months after award;

11.9.2 May only subcontract with the prior written approval from the Contract Manager appointed by TCTA.

11.9.3 May only sub-contract more than 25% of the contract to a third party that has a B-BBEE status level that is more or equal to that of the successful bidder unless the third party is an EME capable of executing the contract.

## **11.10 NOTIFICATION OF UNSUCCESSFUL BIDDERS**

If no correspondence or communication is received from TCTA within the validity period, the relevant Bid Submissions submitted will be deemed to be unsuccessful.

## **11.11 PROHIBITION OF BRIBERY, FRAUDULENT AND CORRUPT PRACTICES**

11.11.1 No Bidders shall directly or indirectly commit, or attempt to commit, for the benefit of the Bidder or any other person, any of the following:

11.11.1.1 Influencing, or attempting to influence, any TCTA's employees or agents in respect of the award of a Bid or the outcome of the Bid process in relation to any contract for the provision of goods or services; and/or

11.11.1.2 Offering, or giving gratification to, and/or inducing, or attempting to induce, as defined in the Prevention and Combating of Corrupt Activities Act No. 12 of 2004, as amended from time to time, any of TCTA's employees or agents, in favour of or for the benefit of the Bidder and/or any other party; and/or

11.11.1.3 Bribing, or attempting to bribe, any TCTA's employees or agents in order to influence the outcome of a Bid process in favour of or for the benefit of the Bidder and/or any other party.

11.11.2 TCTA shall be entitled to disqualify any Bidder/s if it has reason to believe that any conduct relating to that set out in Condition 11.11.1 above has occurred.

## **11.12 FRONTING**

11.12.1 The TCTA supports the spirit of Broad-Based Black Economic Empowerment and recognizes that real empowerment can only be achieved through individuals and businesses conducting themselves in accordance with the Constitution and in an honest, fair, equitable, transparent and legally compliant manner. Against this background TCTA condemns any form of fronting.

11.12.2 TCTA, in ensuring that Bidders conduct themselves in an honest manner will, as part of the bid evaluation process, conduct or initiate the necessary probity investigation to determine the accuracy of the representation made in the bid document. Should any of the fronting indicators as contained in the Guidelines on Complex Structures and Transactions and Fronting, issued by the Department of Trade and Industry be established during such enquiry / investigation, the onus will be on the Bidder to prove that fronting does not exist.

11.12.3 Failure to do so within a period of 14 days from the date of notification may invalidate the Bid/contract and may also result in the restriction of the Bidder, by National Treasury, to conduct business with the public sector for a period not exceeding ten years, in addition to any other remedies the National Treasury may have against the bidder concerned.

## **11.13 JOINT VENTURE OR CONSORTIUM**

11.13.1 The joint venture or consortium agreement:

11.13.1.1 Must clearly and comprehensively set out the contributions to be made by each member towards the activities of the joint venture or consortium in securing and executing the contract and should allocate monetary values to such contributions.

11.13.1.2 Must record the percentage participation by each member.

11.13.1.3 Must provide for meaningful input by all members to the policy making and management activities of the joint venture or consortium;

11.13.1.4 Must provide for the establishment of a management body for the joint venture or consortium;

- 11.13.1.5 Must provide measures to limit, as far as possible, losses to the joint venture or consortium by the default of a member;
- 11.13.1.6 Must promote consensus between the members whilst ensuring that the activities of the joint venture or consortium will not be unduly hindered by failure to achieve it;
- 11.13.1.7 Must provide for rapid, affordable and easy interim dispute resolution and for effective final dispute resolution, if required; and
- 11.13.1.8 Must be sufficiently flexible to allow for joint venture or consortiums which differ in nature, objectives, inputs by members, management systems, etc;
- 11.13.1.9 Must submit on annual basis consolidated BBEE scorecard for the Joint Venture failure which TCTA will implement contractual remedies.

#### 11.13.2 Right to review the joint venture or consortium agreement

TCTA reserves the right to review the joint venture or consortium agreement between the parties to ensure that the minimum conditions set out above.

#### 11.13.3 Amendment of the joint venture or consortium agreement

The composition or the constitution of the joint venture or consortium shall not be altered without the prior consent of the Employer.

## **12. ANNEXURES**

# ANNEXURES

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## **ANNEXURE A: OVERALL PROJECT IMPLEMENTATION APPROACH (Attach document)**

Tenderers are instructed to provide a thorough technical proposal providing a statement of their proposed approach to meet the project scope and objectives. The Tenderer's Technical Proposal must be compiled using the same headings as described below and must be a proposal for the full Scope of Services (Appendix 1) as indicated in the following outline:

### **i. Understanding of the Project**

- Objectives and Scope of the Project
- Comments on the RFP

### **ii. Organisational Structure**

Bidders must provide an organogram and highlight relationships between key personnel and or JV partners where applicable.

### **iii. Project Implementation**

Bidders must provide a narrative on how they plan to implement the project using the below outline as a guide.

- • Overall approach to the work
- • Risk assessment and management measures of the project
- • Work Plan and Task Descriptions
- • Organisation for the Assignment
- • Work Programme and Manpower Schedule

### **iv. Professional Staff**

TCTA has identified the compulsory schedules for submittal to be presented in **Annexure. E**. Additional schedules should be included, if required, by the Tenderer.

The Scope of Work that TCTA requires is described in Appendix 1 of this RFP. The Tenderer shall include this section in their Technical Proposal, clearly identifying all additions and/or amendments he has made, in such a way that after review by TCTA, a decision can be made. Any necessary negotiations can be incorporated into the Agreement with the minimum of further editorial amendment.



## 1. UNDERSTANDING OF THE PROJECT

This part of the proposal shall be a narrative in which the Tenderer shall demonstrate their understanding of the assignment by indicating the nature of the project and what he considers are the objectives and the desired end products of the services to be provided. This also would be the place in which to draw attention to any significant variations that the Tenderer might wish to propose to the requirements stated in **Annexure CC (Appendix 1)**. The Tenderer must also demonstrate their understanding of the Scope of Services by listing the main deliverables of each Task or Sub-Task in **Annexure B**.

## 2. ORGANISATIONAL STRUCTURE

This part of the proposal should be presented in the form of a narrative combined with appropriate information being provided in tabular form. Full, but concise, corporate information on the Joint Venture\ Consortium (if applicable), which would be responsible for the Services, and which would enter into the Agreement with the Client must be provided.

It will not be a requirement for the successful Tenderer to register the JV (if applicable) as a legal entity or for the Tenderer to enter into a formal JV agreement between the members for the purpose of tendering. At the proposal stage, a letter of intent, signed by all members, will suffice. Once the tenderer is shortlisted, a full JV agreement is required for award eligibility of the contract.

The proposal should indicate:

- i. the identity of the representative (Clause 14 of FIDIC Client/Consultant Model Services Agreement),
- ii. the organisational and functional relationships between all members of the company and JV/consortium if applicable,
- iii. the exact manner in which any members of the JV would participate in the assignment and contribute to the work, including their respective % participation numerically stated. The mere fact of an association or consortium will not be considered an adequate response in this respect.
- iv. An Authority of Signatory (Annexure K and the following data shall be submitted for each member entity of the JV:
  - Name and designation of the person who will be authorised to represent the Tenderer in the event that it is selected to negotiate for the proposed work.

The above data shall be presented in the prescribed form or in tabular form as far as possible, with any supporting descriptive material, if necessary, included as an Appendix to the Proposal.

## **ANNEXURE B: LIST OF DELIVERABLES PER TASK**

Bidders must thoroughly review the scope of services and provide a comprehensive list of deliverables per task.

## ANNEXURE C: TENDERER'S EXPERIENCE RECORD

**NB: Completion of this form is compulsory – zero points will be allocated should the Tenderer fail to complete this form.**

This form may be re-produced but must follow the same wording in the same order.

Refer to Functionality Evaluation Criteria in the Tender Document Table 3.2 (Refer to Evaluation criteria 2). The Tenderer must provide sufficient detail below for the evaluation in terms of the requirements (**no other documents will be considered for the allocation of points**). Tenderers may include information applicable to sub-contractors, if they are applicable.

The minimum details to be provided are:

- Pipelines: diameter, length, pipe material;
- Pumping stations: Power capacity (MW), and
- Dams/Weirs: Dam safety category, type (e.g., mass concrete), length and height of concrete and earth wall sections, details of abstraction/diversion works, name of river.

No.	Project name	Project Location	Brief project description	Commencement and completion dates in YY/MM (Completion is at end of Defects Notification/Liability Period)	Current Project Age	Services rendered	Total contract value (VAT exclusive)	Client company name and details of contact person (cell. no or email)
<b>Design and Construction supervision of completed bulk water infrastructure projects not older than 20 years with a contract value ≥ R 300 million (VAT exclusive)</b>								
<b>FIDIC (Red Book) Contract with a contract value ≥ R 300 million (VAT inclusive)</b>								
<b>Pumping Station ≥ 1MW</b>								
<b>Welded Steel Pipelines with diameter ≥ 800mm and longer than 3km</b>								
<b>Category 2 Mass Concrete Dams/Weirs as per Dam Safety Regulations</b>								

**NB: TCTA reserves the right to request evidence to support the information provided and/or validation thereof.**

Number of sheets, appended by the Tenderer, comprising this Schedule: ..... (if nil, enter Nil)

SIGNATURE: ..... DATE: .....

*(of person authorised to sign on behalf of the Tenderer)*

## **ANNEXURE D: KEY PERSONNEL, ORGANOGRAM And CVS (TENDERER TO ATTACH DOCUMENTS)-: CRITERIA 3.**

**NB: Completion of this form is compulsory- zero points will be allocated should the Tenderer fail to complete this form.**

This form may be re-produced but must include exactly the same wording in the same order. The Tenderer must provide sufficient details below for the evaluation in terms of the requirements.

The Tenderer must provide a fully resourced organogram as part of this Schedule. This must include all specialists, engineers and inspectors.

The Tenderer shall nominate in this Schedule the key personnel, as listed below by position which he will employ to design, direct and execute the Works, together with, and on a separate document where necessary, their qualifications, professional registration, relevant experience, previous positions held, names and description and durations of projects, FIDIC Red Book Contract Conditions (where applicable), tasks and responsibilities.

Only one resource is to be nominated and will be evaluated per position, the same resource cannot be assigned to more than one position. The Curriculum Vitae of these people is to be attached and shall be in the form given in **Annexure D**.

Please note that all qualification / professional registration has been done within the South African context. Where a qualification / professional registration is not from a South African Institution, the Bidder is responsible to have it officially evaluated/accredited and compared to the South African equivalent. Furthermore, all qualifications and registration documents in a language other than English must also be officially translated into the English language. Certified copies of certificates of qualifications and professional registration are to be attached.

Below is a summary description of all key construction personnel roles. It should be noted that these roles will not be limited to the below description, tenderers must therefore propose additional resources as they may require relative to the project scope. Further, the tenderers must ensure that sufficient man-months are priced for in the tender in such a manner that the full scope of services can be provided until the project closeout and completion.

- **Chief Resident Engineer**

The Chief Resident Engineer (CRE) shall be the person named by the Consultant in terms of the FIDIC Red Book and must be a full-time employee (for the duration of the construction contract until project close out) at the senior management level of the lead company (if in a JV or Consortium) responsible for the execution of BRVAS. This person must be authorized to approve and accept all contractual aspects associated with the execution of the project.

- **Chief Design Engineer**

The Chief Design Engineer (CDE) must be a senior employee of the PSP appointed by the Contractor for the design of the Contract. The CDE will be responsible to manage the design team and will be the primary point of contact between the design team and the Employer's PSP. The CDE will have to sign off on all the designs before handing them over to the Contractor for formal approval by the Client and subsequent incorporation into the construction phase of the project. The CDE will be responsible to resolve all potential design problems identified during the construction and will agree on solutions to these problems with the Employer, the Employer's PSP and the Contractor's site staff. He will be required to visit the site at regular intervals.

- **Pipeline Design Engineer**

The Pipeline Design Engineer (PiDE) will be responsible for all aspects associated with the design of the pipeline and manage the pipeline design team. The PDE will also be responsible for resolving any pipeline design-related issues experienced on-site and liaising with the relevant owners of services where wayleaves are required. The PDE will not be based on the site but will have to visit the site from time to time at key intervals to monitor the implementation of the design and specifications and resolve possible problems. He will be responsible to provide the Contractor with the necessary specifications and schedules for the timeous ordering of the pipes, valves and other materials associated with the rising main.

- **Dam/Weir Design Engineer**

The Dam/Weir Design Engineer (DDE) will be responsible for all aspects associated with the design of the weir. The DDE will need to interpret the detailed geotechnical information provided and develop appropriate solutions to ensure a safe and stable design for the weir and the embankment. The DDE will also be responsible to liaise with DWS (Dam Safety Office) to obtain the necessary permits and approvals for the construction of the weir. The DDE will not be based on-site but will have to visit the site from time to time at key intervals to monitor the implementation of the design and specifications and to resolve possible problems. He will be responsible to provide the Contractor with the necessary specifications and schedules for the timeous ordering of the mechanical equipment associated with the weir construction as well as with the quantities and quality of the material required for the construction of the weir and the embankment. The DDE will need to specify as well as oversee any specialist geotechnical work such as pressure grouting.

- **Pumping Station Design Engineer**

The Pumping Station Design Engineer (PuDE) will be responsible for all aspects associated with the design of the pump station including the civil and mechanical works, and to manage the complete pump station design team. The PuDE will liaise with the Electrical Design Engineer and other engineers to accommodate the electro-mechanical requirements within the civil structures. He will be responsible to provide the Contractor with the necessary specifications and schedules for the timeous ordering of the electromechanical equipment.

Once the designs are complete, the PuDE will have to visit the site from time to time at key intervals to monitor the implementation of the design and specifications and to resolve possible problems. They will be involved with the commissioning of the pump station.

- **Electrical Design Engineer**

The Electrical Design Engineer (EDE) will work in close cooperation with the PuDE to design all the electrical and electronic works associated with the pump station as well as all the control mechanisms and monitoring equipment identified in the Employer's Requirements to control the operation of the scheme. The EDE will also be responsible to liaise with Eskom regarding the provision of, as well as programming thereof, bulk electricity supply. He will be responsible to provide the Contractor with the necessary specifications and schedules for the timeous ordering of the electrical equipment. The EDE will not be based on-site but will have to visit the site from time to time at key intervals to monitor the implementation of the design and specifications and to resolve possible problems. He will be involved with the commissioning of the pump station.

- **Geotechnical Engineer**

The Geotechnical Engineer (GE) will be responsible for all geotechnical investigations and designs and for integrating input/output with other relevant professionals. He will ensure that all key risks in his area of responsibility are adequately identified and negated. During construction, he will give critical guidance to the contractor as construction progresses, to ensure that all design assumptions are verified and where required the designs are updated to ensure that a competent and functional design is achieved.

- **Environmental Lead**

The Contractor's Environmental Lead (EL) is a full-time position on-site. The EL will be responsible for all environmental aspects associated with the project including regular interaction with the Employer's environmental staff to ensure implementation of the Employer's Requirements and resolve any environmental problems. Although all interaction with landowners will go through the Employer's environmental staff, the EL will be involved in resolving any potential problems in this regard as well. The EL will be responsible for the Contractor's interaction with communities.

**Copies of certificates of qualifications and professional registration/ registration number are to be attached as part of Annexure D.**

Minimum details to be provided are under the project description:

- Pipelines: diameter, length, pipe material; and
- Pumping stations: Power capacity (MW).
- Dams/Weirs: Dam safety category, type (e.g., mass concrete), length and height of concrete and earth wall sections, details of abstraction/diversion works, name of river.



- Professional registration is compulsory, no points will be awarded for resources without professional registration. Proof of registration certificate or number must be provided.

**Table D 1.1.: Chief Resident Engineer Experience**

<b>Name of Person:</b>					
<b>Qualifications:</b>					
<b>Professional Registration &amp; Registration number</b>					
<i>Project name</i>	<i>Role</i>	<i>Duration in years</i>	<i>Project description</i>	<i>FIDIC? (YES/NO)</i>	<i>Bulk Water project? (YES/NO)</i>

**Table D1.2: Chief Design Engineer Experience**

<b>Name of Person:</b>				
<b>Qualifications:</b>				
<b>Professional Registration &amp; Registration number:</b>				
<b>Design &amp; Implementation of a Pumping Station size of ≥1MW</b>				
<b>Project name and Pump size</b>	<b>Roles &amp; Responsibilities (Designer, Lead designer etc.)</b>	<b>Duration of involvement in years</b>	<b>Project commencement &amp; Completion Date</b>	<b>Contract Value (excl. VAT)</b>
<b>Design &amp; Implementation of a pipeline of diameter ≥ 800mm, and length of ≥ 3km</b>				
<b>Project name and pipeline size</b>	<b>Roles &amp; Responsibilities (Designer, Lead designer etc.)</b>	<b>Duration of involvement in years</b>	<b>Project commencement &amp; Completion Date</b>	
<b>Design &amp; Implementation of Dams/Weirs</b>				
<b>Project name and pipeline size</b>	<b>Roles &amp; Responsibilities (Designer, Lead designer etc.)</b>	<b>Duration of involvement in years</b>	<b>Project commencement &amp; Completion Date</b>	

- Pipeline Design Engineer

**Table D1.3: Pipeline Design Engineer Experience**

<b>Name of Person:</b>					
<b>Qualifications:</b>					
<b>Professional Registration &amp; Registration number:</b>					
<b>Planning, Design &amp; Implementation of a pipeline of diameter <math>\geq 800\text{mm}</math>, and length of <math>\geq 3\text{km}</math></b>					
<b><i>Project name and pipeline size</i></b>	<b><i>Roles &amp; Responsibilities (Designer, Lead designer etc.)</i></b>	<b><i>Duration of involvement in years</i></b>	<b><i>Project commencement &amp; Completion Date</i></b>	<b><i>Project Description</i></b>	

- Dam/Weir Design Engineer

**Table D1.4: Dam/Weir Design Engineer Experience**

<b>Name of Person:</b>					
<b>Qualifications:</b>					
<b>Professional Registration &amp; Registration number:</b>					
<b>APP (certificate)</b>					
<b>Design &amp; Implementation of weir/dam</b>					
<b><i>Project name</i></b>	<b><i>Roles &amp; Responsibilities (Designer, Lead designer etc.)</i></b>	<b><i>Duration of involvement in years</i></b>	<b><i>Project commencement &amp; Completion Date</i></b>	<b><i>Project Description</i></b>	<b><i>Contract Value (excl. VAT)</i></b>

- Pump Station Design Engineer

**Table D1.5: Pump Station Design Engineer Experience**

<b>Name of Person:</b>				
<b>Qualifications:</b>				
<b>Professional Registration &amp; Registration number:</b>				
<b>Design &amp; Implementation of Pump Stations (PS) of <math>\geq 1</math> MV</b>				
<b><i>Project name and Size of Pump Station</i></b>	<b><i>Roles &amp; Responsibilities (Designer, Lead designer etc.)</i></b>	<b><i>Duration of involvement in years</i></b>	<b><i>Project commencement &amp; Completion Date</i></b>	<b><i>Project Description</i></b>

- **Electrical Design Engineer**

**Table D1.6: Electrical Design Engineer Experience**

<b>Name of Person:</b>				
<b>Qualifications:</b>				
<b>Professional Registration &amp; Registration number:</b>				
<b>Design &amp; Installation of electrical control for Pump Stations (PS) of <math>\geq 1</math> MW</b>				
<b><i>Project name and Size of Pump Station</i></b>	<b><i>Roles &amp; Responsibilities (Designer, Lead designer etc.)</i></b>	<b><i>Duration of involvement in years</i></b>	<b><i>Project commencement &amp; Completion Date</i></b>	<b><i>Project Description</i></b>

- **Geotechnical Engineer**

**Table D1.7: Geotechnical Engineer Experience**

<b>Name of Person:</b>				
<b>Qualifications:</b>				
<b>Professional Registration &amp; registration number:</b>				
<b><i>Project name</i></b>	<b><i>Role and Responsibilities</i></b>	<b><i>Duration of involvement in years</i></b>	<b><i>Project commencement &amp; completion date</i></b>	<b><i>Project description</i></b>



- **Environmental Lead**

**Table D1.8: Environmental Lead Experience**

<b>Name of Person:</b>				
<b>Qualifications:</b>				
<b>Professional Registration &amp; registration number:</b>				
<b><i>Project name</i></b>	<b><i>Role and Responsibilities</i></b>	<b><i>Duration of involvement in years</i></b>	<b><i>Project commencement &amp; completion date</i></b>	<b><i>Project description</i></b>

**D1.1: KEY PERSONNEL (PERIOD OF INVOLVEMENT) AND ORGANOGRAM (TENDERER TO ATTACH DOCUMENTS)**

**THE TENDER MUST PROVIDE A FULLY RESOURCED ORGANOGRAM AS PART OF THIS SCHEDULE. THIS MUST INCLUDE ALL SUB-CONTRACTORS AND JOINT VENTURE MEMBERS, IF ANY.**

**Table: D1.1.1. Key Personnel (Level of involvement).**

Position	Name	Start of Period of BRVAS Involvement	Finish of Period of BRVAS Involvement	Total Man Months
*Chief Resident Engineer				
*Chief Design Engineer				
*Pipeline Design Engineer				
*Dam / Weir Design Engineer				
*Pumping Station Design Engineer				
*Electrical Design Engineer				
Geotechnical Engineer				
*Environmental Lead				
... **				
* The details of these Key Personnel are required for the evaluation of Tenders.				
** Tenderer may include other personnel deemed to be key, but which will not form part of the evaluation of Tenders				

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

**D1.2. CVS OF KEY PERSONNEL**

The information provided by Tenderers in the CVs will only be used by the Client to verify the information provided in the other relevant Schedules above. The Tenderer is responsible to ensure that all the relevant information is captured in the Schedules which will be used by the Client for the evaluation of tenders.

The curriculum vitae of the key personnel listed in Annexure D may be re-produced but shall be structured to follow the format below and, in the order, shown.

**Position in Annexure D:**

Name:

Profession:

Date of birth:

Parent firm:

Position in parent firm:

Years with parent firm:

Nationality: (Foreign Nationals to indicate the date when South African citizenship was acquired.)

Gender: Male / Female

Ethnic group: African / Coloured / Indian / White

**Tertiary Education (and year obtained):**

**Professional Accreditation and Registration (and year obtained):**

**Years of Relevant Experience:**

**Languages:** *If the first language is not English, please indicate proficiency in English. In other languages, including South African indigenous languages, please show speaking, reading and writing ability.*

LANGUAGE	SPEAKING	READING	WRITING
First Language:			
English			
Other:			

**COUNTRIES OF WORK EXPERIENCE:** .....

**PROPOSED POSITION ON THE TEAM:** .....

**KEY QUALIFICATIONS**

*Under this heading, give an outline of staff member’s experience, qualifications and training most pertinent to the assigned work on the team.*

**RELEVANT EXPERIENCE**

*Describe the position and degree of responsibility held by staff members on **relevant** previous assignments, and give dates, project names, client names, project construction values, locations, project extent, size and capacity. For experience in last twenty years, also give types of activities performed.*

**SUMMARY OF OTHER EXPERIENCE**

*Under this heading, list all positions held by staff members since graduation, giving dates, names of employing organisations, the title of position held and location, names, type and value of projects.*

**Declaration:**

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in Annexure D for Contract No. **012/2023/PMID/DESIGNS/RFB: FOR THE PROFESSIONAL SERVICE PROVIDER (PSP) FOR DETAIL DESIGN AND CONSTRUCTION SUPERVISION OF BRVAS PROJECT**

.....  
SIGNATURE OF STAFF MEMBER                      DATE

**ANNEXURE E: MANPOWER SCHEDULE**

Name of Personnel	Category	Position / Title	Task 1 – Tender Design and Documentation		Task 2 – Detailed Design		Task 3: Construction Supervision			Task 4: Assessment & Close-out		Task 5: Project Management								Task 6: Transformation							
			1.1 Engineering	1.2 Environment, Social and Land Acquisition	2.1 Engineering	2.2 Environment, Social	3.1 Engineering	3.2 Environment and Social	3.3 Commissioning	4.1 Engineering	4.2 Environment, Social	5.1 Integration Management	5.2 Scope Management	5.3 Time Management	5.4 Cost Management	5.5 Quality Management	5.6 Human Resource Management	5.7 Communications Management	5.8 Risk Management	5.9 Procurement Management	5.10 Stakeholder Management	6.1 Participation of Black-Owned Enterprises	6.2 Enterprise and Supplier Development	6.3 Employment: Participation of Black Professionals	6.4 Training and Skills Development: Black People	6.5 Monitoring and Reporting	6.6 Measurement and Payment
<b>Manco</b>																											
	H8	Member 1																									
		Member 2																									
		.....																									
<b>Engineering/Construction/Specialists</b>																											
	R11	Chief Design Engineer																									
		Dam Design Engineer																									
		Geotechnical Engineer																									
<b>Environment/Social/EAP/Specialists</b>																											
		Environmental Lead																									
		Social Monitor																									
		Ecologist																									
<b>Project Management</b>																											
		Chief Resident Engineer																									
		....																									

**ANNEXURE F: TAX COMPLIANCE STATUS PIN CERTIFICATES (TENDERER TO ATTACH DOCUMENTS)**

**ANNEXURE G: PROOF OF REGISTRATION ON THE NATIONAL TREASURY CENTRAL  
SUPPLIER DATABASE (TENDERER TO ATTACH DOCUMENTS)**

**ANNEXURE H: SANAS VERIFIED B-BBEE CERTIFICATE(S) OR SWORN AFFIDAVIT(S)  
(TENDERER TO ATTACH DOCUMENTS)**



**ANNEXURE I: JOINT VENTURE OR CONSORTIUM AGREEMENT OR MEMORANDUM OF UNDERSTANDING, IF ANY (TENDERER TO ATTACH DOCUMENTS)**

The Tenderer shall submit with his Tender full details, in the format indicated below of the Joint Venture or Consortium Agreement including:

1. The composition and structure (in writing and diagrammatically) of the organisation, including the roles to be taken by specialist suppliers and subcontractors.
2. In respect of each of the participating parties respectively:
  - a) Levels of financial commitment;
  - b) Degree of participation in the Joint Venture;
  - c) Duties and responsibilities in respect of the Works; and
3. Name and address of bankers to the Joint Venture.
4. Joint and several liability.

Number of sheets, appended by the Tenderer, comprising this Annexure.....(if nil, enter Nil)

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

*(of person authorised to sign on behalf of the Tenderer)*

**ANNEXURE J: FORM OF POWER OF ATTORNEY IN RESPECT OF TENDER BY JOINT VENTURE OR CONSORTIUM, IF ANY (TENDERER TO ATTACH DOCUMENTS)**

.....  
(Name of Tenderer – Joint Venture or Consortium)  
of .....  
(Address)

---

**Powers of Attorney**

The under-named:

_____	for Member A
(Name) (Signature)	
_____	for Member B
(Name) (Signature)	
_____	for Member C
(Name) (Signature)	
_____	for Member D
(Name) (Signature)	

*(Add additional authorised names and signatures as appropriate)*

have been duly and irrevocably authorised by Resolution (one notarially certified copy of each Resolution is attached hereto) of the respective Boards of Directors of the above Members to sign all deeds and documents for and to commit the respective Members concerning the Joint Venture or Consortium.

Signed for and on behalf of the Parties on this ..... day of ..... 20.....

at ..... (place)

_____	for Member A
(Name) (Signature) (Capacity)	
_____	for Member B
(Name) (Signature) (Capacity)	
_____	for Member C
(Name) (Signature) (Capacity)	
_____	for Member D
(Name) (Signature) (Capacity)	

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

**ANNEXURE K: FORM OF AUTHORITY FOR SIGNATORY (TENDERER TO ATTACH DOCUMENTS)**

Signatories for Companies, Partnerships or Close Corporations must establish their authority thereto by attaching a copy of the relevant resolution to that effect of their Board of Directors, Members or Partners duly signed and dated. An example is shown below for a Company. A similar authority must be included for the individual who is authorised by the Tenderer (Company, Joint Venture or Consortium) to sign the Tender documents on behalf of the Tenderer.

Example:

By resolution of the Board of Directors at a meeting on ..... 20.....

At .....

Mr/Ms.....

whose signature appears below, has been duly authorised to sign all documents in connection with this Tender for Contract No. **TENDER NO 012/2023/PMID/DESIGNS/RFB: DETAIL DESIGN AND CONSTRUCTION SUPERVISION CONTRACT FOR BERG RIVER VOËLVLEI DAM AUGMENTATION SCHEME**, and any **C**ontract which may arise therefrom, on behalf of (*company, block capitals*)

.....

**SIGNATURE OF RESPONSIBLE PERSON OF COMPANY:** .....

**IN HIS CAPACITY AS:** .....

**DATE:** .....

**SIGNATURE OF SIGNATORY AUTHORISED TO SIGN ON BEHALF OF COMPANY:**

.....

**WITNESSES:**

.....

*(NOTE: This is a typical example of an authority for signature. Signatures of both Responsible Person and **A**uthorised Signatory are required on the certificate provided by the Tenderer)*

**ANNEXURE L: FORM OF CONSTITUTION OF THE JOINT VENTURE OR CONSORTIUM IF ANY (TENDERER TO ATTACH DOCUMENTS)**

.....  
 (Name of Tenderer – Joint Venture or Consortium)

of .....  
 (Address)

**TO TCTA**

**Joint Venture or Consortium Members**

Member A .....	Member C .....
of .....	of .....
(Address)	.....(Address)
Member B .....	Member D .....
of .....	of .....
(Address)	(Address)

*(Add additional Member names and addresses as appropriate)*

It is hereby declared that by Resolution (one notarially certified copy of each Resolution is attached hereto) of the respective Boards of Directors of the above Members, such Members have entered into a Joint Venture or Consortium for the purpose of Contract No. **111/2022/PMID/BRVAS/RFB: PLANT AND DESIGN-BUILD CONTRACT FOR BERG RIVER-VOËLVLEI DAM AUGMENTATION SCHEME**. The Joint Venture or Consortium Agreement (or copy thereof, duly authenticated by a Notary Public) is attached hereto.

Signed for and on behalf of the Parties on this ..... day of ..... 20.....  
 At ..... (place)

_____	for Member A
(Name)                      (Signature)                      (Capacity)	
_____	for Member B
(Name)                      (Signature)                      (Capacity)	
_____	for Member C
(Name)                      (Signature)                      (Capacity)	
_____	for Member D
(Name)                      (Signature)                      (Capacity)	

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

**ANNEXURE M: FORM OF DECLARATION OF JOINT AND SEVERAL LIABILITY OF JOINT VENTURE OR CONSORTIUM MEMBERS, IF ANY.**

.....  
 (Name of Tenderer – Joint Venture or Consortium)

of .....  
 (Address)

**TO TCTA**

**Joint Venture or Consortium Members**

We,

Member A ..... Member C .....  
 of ..... of .....  
 (Address) (Address)

Member B ..... Member D .....  
 of ..... of .....  
 (Address) (Address)

*(Add additional Member names and addresses as appropriate)*

being parties to the Joint Venture or Consortium confirm our undertaking that if the Joint Venture or Consortium is awarded Contract No.

**TENDER NO 012/2023/PMID/DESIGNS/RFB: DETAIL DESIGN AND CONSTRUCTION SUPERVISION CONTRACT FOR BERG RIVER VOËLVLEI DAM AUGMENTATION SCHEME**, all members will be jointly and severally liable for the execution of Contract.

Signed for and on behalf of the Parties on this ..... day of ..... 20.....  
 At ..... (place)

\_\_\_\_\_ for Member A  
 (Name) (Signature) (Capacity)

\_\_\_\_\_ for Member B  
 (Name) (Signature) (Capacity)

\_\_\_\_\_ for Member C  
 (Name) (Signature) (Capacity)

\_\_\_\_\_ for Member D  
 (Name) (Signature) (Capacity)

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

## **ANNEXURE N: LETTER OF OFFER BY THE BIDDER**

The bidder must examine all the requirements stipulated in the RFB document for the execution of the Services, including any addenda relating to the Tender and provide a Letter of Offer as follows:

- Confirm in the letter that the bidder has examined the contents of the RFB document, including all the annexures and addenda (all addenda issued by TCTA to be listed).
- Confirm in the letter that the bidder has completed all the returnables/annexures and provided all the required documents.
- Acknowledge conformity with the conditions of the RFB in the letter.
- The letter must have the total price (including VAT and escalation in Rands) to execute and complete the Services.
- Acknowledge that the Summary of Cost Estimate (including Provisional Sum items entered by TCTA) forms part of the Letter of Offer (provide/attach the completed relevant annexure).
- Stipulate the validity date of the bid submission in the letter, considering the specified Bid Validity Period.
- Confirm in the letter that the bidder will provide the specified insurances, commence with the Services per the Commencement Date and complete the Services per the Time for Completion.
- The letter must acknowledge that until a formal Agreement is prepared, the executed Letter of Offer, together with TCTA written acceptance thereof, shall constitute a binding contract between the Parties.
- Confirm in the letter that the bidder has qualifications/conditions (if any). Such qualifications must be detailed separately and provided/attached with/to the bidder's Letter of Offer.
- The letter (with the abovementioned attachments) must be signed and dated by the person authorised to sign on behalf of the bidder.

## ANNEXURE O: SUMMARY OF COST ESTIMATE

Ref No	Cost Elements	Total (Rand)
<b>1.</b>	<b>Consultant's Staff Costs</b>	
	1. Tender Design and Documentation 2. Detailed Design 3. Construction Supervision 4. Assessment and Closeout 5. Project Management 6. Transformation	
2	<b>Subtotal Staff Costs</b>	
3	<b>Total Fixed Fee on 2 at _____%</b>	
<b>4.</b>	<b>Direct Costs</b>	
	1. Tender Design and Documentation 2. Detailed Design 3. Construction Supervision 4. Assessment and Closeout 5. Project Management 6. Transformation	
5	<b>Subtotal Direct Costs 4</b>	
<b>6.</b>	<b>Provisional Items entered by TCTA:</b>	
	Additional Studies (Engineering and Environmental)	R 8 500 000
7	<b>Subtotal of PS</b>	R 8 500 000
8	<b>Consultants' mark-up on 7 at _____%</b>	
<b>9.</b>		
	1. Adjudication Fees	R 1 000 000
10	<b>Subtotal of PS9</b>	R 1 000 000
11	<b>Subtotal Provisional Sums (7+8+10)</b>	
12	<b>TOTAL excluding Escalation (2+3+5+11)</b>	
13	Escalation	
14	<b>TOTAL including Escalation (12+13)</b>	
15	VAT @ 15% (of 14)	
16	<b>TOTAL COST ESTIMATE (14+15)</b>	

Number of sheets, appended by the bidder, comprising this table:.....(if nil, enter Nil)

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

**ANNEXURE P: SUMMARY OF STAFF COSTS**

Ref. No.	Task / Sub-Task No.	Description	Staff Time and Cost	
			Person months	Amount (R)
<b>1</b>	<b>Tender Design</b>			
	1.1	Engineering		
	1.2	Environment		
	<b>Sub-Total 1: (carry to Summary of Cost Estimate):</b>			
<b>2</b>	<b>Detailed Design</b>			
	2.1	Engineering		
	2.2	Environment		
	<b>Sub-Total .:(carry to Summary of Cost Estimate):</b>			
<b>3</b>	<b>Construction Monitoring</b>			
	3.1	Engineering		
	3.2	Environment		
	3.3	Health and Safety		
	3.4	Commissioning		
	<b>Sub-Total 3: (carry to Summary of Cost Estimate):</b>			
<b>4</b>	<b>Project Management</b>			
	<b>Sub-Total 4: (carry to Summary of Cost Estimate):</b>			
<b>5</b>	<b>Assessment &amp; Close-out</b>			
	5.1	Engineering		
	5.2	Environment		
	<b>Sub-Total 5: (carry to Summary of Cost Estimate):</b>			
<b>6</b>	<b>Transformation</b>			
	6.1.	Skills Training and Development (CIDB B.U.I.L.D Programme)		
	<b>Sub-Total 6: (carry to Summary of Cost Estimate):</b>			
<b>TOTAL STAFF COST (Sub-Totals 1+2+3+4+5+6) :</b>				

Number of sheets, appended by the bidder, comprising this table:.....(if nil, enter Nil)

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



**ANNEXURE Q: DETAILS OF STAFF COSTS**

Ref. No.	Cost Element			Person-months	Billing Rate	Amount
	Staff Category	Position or Title	Name			Consultant
e.g., H001	Level 11	PM	Tom	0.675	Value	Value
1.						
2.						
3.						
4.						
5.						
etc.						
<b>Task / Sub-Task Total (carry to Summary of Staff Costs)</b>						

Number of sheets, appended by the bidder, comprising this table:.....(if nil, enter Nil)

SIGNATURE: ..... DATE: .....  
*(of person authorised to sign on behalf of the bidder)*

**ANNEXURE R: STAFF BILLING RATES**

The bidder should provide the data below for each personnel.

- All positions should be indicated, and all personnel' names should be provided.
- Mark-up factors brought forward from “Personnel Mark-up Factors”.
- Carry billing rates to “Personnel Costs”.
- The period applicable to the billing rates is one calendar month.
- Salary = Cost-To-Company Remuneration.

Average Cost-To-Company		Staff in Home Office			Staff Resident on-site		
Annual	Monthly	Category	Mark-up	Rate	Category	Mark-up	Rate
		H1			R1		
		H2			R2		
		H3			R3		
		H4			R4		
		H5			R5		
		H6			R6		
		H7			R7		
		H8			R8		
		H9			R9		
		H10			R10		
		H11			R11		
		H12			R12		
		H13			R13		

Number of sheets, appended by the bidder, comprising this table:.....(if nil, enter Nil)

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

**ANNEXURE S: STAFF MARK-UP FACTOR**

- The following markup factors (multipliers) are to be provided.
- Carry total mark-up factors to “Personnel Billing Rates”.

Ref No	Staff Category	Mark-up Factor (Multiplier) %
<b>1</b>	<b>Staff in home office</b>	
1.1	Cost-to-company remuneration	100
1.2	Overtime	
1.3	Company overhead	
1.4	Support Staff	
1.5	Other (to be detailed by the Consultant)	
	<b>TOTAL, as % of remuneration cost</b>	
<b>2</b>	<b>Staff resident on-site</b>	
2.1	Cost-to-company remuneration	100
2.2	Overtime	
2.3	Company overhead	
2.4	Support Staff	
2.5	Other (to be detailed by the Consultant)	
	<b>TOTAL, as % of remuneration cost</b>	

Number of sheets, appended by the bidder, comprising this table:.....(if nil, enter Nil)

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

**ANNEXURE T: SUMMARY OF DIRECTLY REIMBURSABLE COSTS**

- The Consultant shall provide an estimate of his directly reimbursable costs, supported by fully detailed worksheets on separate pages.
- Each worksheet shall correspond to one item on this Summary Schedule.
- The Consultant shall add other items, as he deems necessary.

No.	ITEM	TASK							TOTAL
		1	2	3	4	5	6	7	
1	International travel								
2	Local travel								
3	Staff relocations								
4	Per diem (nights away from home office)								
5	Monthly allowances for resident staff								
6	Cost of maintenance of equipment								
7	Consumable Materials / Supplies / Stationery / Paper, etc.								
8	Temporary office/staff accommodation								
9	Insurances								
10	Administrative handling charges								
11	Estimate of dues and charges								
12	Utility charges								
13	Vehicles for resident staff (supply, operation and maintenance)								
14	Office furniture for field office								
15	Office equipment (computers; hard & software & licensing, PABX, printers, copiers etc. for field inspections								
16	Test equipment and consumables								
17	Telecommunication cost – on-site								
18	Personal protective equipment								
19	Hand tools, torches and the like								
20	Resident staff accommodation								
	<b>Total (carry to Summary Cost of Estimate)</b>								

Number of sheets, appended by the bidder, comprising this table:.....(if nil, enter Nil)

SIGNATURE: ..... DATE: .....  
*(of person authorised to sign on behalf of the bidder)*

## **ANNEXURE U: CASH FLOW**

- (i) Using his programme and person-month schedule and his estimate of costs, the Consultant should provide here an estimated cash flow by month for the duration of his services, showing the following information:
- gross staff costs
  - net invoiced amounts for staff costs
  - fee
  - reimbursable costs
  - total invoiced amounts, by month
  - appropriate allowances for Provisional Sums and Contingencies as approved by the Client
- (ii) The cash flow should include escalation separately.

**ANNEXURE V: TRANSFORMATION PROPOSAL**

The Tenderer is required to submit with his Tender by way of these tables, information and details relating to the transformation targets as listed therein.

Should the space available on any of the Tables be inadequate, the Tenderer shall append such supplementary tables as he deems necessary to comply with the Tender requirements. Each supplementary sheet shall display “Contract No. **012/2023/PMID/DESIGNS/RFB**” and shall be properly cross-referenced and firmly appended to the relevant Annexure or otherwise included such that they will not inadvertently be detached from the Tender. A complete contents list of all supplementary sheets, including those that may be attached to the Annexure, shall be provided by the Tenderer. References given are for guidance only and not necessarily exclusive of other pertinent information in the Tender Documents. Each page of each Annexure, including any supplementary tables, shall be signed by the Tenderer.

The information provided in this Annexure will be used in the Contract and is material to the assessment of how well the Tenderer has complied with the requirements of the Tender.

**(i) PARTICIPATION OF BLACK-OWNED ENTERPRISES**

The Tenderer must complete the table below to reflect the total staff anticipated on this Contract, including all personnel employed by Sub-consultants. The Tenderer shall take into account, as a minimum, details under Section 2.6 (Sub-Task 6.1): Transformation Specification.

**Table V1-1: Participation of Black-Owned Enterprises**

Name of Black-Owned Entity	% Ownership	% involvement in the scope of service	% in JV partnership **

\*\*ONLY WHERE TENDER SUBMITTED BY A JOINT VENTURE

Attach the BBBEE certificate of JV where applicable

Number of sheets, appended by the Tenderer, comprising this Table:.....(if nil, enter Nil)

SIGNATURE: .....

DATE:

.....

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

**(ii) EMPLOYMENT: PARTICIPATION OF BLACK PROFESSIONAL PEOPLE WITHIN THE BUILT-ENVIRONMENT SECTOR**

The Tenderer must complete the table below to reflect the total staff anticipated on this Contract, including all personnel employed by Sub-consultants. The Tenderer shall take into account, as a minimum, details under 2.6 (Sub-Task 6.2): Transformation Specification..

**Table V1-2: Employment: Participation of Black Professional People (BPP) Person-Months**

Category	Total Person-Months	BPP Person-Months		Female HDI Person-Months		Youth Person-Months	
		No.	%	No.	%	No.	%
MANCO							
Internal Review panel							
Specialist							
Engineering							
Environment and Social							
Project Management							

Number of sheets, appended by the Tenderer, comprising this Table:.....(if nil, enter Nil)

SIGNATURE: .....

DATE: .....

*(of person authorised to sign on behalf of the Tenderer)*

**TRAINING AND SKILLS DEVELOPMENT**

The Tenderer must complete the table below to reflect the internship committed to this Contract, including all personnel employed by Sub-consultants. The Tenderer shall take into account, as a minimum, details under 2.6: (Sub-Task 6.3): Training and Skills Development

**Table V1-3-1 CIDB B.U.I.L.D Programme Skills Development**

Training intervention	Total No. of beneficiaries

**Table V1-3-2 Training Cost**

Training intervention	Total cost allocated

Number of sheets, appended by the Tenderer, comprising this Table:.....(if nil, enter Nil)

SIGNATURE: .....

DATE:

.....

*(of person authorised to sign on behalf of the Tenderer)*



## **ANNEXURE W: PROGRAMME AND CHARTS**

For planning, executing and managing the Services, the bidder must break down the Services into appropriate tasks and sub-tasks. The Scope of Services (Agreement: Appendix 1) contains a description of the tasks and sub-tasks considered necessary by TCTA.

The bidder must consider the above and provide Gantt chart as per Time Schedule for Services (Agreement: Appendix 4)

.

## ANNEXURE X: REQUEST FOR BID (FORM SBD 1)

### PART A: REQUEST FOR BID

<b>YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF TCTA</b>					
BID NUMBER:	012/2023/PMID/DESIGNS/RFB	CLOSING DATE:		CLOSING TIME:	
DESCRIPTION	DETAIL DESIGN AND CONSTRUCTION SUPERVISION PROFESSIONAL SERVICE PROVIDER: BERG RIVER-VOËLVLEI DAM AUGMENTATION SCHEME (BRVAS)				
<b>BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)</b>					
Building 9, Byls Bridge Office Park, Olievenhoutbosch Rd, Centurion, 0157					
<b>BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO</b>			<b>TECHNICAL ENQUIRIES MAY BE DIRECTED TO:</b>		
CONTACT PERSON	Colbert Makhubele		CONTACT PERSON	Colbert Makhubele	
TELEPHONE NUMBER			TELEPHONE NUMBER		
FACSIMILE NUMBER			FACSIMILE NUMBER		
E-MAIL ADDRESS	Tenders04@tcta.co.za		E-MAIL ADDRESS	Tenders04@tcta.co.za	
<b>SUPPLIER INFORMATION</b>					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] <input type="checkbox"/> Yes <input type="checkbox"/> No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	[TICK APPLICABLE BOX] <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES &amp; QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]</b>					
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 ]	
<b>QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS</b>					
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		
<b>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.</b>					

**PART B: TERMS AND CONDITIONS FOR BIDDING**

<b>1. BID SUBMISSION:</b>
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. <b>ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.</b>
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. <b>THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).</b>
<b>2. TAX COMPLIANCE REQUIREMENTS</b>
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: .....

**ANNEXURE Y: BIDDERS DISCLOSURE (FORM SBD4)**

**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 interest<sup>1</sup> in the enterprise, employed by the state? **YES/NO**

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

Full Name	Identity Number	Name of State institution

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

2.2.1 If so, furnish the following 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?

2.3.1 If so, furnish the following particulars:

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

**3. DECLARATION**

I, the undersigned, (name)..... in

<sup>1</sup> 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.

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 consortium<sup>2</sup> will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.5 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.6 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.7 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

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

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

.....  
Signature

.....  
Date

.....  
Position

.....  
Name of bidder

<sup>2</sup> 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.

## ANNEXURE Z: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATION 2022 (FORM SBD 6.1)

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

**NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE 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 The applicable preference point system for this tender is the 90/10 preference point system.

1.3 Points for this tender 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
<b>Total points for Price and SPECIFIC GOALS</b>	<b>100</b>

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 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 90/10 PREFERENCE POINT SYSTEMS

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

**90/10**

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

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

#### 3.2.1. POINTS AWARDED FOR PRICE

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

**90/10**

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

Where

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

**4. POINTS AWARDED FOR SPECIFIC GOALS**

4.1. In terms of Regulations 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:

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

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
BBBEE Contributor Level 1	10	N/A	.....	N/A
BBBEE Contributor Level 2	9			
BBBEE Contributor Level 3	6			
BBBEE Contributor Level 4	5			
BBBEE Contributor Level 5	4			
BBBEE Contributor Level 6	3			
BBBEE Contributor Level 7	2			
BBBEE Contributor Level 8	1			
Non-compliant contributor	0			

**DECLARATION WITH REGARD TO COMPANY/FIRM**

4.2. Name of company/firm.....

4.3. Company registration number: .....

4.4. TYPE OF COMPANY/ FIRM

[TICK APPLICABLE BOX]

- Partnership/Joint Venture / Consortium
- One-person business/sole propriety



- Close corporation
- Public Company
- Personal Liability Company (Pty) Limited
- Non-Profit Company
- State Owned Company

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
  - (a) disqualify the person from the tendering process;
  - (b) recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;
  - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
  - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years after the *audi alteram partem* (hear the other side) rule has been applied; and
  - (e) forward the matter for criminal prosecution, if deemed necessary.

<b>SIGNATURE(S) OF TENDERER(S)</b>	
<b>SURNAME AND NAME:</b>	.....
<b>DATE:</b>	.....
<b>ADDRESS:</b>	.....
	.....
	.....
	.....

**ANNEXURE AA: CERTIFICATE OF ATTENDANCE AT THE TENDER BRIEFING AND SITE INSPECTION**

This is to certify that I/We (Names)

.....  
.....

being the representative(s) of (Name of Tenderer)

.....  
.....

of (address)

.....  
.....

Telephone No. .... Email Address: .....

Cell phone No. ....

Attended the Clarification Meeting (Stage 1) on (date).....  
in the company of the Engineer (Name of person):

.....  
and the Employer (Name of person):  
.....

Signed on behalf of the Tenderer .....

Signed on behalf of the TCTA .....

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

**ANNEXURE BB: RECORD OF ADDENDA**

I / We confirm that the following communications amending the tender documents received from the Employer or his representative before the closing date for submission of this tender offer have been taken into account in the tender.

ADDENDUM NO.	DATE	TITLE AND DETAILS

SIGNATURE ..... DATE: \_\_\_\_\_  
*(of person authorised to sign on behalf of the Tenderer)*

**ANNEXURE CC: AGREEMENT FORM AND APPENDICES AND THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT**

**AGREEMENT FORM**

**FORM OF AGREEMENT**

**This Agreement** made on this day of \_\_\_\_\_ day of \_\_\_\_\_ 2024

between **Trans-Caledon Tunnel Authority (“TCTA”)** of 1st Floor, Building No. 9, Byls Bridge Office Park, 11 Byls Bridge Boulevard, Highveld, Centurion

(hereinafter called “the Client”) of the one part

and

---

of \_\_\_\_\_ (hereinafter called “the Consultant”) of the other part.

**Whereas** the Client desires that certain Services should be performed by the Consultant, namely.

**CONTRACT No. 012/2023/PMID/DESIGNS/RFB FOR THE PSP FOR DETAIL DESIGN AND IMPLEMENTATION OF BERG RIVER-VOELVLEI AUGMENTATION SCHEME PROJECT (BRVAS) PROJECT**

and has accepted a Proposal by the Consultant for the performance of such Services,

**Now this Agreement witnesses as follows:**

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of the Client/Consultant Model Services Agreement hereinafter referred to.
2. The following documents shall be solely deemed to form and read and be construed as part of the agreement and are listed in their order of precedence:
  - (i) This Agreement
  - (ii) Letter of offer by the Consultant
  - (iii) The Letter of Acceptance by TCTA

- (iv) The Memorandum of Understanding entered into between Client and Consultant on the insert date.
  - (v) Appendices follows:
    - Appendix 1: Scope of Services
    - Appendix 2: Personnel, Equipment, Facilities and Services of Others to be Provided by the Client
    - Appendix 3: Remuneration and Payment
    - Appendix 4: Time Schedule for Services
    - Appendix 5: Consultant’s Health and Safety Specification
3. In consideration of the payments to be made by the Client to the Consultant as hereinafter mentioned, the Consultant hereby agrees with the Client to perform the Services in conformity with the provisions of the Agreement.
4. The Client hereby agrees to pay the Consultant in consideration of the performance of the Services such amounts as may become payable under the provisions of the Agreement at times and in the manner prescribed by the Agreement.

**In witness** whereof the parties hereto have caused this Agreement to be executed in the presence of the subscribing witnesses on the date written above:

Authorised signature of the Client:

\_\_\_\_\_  
**TCTA CHIEF EXECUTIVE OFFICER**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
 Signature of Witness

Authorised signature of the Consultant

\_\_\_\_\_  
**NAME**  
**POSITION**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
 Signature of Witness

## **GENERAL CONDITIONS OF CONTRACT**

The Conditions of Contract applicable to this Contract is the “Condition of contract Fédération Internationale des Ingénieurs-Conseils (FIDIC) Client / Consultant Model Services Agreement (Fourth Edition, 2006)”. The General Conditions of Contract shall be those as stipulated in the FIDIC and the “Particular Conditions”, which include amendments and additions to the General Conditions.

The Tenderer shall obtain his own copy for reference. Consulting Engineers South Africa (CESA) is the distribution agent for the sale of FIDIC publications in South Africa. The contact details for CESA are as follows:

Tel: 011 463 2022

e-mail: [general@cesa.co.za](mailto:general@cesa.co.za)

## **PARTICULAR CONDITIONS OF CONTRACT**

The amendments to the General Conditions of Contract shall amplify, modify or supersede, as the case may be, FIDIC Conditions of Contract for the Client/Consultant Model Services Agreement to the extent specified below, and shall take precedence and shall govern. These Particular Conditions of Contract form an integral part of the Contract.

The sub-clauses of the Particular Conditions of Contract hereafter are numbered by the number of the applicable sub-clause in the FIDIC Conditions of Contract for the Client/Consultant Model Services Agreement, and the applicable heading, or where a new condition that has no relation to the existing clauses is introduced, by a number that follows after the last clause number in the FIDIC Conditions of Contract and an appropriate heading.

### **A. REFERENCE FROM CLAUSES IN THE GENERAL CONDITIONS:**

#### **1.1 DEFINITIONS**

1.1.2 The Project is the Berg River-Voëlsvlei Augmentation Scheme (BRVAS) in the Republic of South Africa.

1.1.10 Commencement date is 29 March 2024.

1.1.11 Time for completion is 38 months.

#### **1.3 COMMUNICATION**

The language of communication is English.

#### **1.4 LAW AND LANGUAGE**

The language of the Agreement is English.

The ruling language of the Agreement is English.

This Agreement shall be governed by and construed in accordance with the laws of the Republic of South Africa.

## 1.8 NOTICES

### **Client:**

Postal address

The Chief Executive Officer

TCTA

PO Box 10335

CENTURION

0046

Telephone 012 683 1200

e-mail [info@tcta.co.za](mailto:info@tcta.co.za)

Domicilium Executandi

1st Floor, Building No. 9,

Byls Bridge Office Park,

11 Byls Bridge Boulevard,

Highveld

CENTURION 0157

### **Consultant:**

Postal address

Domicilium Executandi

## 1.9 PUBLICATION

Publications shall be subject to approval by the Client if it is within five years of completion of termination of the Services.

## 5.2 TIME FOR PAYMENT

Payments shall be made within 30 days of receiving an approved invoice. Foreign currency payments are not applicable. The Agreed Compensation for overdue payment shall be the prime bank interest rate of the major South African banks, compounded monthly.

## 6.2 DURATION OF LIABILITY

The duration of liability is 10 years to be reckoned from the date of completion of Services.



### **6.3.1 LIMIT OF COMPENSATION**

The limit of compensation is R 50 000 000.00 (fifty million rands)

### **8.3 ARBITRATION**

Rules for arbitration are by the Association of Arbitrators (Southern Africa).

Each Party agrees to waive its rights to any form of appeal, insofar as such waiver can validly be made. The arbitration shall be conducted by a single arbitrator. In the absence of agreement between the parties on the appointment of the arbitrator, the arbitrator shall be nominated by the chairperson of the Association of Arbitrators (Southern Africa)

## **B. ADDITIONAL CLAUSES**

### **1.1. DEFINITIONS**

#### **1.1.1 Agreement**

In this document, the terms Agreement and Contract are used interchangeably when referring to this Agreement.

The Proposal forms part of the Agreement as it has been rewritten to be one mutually consistent document presented in the Appendices.

1.1.16 "person-month" means a period of 22 working days in a month.

1.1.18 "Force Majeure Event" means an event or circumstance:

1. which is beyond a Party's control;
2. which such Party could not reasonably have provided against before entering into the Agreement;
3. which, having arisen, such Party could not reasonably have avoided or overcome;  
and
4. which is not substantially attributable to the other Party.
5. A Force Majeure Event may include, but is not limited to, events or circumstances of the kind listed below, subject to clauses 1.1.18.1 to 1.1.18.4 above:
  - a. acts of God;
  - b. war, hostilities (whether war be declared or not), invasion, acts of foreign enemies;
  - c. rebellion, terrorism, revolution, insurrection, military or usurped power or civil war;
  - d. riot, commotion, disorder, strike or lockout by persons other than the Consultant's personnel and other employees of the Consultant and Consultant's sub-consultants;
  - e. munitions of war, explosive materials, ionising radiation or contamination by radio-activity except as may be attributable to the Consultant's actions;
  - f. natural catastrophes such as epidemics, earthquakes, hurricanes, typhoons or volcanic activity;

- g. acts or omissions by governments (central, federal, regional, provincial, local, municipal) and state organs or public authorities or legislation promulgated by such governments (central, federal, regional, provincial, local, municipal) and state organs or public authorities resulting in an economic lockdown and/or restricts business operations and/or restricts movement between provinces and/or restricts import and/or export;
- h. and anything else that may reasonably be outside the control of a Party.

## **2.1 INFORMATION**

Delete and replace with:

The Client shall, following the request from the Consultant, provide within a reasonable time the information as set out in Appendices 1, 2, 3 or 4, or as otherwise requested by the Consultant.

## **2.4 CLIENT'S FINANCIAL ARRANGEMENTS**

Delete in its entirety.

## **3.3 DUTY OF CARE AND EXERCISE OF AUTHORITY**

**Add sub-clause 3.3.3:**

- 3.3.3 The members of the Joint Venture accept joint and several liability for the work that forms the subject of this Agreement. The acceptance is certified by the signatures of the duly authorised representatives of the members on the A6.

## **3.5. SUPPLY OF PERSONNEL**

Delete sub-clause 3.5.1 and replace with:

"The obligations of the Consultant to supply personnel are set out in its proposal to perform the Services, including the Consultant's schedules and appendices to the Agreement."

Add a new sub-clause 3.5.2:

- 3.5.2 Any eventual Agreement with the Consultant will contain the following conditions:
  - a. The duration of individual assignments and the total person-months shown on the chart(s) are reasonable estimates based on the anticipated implementation programme.
  - b. The Consultant agrees to retain qualified staff for as long as it takes to complete all the specified work within the Contract period or as extended as a result of delays to the construction contracts that the Services relate to.
  - c. The Consultant will not be entitled to assign and charge for additional personnel, nor charge person-months in excess of those proposed for any position, without the prior approval of the Client.

### **3.6. REPRESENTATIVES**

Delete sub-clauses 3.6.1 and 3.6.2 and replace with:

- a. The representative of the Client shall be the Project Manager of the Trans-Caledon Tunnel Authority. The Trans-Caledon Tunnel Authority is generally referred to as "TCTA."
- b. The representative of the Consultant shall be ... insert details ...

### **3.7.1 CHANGES IN PERSONNEL**

Add the following words to the end of the existing first paragraph:

"...and shall be to the approval of the other party/Client, which approval shall not be unreasonably withheld."

### **4.1.1 AGREEMENT EFFECTIVE**

Delete and replace with:

"Contract No. TCTA 012-2023 shall be deemed to be concluded on the date of signature of the Agreement and this Addendum to the Agreement by the last signing Party thereto and shall come into full force with effect from the date that the Letter of Acceptance issued by the Client to the Consultant, becomes unconditional.

Notwithstanding the issue of the Letter of Acceptance by the Client, its coming into force will be suspended until the conclusion and signature of the Agreement, the Addendum to the Agreement and the Memorandum of Understanding (inclusive of all annexures and/or appendices thereto in accordance with the negotiations between the Parties).

For the avoidance of doubt, the Agreement, this Addendum to the Agreement, the Memorandum of Understanding and the Letter of Acceptance form an essential part of Contract No. TCTA 012-2023 between the Parties, nothing at all excepted.

### **4.2.1 COMMENCEMENT AND COMPLETION**

Delete and replace with:

The date of commencement of the Agreement is the date on which the Letter of Acceptance issued by the Client to the Consultant becomes unconditional as contemplated in Sub-Clause 4.1.1, and once the Contract comes into force, the Services shall be completed within 38 months from the date of commencement or within such other period as may be recorded in writing in terms of the Contract.

### **4.4 DELAYS**

Add sub-clause 4.4.2:

- 4.4.2 "No extension to the Time for Completion or any additional payment relating to the increase in the ceiling amounts or Additional Services will be made unless the Consultant has submitted a fully motivated and detailed written application and the Client has approved such variations in writing."

## 4.5 CHANGED CIRCUMSTANCES

Delete and replace with:

- 4.5.1 “If a party is prevented from performing any of its obligations under the Agreement by, or due to, a Force Majeure Event then it shall give Notice to the other Party providing a description of the Force Majeure Event together with an assessment of its effects on the Party’s ability to comply with its obligations under the Agreement.
- 4.5.2 Notice shall be given within fourteen (14) days from when the Party becomes aware, or should reasonably have become aware, of the event or circumstance constituting a Force Majeure Event.
- 4.5.3 The Party, having given Notice, shall be excused from the performance of such obligation for so long as the effects of the Force Majeure Event prevent such performance.
- 4.5.4 Where a Force Majeure Event gives rise to an unavoidable change in the scope of Services, then the Client shall issue a Variation to the Services in accordance with Clause 4.3 [Variations].
- 4.5.5 Where a Force Majeure Event gives rise to a delay in the completion of the Services, then the Consultant shall be entitled to an extension of the Time for Completion until the Force Majeure Event no longer applies plus a reasonable period not exceeding 42 days for resumption of them; and if the speed of performing certain Services has to be reduced, the time for their completion shall be extended as may be made necessary by the circumstances.

Notwithstanding any other provision of this Clause, the obligations of either Party to make payments to the other Party under the Agreement shall not be excused by a Force Majeure Event.

## 4.7 CORRUPTION AND FRAUD

Add sub-clause 4.7.2 as follows:

- 4.7.2. The warranty given by the Consultant herein includes the conduct of the following persons:-
  - a. The Consultant and its directors, employees, shareholders or partners where the conduct of such persons would render the Consultant directly and vicariously responsible and/or
  - b. The Consultant’s joint venture member(s) and its/their directors, employees, shareholders or partners where the conduct of such persons would render the Contractor directly and vicariously responsible;
  - c. Any agent of the Consultant, its joint venture member(s) or partners.
- 4.7.3 The Consultant warrants that it and/or any of the persons referred to in Sub-Clause 4.7.2 above:
  - a. have not been convicted of any charge relating to or concerning corruption, bribery or fraud during the ten-year period preceding the Base Date and not having disclosed same in Annexure 2;
  - b. have not committed any act in the ten-year period preceding the Base Date which could result in it and/or any of the persons referred to in Sub-Clause 40 (iii) 1 above being convicted on a charge relating to or concerning corruption, bribery or fraud;

- c. in relation to the Contract has not offered and/or paid (directly or indirectly) by way of a bribe, gift, gratuity, commission or another thing of value, an inducement or reward to enter into or influence the conclusion of the Contract;
- d. will not commit any act which could result in it and/or any of the persons referred to in Sub-Clause 40 (iii) 1 above being convicted on a charge relating to or concerning corruption, bribery or fraud; and
- e. will not offer and/or pay (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as a reward or inducement to maintain or alter the Contract and/or for doing or forbearing to do any action in relation to the Contract and/or for showing or forbearing to show favour or disfavour to any person in relation to the Contract.

4.7.4 In addition to any right which the Client may have to cancel, in the event of the Consultant and/or any of the persons referred to in Sub-Clause 40 (iii) 1 above having been convicted on a charge relating to or concerning corruption, bribery or fraud during the ten-year period preceding the Base Date and not having disclosed same in terms of Annexure 2 as contemplated in Sub-Clause 40 (iii).2 or being convicted on a charge relating to or concerning corruption, bribery or fraud or in the event of the Consultant and/or any of the persons referred to in Sub-Clause 40 (iii).1 above giving or offering to any person any bribe, gratuity, commission or another thing of value as contemplated in Sub-Clause 40 (iii).2 or in the event of the Consultant and/or any of the persons referred to in Sub-Clause 40 (iii).1 above, having offered or paid a reward to any person as an inducement to enter into or maintain or alter the contract as contemplated in Sub-Clause 40 (iii)2:

- a. The Consultant shall forfeit the fee from this contract;
- b. The Consultant will make payment thereof on demand; and
- c. The Client shall be entitled to deduct such an amount from any amount which is due or may become due and payable to the Consultant whether arising from this Agreement or any other contract between the Client and the Consultant.

4.7.5 In the event of the Consultant, its agents or servants and/or its Joint Venture member(s) its/their agents or servants having failed to make a complete, full and honest disclosure of the facts in Annexures 2 regardless of whether or not the conviction has been appealed against or there is an intention to do so, the Client shall be entitled, at its sole election, to terminate or cancel the Contract immediately without giving notice and, in which event, Clause 27 shall apply *mutatis mutandis*.

4.7.6 In the event of the Consultant and/or any of the persons referred to in Sub-Clause 40(iii)1 offering and/or paying (directly or indirectly) by way of a bribe, gift, gratuity, commission or another thing of value, as an inducement or reward to enter into, maintain or alter the Contract, the Client shall be entitled, at its sole election, to cancel the Contract immediately without giving notice and, in which event, Clause 27 shall apply *mutatis mutandis*.

## 4.8 EXCEPTIONAL SERVICES

Add sub-clause 4.8.3:

- 4.8.3 “No extension to the Time for Completion or any additional payment relating to the Exceptional Services will be made unless the Consultant has submitted a fully motivated and detailed written application and the Client has approved such amounts and Exceptional Services in writing.”

## 6.4 INDEMNITY

“Add sub-clause 6.4.2:

- 6.4.2 Occupational Health and Safety Act indemnity:

The Consultant recognises the inherent construction and other hazards that exist on the Client’s construction site and in terms of Section 37(2) of the Occupational Health and Safety Act 85 of 1993, as amended, the Consultant:

- i. acknowledges that it, its employees, agents and/or contractors enter the construction site entirely at their own risk;
- ii. will take all steps necessary to ensure that it, its employees, agents and/or contractors comply with the provisions of the Occupational Health and Safety Act and any site rules/regulations put in place by it to ensure the health, safety and well-being of any party entering on site;
- iii. agrees to indemnify and hold harmless the Client against any and all claims in respect of any loss, damage, injury and/or death arising that may be sustained by it, its employees, agents and/or contractors, arising out of the performance of the Services.

## 7.1 INSURANCE FOR LIABILITY AND INDEMNITY

Delete the clause and replace it with:

- 7.1.1 Insurance to be taken out by the Consultant shall comprise the following:**

**(a) Professional Indemnity Insurance**

The Consultant shall provide Professional Indemnity insurance against liability under Sub-Clause 6.1 (Liability and Compensation between the Parties) in respect of the Services with a limit of indemnity of R 10 000 000 (Ten million Rand) for any one occurrence and R 50 000 000 (Fifty million Rand) in the aggregate for the period of insurance. The period of insurance shall be from the commencement date of the Services to the end of the duration of liability stated in Clause 6.2 (duration of liability).

The Consultant shall be responsible for any policy deductible for each and every occurrence.

**(b) Motor Vehicle Insurance**

In addition to any compulsory insurance required in terms of legislation, provide comprehensive motor insurance including passenger liability and unauthorised passenger liability with a minimum limit of indemnity of not less than R5 000 000 (five million rands) for any one occurrence.

**(c) General Public Liability Insurance**

General Public Liability insurance is to be maintained for the duration of liability referred to in Clause 6.2 with a minimum limit of indemnity of not less than R10 000 000 (ten million rands) for any one occurrence.

**(d) Other Insurance**

Insurance against loss or damage to:-

- i) equipment and materials purchased by the Consultant in whole or in part with funds provided under this Agreement, or equipment and materials supplied under a Construction Contract, while in possession of the Consultant, to their full replacement value,
- ii) the Consultant's property used in the performance of the Services,
- iii) all documents prepared by the Consultant in the performance of the Services.

**7.1.2 Insurance to be taken out by the Client shall comprise the following:**

**(a) Contractor's Public Liability Insurance**

Insurance against Contractor's Public Liability in respect of the Project for the duration of the construction Contracts (to the end of the defects liability periods) with a limit of indemnity of R50 000 000 (fifty million rands) for any one occurrence / unlimited for the period of insurance. The policy shall name the Consultant as a co-insured party for their on-site project activities.

The policy deductible for which the Consultant shall be responsible shall be:

- i) in respect of loss or damage the first R 50 000 (one hundred thousand rands)

**8.1 AMICABLE DISPUTE RESOLUTION**

Replace "mediation" with "adjudication" at the end of the paragraph.

**8.2. ADJUDICATION**

Delete Clause and replace with:

Unless settled amicably any dispute or difference which arises between the Consultant and the Client out of or in connection with the Contract, including any valuation or other decision of the Client, shall be referred by either Party to adjudication in accordance with the rules set out in sub-clauses 8.2.1 to 8.2.6 below. The adjudicator shall be any person agreed by the Parties. In the event of disagreement, the adjudicator shall be appointed in accordance with the rules.

**Rules for Adjudication**

**8.2.1 General**

- a) Any reference in the Conditions of Contract to the rules for Adjudication shall be deemed to be a reference to these rules.
- b) Definitions in the Contract shall apply to these rules.

### **8.2.2 Appointment of Adjudicator**

- a) The Parties shall jointly ensure the appointment of the Adjudicator. The Adjudicator shall be a suitably qualified person.
- b) If for any reason the appointment of the Adjudicator is not agreed at the latest within 14 days of the reference of a dispute in accordance with these Rules, then either Party may apply, with a copy of the application to the other Party, to the chairperson for the time being of the Association of Arbitrators (Southern Africa), to appoint an Adjudicator, and such appointment shall be final and conclusive.
- c) The Adjudicator's appointment may be terminated by mutual agreement of the Parties. The Adjudicator's appointment shall expire when the Services have been completed or when any disputes referred to the Adjudicator shall have been withdrawn or decided, whichever is the latter.

### **8.2.3 Terms of Appointment**

- a) The Adjudicator is to be, and is to remain throughout his appointment, impartial and independent of the Parties and shall immediately disclose in writing to the Parties anything of which they become aware that could affect their impartiality or independence.
- b) The Adjudicator shall not give advice to the Parties or their representatives concerning the conduct of the Services other than in accordance with these rules.
- c) The Adjudicator shall not be called as a witness by the Parties to give evidence concerning any dispute in connection with, or arising out of, the Agreement.
- d) The Adjudicator shall treat the details of the Agreement and all activities and hearings of the Adjudicator as confidential and shall not disclose the same without the prior written consent of the Parties. The Adjudicator shall not without the consent of the Parties, assign or delegate any of his work under these rules or engage in legal or technical assistance.
- e) The Adjudicator may resign by giving 28 days' notice to the Parties, In the event of resignation, death or incapacity, termination or a failure or refusal to perform the duties of the Adjudicator under these rules, the Parties shall agree upon a replacement Adjudicator within 14 days or paragraph 8.2.1 (b) shall apply.
- f) The Adjudicator shall in no circumstances be liable for any claims for anything done or omitted in the discharge of the Adjudicator's duties, unless the act or omission is shown to have been in bad faith.
- g) If the Adjudicator shall knowingly breach any of the provisions of paragraph 8.2.2 (f) above or act in bad faith, he shall not be entitled to any fees or expenses hereunder and shall reimburse each of the Parties for any fees and expenses properly paid to him if, as a consequence of such breach any proceedings or decisions of the Adjudicator are rendered void or ineffective.

### **8.2.4 Payment**

- a) The Adjudicator shall be paid the fees and expenses set out in the Adjudicator's Agreement.
- b) The retainer fee, if applicable, shall be payment in full for:
  - i. being available, on 28 days' notice, for all hearings and site visits;
  - ii. all office overhead expenses such as secretarial services, photocopying and



office supplies incurred in connection with his duties;

- iii. all services performed hereunder except those performed during the days referred to in paragraph 8.2.3 (c) below.
- c) The daily fee shall be payable for each working day preparing for or attending site visits or hearings or preparing decisions including any associated travelling time.
- d) The retainer and daily fees shall remain fixed for the period of tenure of the Adjudicator.
- e) All payments to the Adjudicator shall be made by the Consultant who will be entitled to be reimbursed half by the Client. The Consultant shall pay invoices addressed to him within 28 days of receipt. The Adjudicator's invoices for any monthly retainer shall be submitted quarterly in advance and invoices for daily fees and expenses shall be submitted following the conclusion of a site visit or hearing. All invoices shall contain a brief description of the activities performed during the relevant period. The Adjudicator may suspend work if any invoice remains unpaid at the expiry of the period for payment, provided that 7 days prior notice has been given to both Parties.
- f) If the Consultant fails to pay an invoice addressed to it, the Client shall be entitled to pay the sum due to the Adjudicator and recover the sum paid from the Consultant.

#### **8.2.5 Procedure for Obtaining Adjudicator's Decision**

- a) A dispute between the Parties may be referred in writing by either Party to the Adjudicator for his decision, with a copy to the other Party. If the Adjudicator has not been agreed or appointed, the dispute shall be referred in writing to the other Party, together with a proposal for the appointment of an Adjudicator. A reference shall identify the dispute and refer to these rules.
- b) The Adjudicator may decide to visit the site. The Adjudicator may decide to conduct a hearing in which event he shall decide on the date, place and duration for the hearing. The Adjudicator may request that written statements from the Parties be presented to him prior to, at or after the hearing. The Parties shall promptly provide the Adjudicator with sufficient copies of any documentation and information relevant to the Agreement that he may request.
- c) The Adjudicator shall act as an impartial expert, not as an arbitrator, and shall have full authority to conduct any hearing as he thinks fit, not being bound by any rules or procedures other than those set out herein. Without limiting the foregoing, the Adjudicator shall have the power to:
  - i. decide upon the Adjudicator's own jurisdiction, and as to the scope of any dispute referred to him;
  - ii. make use of his own specialist knowledge, if any;
  - iii. adopt an inquisitorial procedure;
  - iv. decide upon the payment of interest in accordance with the Agreement;
  - v. open up, review and revise any opinion, instruction, determination, certificate or valuation, related to the dispute; and

- vi. refuse admission to hearings to any persons other than the Client, the Consultant and their respective representatives, and to proceed in the absence of any Party who the Adjudicator is satisfied received notice of the hearing.
- d) All communications between either of the Parties and The Adjudicator and all hearings shall be in the language of the Agreement. All such communications shall be copied to the other Party.
- e) No later than the fifty-sixth day after the day on which the Adjudicator received a reference or, if later, the day on which the Adjudicator's Agreement came into effect, the Adjudicator shall give written notice of his decision to the Parties. Such a decision shall include reasons and state that it is given under these rules.

#### **8.2.6 Notice of Dissatisfaction**

If a Party is dissatisfied with the decision of the adjudicator or if no decision is given within the time set out in the rules, the Party may give notice of dissatisfaction referring to this Sub-Clause within 28 days of receipt of the decision or the expiry of the time for the decision. If no notice of dissatisfaction is given within the specified time, the decision shall be final and binding on the Parties. If notice of dissatisfaction is given within the specified time, the decision shall be binding on the Parties who shall give effect to it without delay unless and until the decision of the adjudicator is revised by an arbitrator.

### **8.3 ARBITRATION**

Delete Clause and replace with:

A dispute, which has been the subject of a notice of dissatisfaction, shall be finally settled by a single arbitrator under the rules specified in the Particular Conditions. In the absence of agreement, the arbitrator shall be designated by the chairperson for the time being of the Southern African Association of Arbitrators. Any hearing shall be held at Centurion and in the English language.

# AGREEMENT

## APPENDIX 1: SCOPE OF SERVICES

### PROJECT CONTEXT

#### 1.1 PROJECT DESCRIPTION

The Berg River-Voëlvlei Augmentation (BRVA) Scheme consists of the abstraction of surplus winter water (after provision for the Environmental Water Requirements (EWRs) and downstream users) from a proposed low-level diversion weir across the Berg River and the pumped delivery of that water via a 6,3 km long rising main into Voëlvlei Dam. From the options investigated, the selected pipeline route has the least disruptive impact on current agricultural activities and the environmentally sensitive Renosterveld of the Voëlvlei Conservancy.

The weir site was initially located on a bend in the Berg River, which is within the rock outcrops and has an advantage in the management of sedimentation. This was thought to be beneficial both from a weir foundation perspective as well as for the construction of the proposed pump station on the left bank. The location of the weir has since been optimised from detailed hydraulic studies which, as a result, has moved further downstream. The new location thus ensures that the weir will self-scour at low flows. However, the foundation is now on deep alluvial deposits, which require mitigatory measures to ensure structural stability.

The scheme operation is planned based on winter abstraction from the river whilst still being able to meet the downstream EWRs for the river and the estuary in both summer and winter. The water will be abstracted from the weir and pumped at a rate of 4-6 m<sup>3</sup>/s through a 1.5m diameter and 6.3km long pipeline to Voëlvlei Dam. This will augment the Western Cape Water Supply System (WCWSS) yield by 23 million m<sup>3</sup> per annum.

The Voëlvlei Dam discharge is midway between the City of Cape Town (CCT) intake works and those of the Western Cape District Municipality (WCDM). This is an optimum position from a conveyance route and pumping perspective, as well as best for facilitating blending and mixing with the water in the dam to ensure that the best possible water quality conditions prevail at the intakes.

#### 1.2 GENERAL OBJECTIVES

The Consultant will be appointed to provide engineering, project management, environmental, social, and other specialist services as follows:

Take the design responsibility and assume the role of a design consultant, review and optimise existing concept designs, where deemed necessary, taking into account value engineering and design improvement principles, in order to provide design assurance in accordance with relevant design specifications and produce final designs for acceptance by the Employer.

Perform the necessary inspections, investigations, analyses and surveys at appropriate times of the construction work to ensure that the works are designed to ensure compliance with their design, to ensure design assumptions are valid and that work is being executed in accordance with appropriate construction techniques.

A further objective is to implement the project according to TCTA's Project Implementation Methodology (PIM). PIM was developed to ensure that TCTA's project implementation processes comply with best practice and are consistently applied to all TCTA's projects. This Request for Proposal (RFP) for the provision of Consulting Services for BRVAS is based on the TCTA PIM and the tasks have been defined in accordance.

#### 1.4 PROJECT LOGISTICS

Work shall be performed in accordance with the detailed work programme formulated by the Consultant and included as Appendix 4. The Consultant shall communicate with the Client as necessary for all technical matters relevant to the assignment.

TCTA has already appointed another professional service provider named AEJV (Amanzi Entaba Joint Venture) who will perform the duties of the "Engineer" for the project as defined in the FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, 1999 version (Red Book) for the project. TCTA will also appoint Panels of Experts (PoEs) who will do independent technical reviews of the assumptions and options and quality assurance on the work performed for each of the domain deliverables. TCTA will appoint a Health & Safety Auditor for monthly Occupational Health and Safety (OHS) audits, as well as an Environmental Control Officer.

TCTA will establish and manage the Project Committee, which will have Project Partners (Water users' representatives, TCTA, DWS, etc.) participating in the process of developing and implementing the project in the most cost-effective, transparent, and consultative manner.

**Note:** Consultant refers to the successful tenderer who will be responsible for the design and supervision of the works.

#### 1.5 STANDARDS AND SPECIFICATIONS

All dimensions and quantities shall be expressed in the SI system of units. Standards shall be those of the International Standards Organisation (ISO) except where no suitable ISO standards exist, in which case suitable widely known national standards may be used.

All construction-related procurement processes shall comply with the Construction Industry Development Board (CIDB) Act and Regulations.

The Client's Health and Safety Specification is attached as Agreement: Appendix 6 and should be used as a guide for the Consultant to manage health and safety requirements for the Consultancy Contract and to prepare Specifications for the construction contracts.

TCTA will provide a draft of Guidelines for Technical Implementation (GTI) which will require updating, finalisation and approval by TCTA and DWS. Based on the approved GTI, the Design Criteria Memorandum (DCM) shall be developed by the Consultant for approval by TCTA.

#### 1.6 REFERENCE MATERIAL FROM PREVIOUS STUDIES

Reports and other information relevant to the Project are listed below. Copies of these documents are available at TCTA for review by the Tenderers and will be made available to all tenderers. All conceptual design reports and studies are available on the Conceptual

Design Information attached in this RFB. Berg River-Voëlvelei Augmentation Scheme: DWS Feasibility reports and Record of Implementation Decisions.

(1) All the feasibility reports are available on the following website: [WESTERN CAPE WATER SUPPLY SYSTEM AUGMENTATION PROJECT \(dws.gov.za\)](https://www.dws.gov.za/WATER_SUPPLY_SYSTEM_AUGMENTATION_PROJECT)

- Access Road design
- Pump Station Design
- Raising Main Design
- Cathodic Protection
- Physical Hydraulic Modelling
- Topographic survey (2021)
- Water quality report
- Geotechnical report

(2) DWS Specifications

- DWS 1110 - Construction of pipelines.
- DWS 1130 - Design, manufacture and supply of steel pipes, specials and fittings for duties up to 4.6 MPa design pressure.
- DWS 2510 - Supply of valves.
- SANS 0142 and DWAF General Technical Specifications – Electrical.

**NB:** The updating of the above DWS Specifications will form part of the scope of work. Provision of such activity will be made under relevant headings in this RFP.

**A suite of modular specifications has been drafted for BRVAS utilising the FIDIC yellow book and these need to be converted to suit the FIDIC Red Book (Employers Design). These Modular specifications will be made available to the preferred bidder.**

(3) The successful Consultant is required to study existing information and ensure that, as best as practicable, activities are not repeated except for (1) activities that were incomplete, (2) activities requiring further investigations and (3) new activities that will assist in collating preliminary data to complete Tender Design.

(4) Environmental Studies

- Final Environmental Impact Assessment Report
- Final Environmental Management Plan
- Environmental Authorisation (including amendments)
- Terrestrial Ecology Specialist Study
- Riparian Habitat & Wetland Delineation Impact Assessment
- Phase 1 and 2 Heritage Impact Assessment
- Agricultural Assessment Study
- Phase 1 and 2 Socio-Economic Impact Assessment
- Stormwater Management Plan

## **2 DESCRIPTIONS OF CONSULTANT'S SERVICES**

The services for the assignment have been divided into the following tasks:

### **2.1 Task 1: Tender Design and Documentation**

Sub-Task 1.1: Engineering

Sub-Task 1.2: Environment and Social

### **2.2 Task 2: Detailed Design**

Sub-Task 2.1: Engineering

Sub-Task 2.2: Environment and Social

### **2.3 Task 3: Construction Supervision**

Sub-Task 3.1: Engineering

Sub-Task 3.2: Environment and Social

Sub-Task 3.3: Commissioning

### **2.4 Task 4: Assessment and Close Out**

Sub-Task 4.1: Engineering

Sub-Task 4.2: Environment and Social

### **2.5 Task 5: Project Management**

Sub-Task 5.1: Integration Management

Sub-Task 5.2: Scope Management

Sub-Task 5.3: Time Management

Sub-Task 5.4: Cost Management

Sub-Task 5.5: Quality Management

Sub-Task 5.6: Resource Management

Sub-Task 5.7: Communications Management

Sub-Task 5.8: Risk Management

Sub-Task 5.9: Procurement Management

Sub-Task 5.10: Stakeholder Management

## **2.6 Task 6: Transformation**

Sub-Task 6.1: Participation of Black-Owned Enterprises

Sub-Task 6.2: Employment: Participation of Professional Black People

Sub-Task 6.3: Training and Skills Development: Black People

Sub-Task 6.4: Non-Conformance Penalties

Sub-Task 6.5: Monitoring and Reporting

Sub-Task 6.6: Measurement and Payment

The main tasks involved in fulfilling these responsibilities are specified below.

## **2.1 TASK 1 – TENDER DESIGN AND DOCUMENTATION**

To provide the Services for this phase of the Contract, the Consultant shall assemble team/s of engineers, environmental and other specialists, experienced in the optimisation, design and documentation of major weirs, intake structures, sediment disposal facilities, pumps, motors, variable speed drives, pump stations, pipelines and control & instrumentation of such components. The Consultant shall provide the Services, carry out such duties and assume such powers and responsibilities as are defined in this Contract, and as necessary for the due performance of the Services. The Consultant shall study existing information and conclude the remaining studies to enable this task to be successfully implemented.

### **Sub-Task 1.1 Engineering**

#### **1.1.1 Tender Design Package**

The Consultant shall compile a Tender Design Package comprising the reports outlined in Sections 1.1.1A to 1.1.1P below.

##### **1.1.1 A Review of Feasibility and Concept Design**

The Consultant shall, immediately upon initiation of the assignment, start with the collection of all information, data and mapping. The Client will make available to the Consultant existing relevant documentation on the overall project (see Section 1.6 above). The Consultant shall review previous designs, assess all relevant information, and establish whether any additional information is required.

As a minimum, the review and assessment will cover the following:

- i) Critically review the DWS Feasibility Study reports covering the planning and design of BRVAS to confirm the decisions and to determine where additional studies will be required to supplement the available data.
- ii) Critically review the Concept Designs, Studies and Reports, and recommend, update and finalise all outstanding work to progress to detailed design.
- iii) Complete outstanding field investigations to ascertain foundation conditions for the main structures and river crossings. Review the available field investigation results with regard to foundation conditions and the interpretation of the geology and geotechnical parameters.

- iv) Identify any additional investigations required to confirm or develop the information to continue with the design, as the concept design was conducted, but not completed.
- v) Review the latest available results of the site investigation with regard to the quality and quantity of materials available for construction. The need for additional exploration or laboratory testing shall be evaluated.
- vi) Review requirements for relocating infrastructure to be impacted by the construction, operation and maintenance of the project.
- vii) Review the initial water hammer analysis of the pump station/pipeline system.
- viii) Review the hydro-economic analysis of the system.
- ix) Review the cost analysis of the system.
- x) Review of position and layout of the infrastructure.
- xi) Review the operation philosophy of the project.

Gaps or uncertainties in the information will be identified and recommendations will be made on supplementary investigations or proposed amendments which will be regarded as additional services.

#### **1.1.1B Operations Strategy**

The Consultant shall, from the feasibility and concept design reports and in consultation with the Client, develop an Operations Strategy to comply with the Operation Philosophy. Such Strategy shall consist of the following deliverables:

- i) Life Cycle Costing
- ii) Asset Management Plan
- iii) Repair Facilities
- iv) Spares Inter-changeability
- v) Procurement Strategy

#### **1.1.1C Inception Report**

An Inception Report for BRVAS shall be prepared and presented to the TCTA no later than six weeks after the appointment of the consultant.

In addition to the Programme, the Inception Report shall summarise the results of the data collection and design review activities, summarise the results of the field reconnaissance and describe the approach the Consultant intends to follow in the development of the various tasks and sub-tasks associated with the Tender Design.



### **1.1.1D Design Criteria Memorandum and Flow Diagrams**

The Consultant shall compile a Design Criteria Memorandum (DCM), setting out in detail the criteria, assumptions and parameters to be used in the tender design. The design shall be carried out in accordance with best modern practice and internationally recognised codes and standards. This work shall include such items as loading cases, factors of safety, allowable stresses, seismic design criteria, stability criteria, allowable loading and all other factors necessary to fully carry out the tender design. The DCM shall include methodologies for the application of the criteria in the Tender Design.

The Consultant shall also develop Flow Diagrams together with the DCM. The DCM and Approved for Design (AFD) documents shall be submitted to TCTA for comment and acceptance.

### **1.1.1E Field Investigations Report**

Substantial work has been carried out for this section and information is available. The Consultant must study the existing reports and complete the remaining work as required in this section. A Field Investigations Report, comprising the component reports described below, shall be prepared:

#### **(1) Field Reconnaissance**

The Consultant shall undertake field reconnaissance during the early stages of the assignment to become familiar with the project area and to investigate hydrological, geological, topographical and geographical features, and environmental & social conditions which might affect the feasibility and cost of the project components. The Consultant shall plan and execute a further geotechnical field investigation pertaining to all project components and shall use the results of this investigation to support the selection of a particular arrangement and provide input for the concept design of structures. The investigation shall establish the availability, quantity and quality of local construction materials.

#### **(2) Field Programme for Construction Site**

The Consultant shall plan and execute a further geotechnical field investigation programme (where required) pertaining to all project components and shall use the results to support the selection of a particular arrangement and provide input for the design of structures. The programme shall establish the availability, quantity and quality of local construction materials.

Studies shall be sufficient to enable the detailed design of the Water Transfer System and appurtenant structures, as well as for the preparation of Tender Drawings and Specifications. The studies shall enable an accurate definition of site geology and provide information on rock lithology, depth and degree of weathering, structural geology and groundwater. They shall outline the limits of potentially unstable rock. The Consultant shall provide engineering parameters for quantifying the strength, deformability and permeability of the foundations. Sources of construction material shall be studied, together with determinations of their durability and physical properties.

Supplementary investigations to be arranged by the Consultant may include, but are not limited to, the following works:

- i) Further drilling investigations at the diversion facilities, pump station, pipelines (including major river crossings) and quarry areas.
- ii) Further geological mapping of the project sites, utilising trenches as appropriate to expose bedrock.
- iii) Further excavation of test pits and trenches in the pump station area and at other sources of construction materials.
- iv) Auger drilling every 100m and excavate test pits every 500m along the pipeline routes to establish whether excavated material could be used as selected backfill material, and rock level if shallower than 1,75 times the proposed pipe diameter.
- v) Identifying and sizing selected backfill material borrow pits, if required as determined in (iv) above and identifying spoil areas.
- vi) Geophysical investigations.
- vii) Evaluation of rock durability in a field and laboratory test programme.

As the tender design evolves, the Consultant shall revise the programme, if so required, to suit specific design needs. Notwithstanding that preliminary work has been done, any extension to the investigation or cost increase shall be presented to TCTA for approval before any further fieldwork is undertaken.

Records obtained as a result of all drilling and/or other exploratory investigations shall be clearly identified, and inspectors' visual observation notes shall be filed and shall be referred to in the Geotechnical Exploration report, where appropriate.

All trial excavation and drilling results shall be properly recorded and analysed, and all drilling cores shall be logged and stored for further study. The Consultant's format for borehole, test pit and trench logs shall be subject to review and approval by TCTA. All trial investigations (drill holes, test pits, test trenches, etc.) shall be numbered and located by coordinates and indicators in the field, to establish their location and level, including the collar elevation for drill holes.

### **(3) Geotechnical Report**

Upon completion of the remaining geotechnical investigations, the Consultant shall submit a comprehensive Geotechnical Report containing the results of all geotechnical investigations, test fill construction and seismicity studies relating to the work. The Geotechnical Report shall include the results of the geotechnical investigations undertaken in other studies that are relevant to the Tender Design so that a comprehensive permanent record of investigations is available on the project. The Geotechnical Report shall provide for full disclosure of the geotechnical data and shall be made available to Tenderers for construction as part of the Data for Tenderers.

The reporting of all results, regardless of the source, shall be based on common terminology. The report shall include plotted profiles based on all drill holes, the results of all field and laboratory tests, and a full account of the analysis and evaluation of the results. Borehole logs, test pit logs and other documents containing geotechnical data shall be presented in a format approved by TCTA. The definitions, classifications, nomenclature and symbols used

in other investigations and the Consultant's investigations shall be identical, i.e., if the Consultant prefers to use different definitions etc. in his reporting, then they shall transcribe the definitions of the other investigations into his preferred definitions for the Geotechnical Report.

#### **(4) Topographical Survey and Mapping**

Topographic control for all field explorations and benchmarks for the project site conforming to Clause B (1) of the RSA Survey General should be established by the Consultant.

The Consultant shall prepare all the required surveys and mapping at an agreed scale for the project site, covering all areas of construction where such mapping is not already available. The Consultant shall be responsible for all ground and localized surveys at all the construction sites, including cadastral surveys for land acquisition purposes.

The Consultant shall prepare appropriate tender documents for competitive bidding by sub-contractors together with a detailed cost estimate for providing Aerial Photography for the project sites where such photographs are not already available. The scope and cost estimate shall be submitted to TCTA for approval before any work is undertaken. The cost for the sub-contract is provided for in a Provisional Sum in Schedule C-1.

#### **(5) Hydrology, Hydraulics and Sedimentation Studies**

##### **(a) Flood Hydrology**

Regional and/or site-specific flood frequency studies shall be performed by the Consultant to quantify flood risks associated with the construction of all facilities, especially the intake structure designed by the Consultant. Magnitudes and water levels associated with such flood events shall be determined by the Consultant. The Consultant shall calculate the Probable Maximum Flood and other occurrence interval floods, especially at the inlet structure and pump stations.

The results of these hydrology studies should be used in evaluating the capacity and size of the inlet structure coffer dam if needed.

##### **(b) Hydraulic Studies**

The Consultant shall conduct hydraulic studies for the weir, pump stations and pipelines to assess hydraulic conditions associated with the works, coffer dam(s), incorporating the scouring intake chamber, control valve chamber and sediment rejection facilities (if needed). These studies shall include, but not be limited to cavitations of the pump set, scour potential, intake submergence, hydraulic stability, hydrodynamic vibration, energy dissipation, unfavourable flow patterns, air venting, drainage and sediment transport and exclusion or removal as required. Studies should include computational Flow Dynamics (CFD) and other numerical modelling analyses as required.

Water hammer analysis and the maximum and minimum surge pressure envelopes and all related aspects shall be undertaken.

The Consultant shall prepare the hydraulic design of structures based on theoretical analysis or experience of similar structures on other projects. A physical modelling study was completed in 2021. However, it remains the responsibility of the consultant to review the adequacy thereof and recommend further work, where applicable, to produce a competent and optimal detailed design. All further work shall be subject to the approval of TCTA. A Provisional Sum in Schedule C-1 is provided for this purpose.

#### **1.1.1F Optimised Project Components**

Based on the Field Investigations Report and the Operating Philosophy from the Feasibility Study and Concept design, the Consultant shall refine the development plans to ensure that the general arrangement, layout and design concepts of the structures and components are best suited to the site and purpose.

At the end of this process, the Consultant shall prepare the following documents:

- (i) General Arrangement of the Project Components.
- (ii) Design Optimisation Report.

In addition to the above, the Consultant shall undertake all other necessary studies to finalise the layout features of the project components and confirm the technical feasibility and constructability of the preferred design.

Studies are to be updated as results of Geotechnical Field Investigations, become available. Preliminary drawings of alternative arrangements shall be prepared to show design features allowing for the taking off of quantities and to develop cost estimates to a level appropriate for the selection of the best option. The arrangements shall be discussed with the Client before they form the basis for more detailed studies.

#### **1.1.1G Design Studies Report**

A portion of the concept design work was done by the previous Consultant. Information is therefore available and will be issued to the successful Tenderer. Based on the existing data, the General Arrangement of Project Components and the Design Optimisation Report, the Consultant shall undertake the outstanding design studies. The tasks listed below shall be undertaken and respective reports compiled into a Design Studies Report:

- i) Execute Design Analysis and Calculations
- ii) Execute Model Studies
- iii) Develop a Spoil Plan
- iv) Design Temporary Works
- v) Develop Tie-in Schedules
- vi) Execute HAZOP and Compile Designer Health and Safety Specifications
- vii) Conduct Reliability Analysis
- viii) Determine Constructability
- ix) Determine Flow Diagrams (AFC)
- x) Cathodic Protection Requirements
- xi) AC Mitigation Requirements

The particular studies to be undertaken are described below.

**a) Abstraction Weir**

The Consultant shall review a study of the preferred design and general arrangement. The objectives of the Consultant's studies are to optimise and finalise layout concepts to reduce the overall cost of the works, and to improve the technical performance of the structure, especially with regard to sedimentation.

Studies are to be updated using results from Geotechnical Field Investigations. Preliminary drawings of all alternative arrangements shall be prepared to show design features allowing for the taking off of quantities and to develop cost estimates to a level appropriate for the selection of the best option. The arrangements shall be discussed with TCTA before they form the basis for more detailed studies.

**b) Pump Station**

The Consultant shall study existing information on the proposed design and general arrangement of both the pump station. The objectives of the Consultant's studies are to optimise and finalise layout concepts to reduce the overall cost of the pump station and the proposed pumps with recommendations on the use of VSD motors, and to enhance the technical performance of the components.

Issues to be dealt with by the Consultant shall include, but not limited to, the following:

- i) Optimise the type and number of pumps and their capacity for the expected operating framework.
- ii) Optimise the interface between the Abstraction Weir and the pump station, given the expected operating framework.
- iii) Evaluate the effect on pumping costs and pump capacity due to varied electricity tariffs, with defined pipe diameter and losses. Determine optimum life cycle costs.
- iv) Design electrical switchgear, as well as define telemetry requirements for monitoring and remote control of components and related Specifications. This will include, in conjunction with TCTA, the Operation Philosophy. Local control equipment will be designed to take the necessary actions to protect people and equipment regardless of the operating status of the telecommunication system.
- v) Configure the pump station to enable a future increase in pumping capacity with minimum complication and effort.

In addition to the above, the Consultant shall undertake all other necessary studies to finalise the layout features of the pump stations and Specification of the pumps and associated components and confirm the technical feasibility of the preferred design.

The Consultant shall study existing drawings and layouts prepared to confirm whether Preliminary drawings of all alternative arrangements, prepared to show that the design features, are prepared to a level appropriate for the selection of the best alternative and could allow taking off of quantities to develop cost estimates. The arrangements shall be discussed with TCTA before they form the basis for more detailed studies.

### **c) Pipelines**

The Consultant shall undertake a study of the proposed design and general arrangement. The objectives of the Consultant's studies are to optimise and finalise layout concepts to reduce the overall cost of the pipeline and to improve the technical performance of the pipe and related structures.

Issues to be dealt with by the Consultant shall include, but are not limited to, the following:

- i) Investigate and confirm the optimum pipeline routes within the considered corridor.
- ii) Determine the optimum pipeline diameters and associated friction losses to deliver the required yield and capacity in consideration of the implementation and electricity costs within the anticipated operating frameworks.
- iii) Determine the wall thickness of the pipe subject to the water hammer analysis and the maximum and minimum surge pressure envelopes.
- iv) Determine the total and secondary head losses and prepare a pipeline system curve for selecting the most appropriate pumping set.

In addition to the above, the Consultant shall undertake all other necessary studies to finalise the layout of the pipelines and specification of the pumps and associated components and confirm the technical feasibility of the preferred design.

Studies are to be updated as results from Task Sub-Section 1.1.1E – Field Investigations report, become available.

Preliminary drawings of all alternative arrangements shall be prepared to show design features allowing for taking off quantities and to develop cost estimates to a level appropriate for the selection of the best alternative. The arrangements shall be discussed with TCTA and DWS before they form the basis for more detailed studies.

### **d) Infrastructure**

After confirming the location of the water infrastructure for the project and the operation centre, the Consultant shall study and shall be responsible for identifying site establishment requirements and the need for any additional road(s) outside the proposed permanent & temporal access roads as detailed in the conceptual design report. Site roads shall include possible Contractor's roads to borrow pits, spoil areas or other work locations. The Consultant shall coordinate his activities with those of other consultants retained by TCTA.

The Consultant shall be responsible for reviewing and confirming the estimated power requirements of the Contractor and making them known to TCTA. The Consultant shall also be responsible for ensuring that the construction power system is adequately described in the Construction Tender Documents so that the Contractors can cost and ultimately design any electrical connections and protection arrangements required for construction.

The Consultant shall ensure that access roads to the project components are designed in such a way that they are fit for purpose and suitable for long-term operation.

The Consultant shall ensure that water supply and treatment for potable use at the construction site are adequately addressed in the Tender Documents for construction.

### **1.1.1H Technical Authorisation**

Based on Design Studies, the Consultant shall identify the requirements for, and obtain technical authorisations from the relevant authorities.

### **1.1.1I Tender Drawings**

Based on the Design Studies, the Consultant shall develop and compile Tender Drawings.

### **1.1.1J Data Sheets**

Based on the Tender Drawings, the Consultant shall develop and compile Data Sheets.

### **1.1.1K Equipment Schedules**

Based on Data Sheets the Consultant shall identify equipment requirements and compile Equipment Schedules.

### **1.1.1L Bill of Quantities and Bill of Materials**

Based on the Tender Drawings, Data Sheets and Equipment Schedules, the Consultant shall take off quantities and prepare a Bill of Quantities (BoQ) and a Bill of Materials (BoM) for the Works.

### **1.1.1M Cost Estimates**

The Consultant shall update the feasibility level cost estimates based on the BoQ and BoM.

### **1.1.1N Long Lead Schedule**

Based on Equipment Schedules, the Consultant shall identify Long Lead Items and compile Long Lead Schedules.

### **1.1.1O Construction Specification**

The Consultant shall, in consultation with TCTA, finalise and customise Technical Specifications, and further prepare specific Construction Specifications based on standard DWS Specifications where appropriate. The Specification shall be prepared into a modular suite, by updating the references and aligning the revised Specification to various lessons learnt on previous TCTA projects.

### **1.1.1P Compilation of the Tender Design Report**

#### **a) Tender Design**

The Consultant shall design the Works, taking into consideration information from the above sections and any additional information from other sources. The design shall be carried out to a level of detail sufficient for tendering.

For all significant structures and elements, this work shall include, but not be limited to, the complete design of hydraulic structures, foundation treatment and grouting, instrumentation, seepage analyses, stability, deformation and stress analysis and architectural work and finishing. Structures shall be designed for steady-state and transient conditions, where applicable.

In the case of reinforced concrete, sufficient structural calculations shall be made to justify the concrete dimensions and the quantities of reinforcement. The arrangement of bars shall be considered in sufficient detail to ensure that their placement is technically feasible and economic, and that indicative reinforcement drawings can be developed showing the nature of the construction work involved. Detailed reinforcement drawings and bar lists will not be required to be prepared by the Consultant for the Tender Documents, but an accurate estimation of the required tonnages should be made.

The designs shall conform to and be suitable for the site conditions and shall use locally available materials. Designs shall aim to achieve minimum overall cost without adversely affecting the environment, the health of the workers, or the safety, security, efficiency, durability and longevity of the Works. The convenience of operation, including remote control from an operation centre, shall be considered.

The Consultant shall advise TCTA on any special surveys, data collection activities, sampling, laboratory tests and analyses, or other tests that may be needed for the completion of the tender design. After an agreement with TCTA on the need for such work, the Consultants shall draw up specifications and procure the necessary services through a sub-contract.

The Consultant shall complete designs for the mechanical and electrical systems, control and instrumentation, drainage, lighting, etc., and shall specify all the components required for these systems.

For the major items of mechanical and electrical equipment such as gates, valves, bulkheads, pumps etc., the Consultant shall define the outline design and specify performance characteristics of the equipment in sufficient detail for specialised equipment suppliers to undertake detailed design and manufacture as sub-contractors to the main construction contractors.

#### **b) Technical Memoranda**

At pre-determined milestones throughout the tender design process, the Consultant shall submit technical memoranda on particular parts of the work. The Consultant shall identify such milestones in his Baseline programme developed under Agreement: Appendix 4. Each memorandum shall set out the concepts, methods, criteria and key parameters used in the design, the results of design calculations, a clear discussion of the reasoning behind the technical decisions involved, indications of related matters still to be settled, and a brief account of the implications for costs and programming. These reports shall be submitted as soon as possible after work is performed for specific items.

#### **c) Tender Design Report**

The Consultant shall submit a self-contained report describing the tender design, consolidating the information covered in previous submissions, with any revisions made in the course of discussion, review and refinement.



The contents shall include, but not necessarily be limited to, the following:

- i) methods used in design,
- ii) reasons for technical decisions,
- iii) indicative construction programme,
- iv) details of further design work required during construction, with recommended methods and criteria,
- v) reference to all technical memoranda and other design reports,
- vi) design sketches and drawings and calculations in appendices, and
- vii) link with a cost estimate of the selected alternative.

The Report shall be prepared and issued initially as a draft report for review by TCTA. After review and incorporation of all queries and acceptance by TCTA, it shall be re-issued in final form.

## **Sub-Task 1.2 Environment and Social**

### **1.2.1 Environmental Management Programme (EMPr)**

DWS previously acquired the services of an Environmental Assessment Practitioner (EAP). The EAP's responsibilities included the development of the project's EMPr & approval of an Environmental Authorisation. The final EMPr incorporates conditions specified in the Environmental Authorisation and complies with NEMA Regulations 2014.

The Consultant shall review Social Specialist studies which will be provided by TCTA, to highlight specific areas where social requirements may impose conditions or create operational restraints on the project. The Consultant shall further propose mitigations recognising the environmental and project development requirements and detailing the potential effect on project time and cost.

### **1.2.2 Environmental Baseline & Environmental Authorisation (EA) Requirements**

The objective of establishing a baseline is to document the status of key ambient environmental parameters and the status, condition and value of land uses and assets that the project will affect. This documentation, information and records are critical for TCTA in the event that claims are made against the project. It is, therefore, necessary that qualified specialist scientists (with appropriate post-graduate qualifications and professional registration) undertake the Baseline (in terms of data gathering, analysis and reporting). The Consultant shall undertake the following tasks (reports developed from these tasks must be submitted to TCTA for review & approval):

- i) Define the scope and detailed Specification for the establishment of an Environmental Baseline against which the Contractor shall be required to monitor before the commencement of construction. Typical variables for which an Environmental Baseline is required include land use practices, vegetation status (in terms of plant species, alien invasive plants, noxious weeds, etc.), conditions of haul roads, river water quality, the status of riverbanks (where river crossings will be undertaken), ambient dust, noise and traffic volumes. The type and nature of the environmental variables or parameters should be identified in consultation with TCTA.
- ii) Develop a Maintenance Management Plan (MMP) to ensure that the future maintenance activities associated with the development are assessed and taken into consideration.
- iii) Conduct a detailed Search, Rescue and Relocation Plan in consultation with a terrestrial ecologist and reviewed by Cape Nature (including approval).
- iv) Develop a Monitoring Plan for species such as the Geometric Tortoise.
- v) Develop an Access Control Plan for access to private land during construction.
- vi) Develop an Aquatic Monitoring Programme, for implementation after construction activities have been completed.
- vii) Develop a detailed site-specific Stormwater Management Plan
- viii) Conduct a walk-through of the final pipeline route prior to construction in late winter/early spring by a qualified botanist who is highly familiar with the vegetation of this region.
- ix) Obtain permits from the relevant nature conservation agency for the removal or destruction of any indigenous protected and endangered plant and animal species if required.
- x) Conduct a survey to document all pump stations and infrastructure that may be lost during the event of a flood. The survey must account for directly affected properties as well as downstream users.
- xi) Develop an Integrated Waste Management Plan in line with the requirements of the National Environment Management Waste Act, 2008 (Act No.59 of 2008).

### 1.2.3 Environmental and Social Specifications

The Consultant shall develop the scope and detailed Specifications for environmental and social monitoring, data, mitigation, analysis and reporting for the construction.

The detailed Specifications shall be developed for the following typical aspects, but not limited to:

Site Master Plan	<ul style="list-style-type: none"> <li>• Demarcation of the infrastructure (temporary and permanent) required for site establishment and construction</li> <li>• Indicate access roads and haul roads</li> <li>• Indicate above and below-ground infrastructure</li> <li>• Indicate fence lines and gates</li> <li>• Site micro-climate features (in terms of aspect and slope) to specify the location, dimensions and orientation of site buildings to enhance solar gain</li> <li>• Identification of bulk fuelling stations</li> </ul>
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	<ul style="list-style-type: none"> <li>• Site traffic plan.</li> <li>• Topsoil stockpiling areas</li> <li>• Staging area for firefighting</li> <li>• Designate vehicle and plant cleaning and maintenance areas.</li> <li>• Waste stations (general and hazardous).</li> <li>• Demarcate all environmentally sensitive no-go areas, i.e., geometric tortoise habitat &amp; etc.</li> </ul>
Site establishment	<ul style="list-style-type: none"> <li>• Demarcation of the site</li> <li>• Site drainage</li> <li>• Protection of vegetation and natural features</li> <li>• Protection of fauna</li> <li>• Protection of cultural historical aspects</li> <li>• Topsoil conservation</li> <li>• De-bushing and de-stumping</li> <li>• Erosion and sedimentation control</li> <li>• Firefighting plant and procedures</li> </ul>
Site infrastructure	<ul style="list-style-type: none"> <li>• Structures and accommodation</li> <li>• Energy-efficient construction office building design (e.g., ventilation, solar orientation, windows, insulation, etc.)</li> <li>• Water conservation (e.g., installation of low-flow appliances in the temporary construction office buildings, grey water reuse in toilet flushing, directing of roof runoff, etc.)</li> <li>• Contractor's camp and lay-down areas</li> <li>• Batching plants</li> <li>• Crusher plants</li> <li>• Sand washing plants</li> <li>• Nurseries</li> <li>• Roads and access</li> <li>• Gates and fences</li> <li>• Waste Stations</li> </ul>
Site management	<ul style="list-style-type: none"> <li>• Rubble and waste rock</li> <li>• Solid waste (management, recycling and re-use)</li> <li>• Recycled use of site spoil</li> <li>• Liquid waste (management, recycling and re-use)</li> <li>• System for capturing site water run-off for dust control</li> <li>• Hazardous waste (handling, use, disposal, mitigation measures in case of spill and use of Material Safety Data Sheets)</li> <li>• Pollution control</li> </ul>

	<ul style="list-style-type: none"> <li>• Implements and equipment</li> <li>• Blasting</li> <li>• Air quality</li> <li>• Noise control</li> <li>• Fire control</li> <li>• Health and Safety</li> <li>• Bioremediation</li> <li>• Construction waste recycling and re-use</li> <li>• Fuel bundling of standing plant</li> <li>• Bundling of fuel and oil storage areas</li> <li>• Oil and fuel spill absorption kits for fuel storage areas and provision at key areas</li> <li>• Disposal techniques for land clearing material and spoil during construction phase</li> <li>• Erosion control (site stormwater and drainage plan, mitigation measures, inspection schedule and correction of sediment control measures)</li> </ul>
Borrow pits and quarries	<ul style="list-style-type: none"> <li>• Identification and demarcation</li> <li>• Access routes</li> <li>• Dust suppression</li> <li>• Waste management</li> <li>• Stockpiling</li> <li>• Borrow Pit Management Plan</li> <li>• Borrow Pit Rehabilitation and Closure Plan (as per DMR requirements)</li> </ul>
Earthworks	<ul style="list-style-type: none"> <li>• Prospecting boreholes and test pits</li> <li>• Excavations and trenches</li> <li>• Cut and fill</li> <li>• Shaping and trimming</li> </ul>
Stockpiles, storage and handling	<ul style="list-style-type: none"> <li>• Topsoil</li> <li>• Spoil</li> <li>• Vehicles and equipment</li> <li>• Fuel</li> <li>• Hazardous substances</li> </ul>
Water Management	<ul style="list-style-type: none"> <li>• Settlement ponds (design, management and rehabilitation)</li> <li>• River Crossings</li> <li>• Quality of water discharged from the Works</li> <li>• Working in or near rivers and wetlands</li> <li>• Borrow pits</li> </ul>

	<ul style="list-style-type: none"> <li>• Stormwater drainage</li> <li>• Trench excavations</li> <li>• Water quality and quantity monitoring</li> <li>• Sampling by the Engineer</li> <li>• River diversions</li> <li>• Ponding especially near communities and homesteads</li> </ul>
Erosion control	<ul style="list-style-type: none"> <li>• Surface water management</li> <li>• Erosion protection</li> <li>• Control of alien plants</li> </ul>
Rehabilitation	<ul style="list-style-type: none"> <li>• Removal of temporary structures and infrastructure</li> <li>• Inert waste and rubble</li> <li>• Hazardous waste and pollution control</li> <li>• Final shaping</li> <li>• Surface water management</li> <li>• Topsoil replacement and soil amelioration</li> <li>• Ripping and scarifying</li> <li>• Planting</li> <li>• Grassing</li> <li>• Maintenance</li> <li>• Landowner consultation</li> <li>• Landowner property packs for every affected property – these packs to be signed off by landowner pre-construction (confirming accuracy of data) as well as post-construction (confirming success of rehabilitation):</li> <li>• Preconstruction baseline information of habitats and vegetation types within the servitudes and neighbouring properties along the proposed pipeline. Rehabilitation interventions that are property specific i.e., fertiliser application, type of seed mix, special measures for slope stabilisation, etc.</li> <li>• A wetland assessment that maps all wetlands within 30 metres of the pipeline, identifies any potential geomorphic risks within the wetland and riparian habitats, assesses and documents the condition of the vegetation community within the wetland and riparian habitats and makes specific recommendations for wetland crossings at the specific sites</li> </ul>
Incident Reporting	<ul style="list-style-type: none"> <li>• Design an incident reporting protocol.</li> </ul>
Environmental awareness training	<ul style="list-style-type: none"> <li>• Training programmes</li> <li>• Induction training</li> <li>• Toolbox talks</li> <li>• Signage</li> <li>• Refresher training</li> </ul>

Social Management	<ul style="list-style-type: none"> <li>• Develop social risk mitigation measures and monitoring mechanisms</li> <li>• Heritage/Palaeontological Management</li> <li>• Design a project awareness programme/Project Information Centre</li> <li>• Social incident management and reporting</li> <li>• Social Monitoring (complaints and compliments)</li> <li>• NB: All social Specialist studies will be provided by TCTA</li> </ul>
Landowner interactions	<ul style="list-style-type: none"> <li>• Access procedure to impacted properties</li> <li>• Response procedure to landowner concerns and claims</li> <li>• Provision of information to Client for sharing with affected landowners</li> </ul>
Employment, Procurement and Training	<ul style="list-style-type: none"> <li>• Definition of employment, procurement and training targets and objectives, particularly in the categories (project area) local, HDI, youth, women, Military Veterans, and disabled</li> <li>• Allowance for training of local labour as part of Contractor's work schedule</li> <li>• Define procedure to test and recognise prior learning for local labour</li> <li>• Define Audit Specifications for compliance monitoring of employment, procurement and training targets.</li> </ul>
Training	<ul style="list-style-type: none"> <li>• Definition of Contractor's Training Specifications. To include as a minimum: <ul style="list-style-type: none"> <li>○ Policy Statement</li> <li>○ SAQA-accredited courses to NQF Training Unit Standards (to include competency evaluations)</li> <li>○ Accreditation of training service providers with relevant SETA</li> <li>○ Training credits to be registered on national learner register database</li> <li>○ Consultant to identify training categories and numbers (local labour) which can realistically be trained within the defined construction period.</li> <li>○ Contractor's bursaries, internships and learnerships</li> </ul> </li> </ul>
Staff Accommodation	<ul style="list-style-type: none"> <li>• The Consultant shall specify accommodation standards for the following categories of staff of the Contractor: <ul style="list-style-type: none"> <li>○ Professional</li> <li>○ Skilled and semi-skilled</li> </ul> </li> </ul>

**a) Department of Minerals Resources (DMR)**

The services of an EAP may be required and tasked with applications for borrow pits to DMR should a need arise. However, the Consultant shall make a financial allocation for a rehabilitation guarantee to be provided to DMR if required. The Consultant shall also make provision for four (4) DMR borrow pit applications and four (4) DMR closure applications. The Consultant shall prepare the necessary documentation in accordance

with the Mineral and Petroleum Resources Development Act 28 of 2002 and its amendments, which include the following activities.

**b) Department of Water and Sanitation (DWS)**

TCTA is preparing the necessary documentation in accordance with the National Water Act 36 of 1998 (NWA) and the application for a Water Use License to DWS for Section 21 (a), (b), (c) and (i) uses in terms of the NWA. The Consultant shall make provisions for compliance with the Water Use Licence conditions to be included in the Contract documentation. In the absence of an approved Water Use Licence during the Contract Tender phase, the Consultant shall incorporate the conditions into the Contract Specifications for any additional Water Use Licence applications (an estimate of two (2) applications).

**c) Department of Environmental Affairs (DEA)**

The Consultant shall prepare necessary documentation in accordance with the conditions of the Environmental Authorisation & EMP. The Consultant shall identify any additional activities that may require Environmental Authorisation and bring them to the attention of TCTA. The Consultant may be required to undertake further specialist studies.

**d) South African Heritage Resources Agency**

The Consultant shall prepare necessary documentation and approvals in accordance with the National Heritage Resources Act 25 of 1999 and the Regulations of 2000, for the site(s) with Heritage significance. The consultant shall further make provision for chance findings during construction in the following manner:

- Two (2) applications to the relevant Heritage Agency for the built environment and archaeological sites
- One (1) Phase 1 applications
- Two (2) Phase 2 applications

**e) Department of Agriculture, Forestry and Fisheries (DAFF)**

The Consultant shall prepare the necessary documentation for approvals for the destruction or relocation of endangered and listed plant species in terms of the prevailing legislation. The Consultant should make provisions for four (4) applications to the DAFF or the local Nature Conservation Agency.

## **2.2 TASK 2 – DETAILED DESIGN**

### **Sub-Task 2.1 Engineering**

This section covers all tasks required to fulfil the Engineering and Engineering Management requirements during the Detailed Design Phase of the project. These tasks include the production of the Design Report. The objectives are as follows:

- i) to carry out detail design and timeously issue construction drawings,
- ii) to evaluate Contractor's proposals and method statements to ensure compliance with the design intent,
- iii) to respond promptly to any technical queries raised during the construction of the works.
- iv) to ensure that key documents are approved prior to the start of Construction, i.e., Health and Safety Plan, Environmental Protection Plan, Stormwater Management plans, and Management Method Statements, etc.

#### **2.1.1 Detail Design Report**

The Consultant shall prepare and compile a Detailed Design Report comprising the components described in Sub-sections 2.1.1A to 2.1.1G below.

##### **2.1.1A Tender Design Review**

The Consultant shall:

- i) Review the Tender Design of the permanent Works forming the basis for the Construction Contracts, in the light of designs and method statements submitted by the Contractors as part of the tenders.
- ii) Compile a List of Changes to the design where necessary.

The Consultant is responsible for the adequacy of all designs and shall submit in writing to TCTA any changes that the Consultant may recommend. Subject to the consent of TCTA, the Consultant shall prepare and issue appropriate Variation Orders to the Construction Contractor(s) to implement such changes.

The Consultant shall design the Works, taking into consideration information from the above tasks and any additional information from any other source.

##### **2.1.1B Value Engineering Studies**

Based on the Contractor's Method Statements the Consultant shall conduct Value Engineering Studies and prepare a report addressing the following technical factors:

- i) Constructability
- ii) Operability
- iii) Maintainability
- iv) Transportability



### **2.1.1C Additional Studies**

To carry out the Detailed Design and to prepare construction drawings, the Consultant shall carry out sufficient Engineering or other discipline studies to ensure appropriate standards or work and minimum cost are achieved. Where necessary, the Design Criteria Memorandum will be updated, subject to approval by TCTA. If the flow diagrams require an update, then the HAZOP shall be redone.

Annexure B shall list all the design studies which the Consultant expects to carry out.

### **2.1.1D Flow Diagrams**

The Consultant shall verify that all designs are compliant with the Approved Flow Diagrams. Should an alternative tender be accepted, the Consultant shall review and update the flow diagrams accordingly. If the flow diagrams require an update, then the HAZOP shall be redone.

### **2.1.1E Construction Drawings**

The Consultant shall:

- i) Prepare construction drawings for the permanent works based on the Approved Flow Diagrams (AFD).
- ii) Prepare construction drawings for those temporary works which are identified from the Construction Contracts as being the responsibility of the Consultant, or which are necessary for the construction of the Works.

The construction drawings shall clearly impart the detailed design of the works and shall be revised and supplemented to meet field conditions as the Works progress.

In preparation of the construction drawings, the Consultant shall design the above-defined Works in sufficient detail (referred to as Detailed Design) for the Contractor to construct the works in accordance with the Construction Contract.

Annexure B shall list the type and number of the construction drawings and reinforcing bar schedule the consultants expect to issue.

### **2.1.1F Updated Equipment Schedules**

The Consultant shall finalise Equipment schedules after the award of the Contracts.

### **2.1.1G Construction Specifications**

The Consultant shall revise and update the Tender Specifications when Variation Orders are approved if necessary.

### **2.1.1H Technical Justification Memoranda for Variation Orders**

Should any changes to the Tender Design be approved, the Consultant shall conduct an Engineering Assessment taking into consideration the Construction Drawings, Construction Equipment Schedules and Construction Specifications. The Consultant shall then compile Technical Justification Memoranda on the basis of the Engineering Assessment.

### **2.1.1l Commissioning Plan**

The Consultant shall:

- I. Prepare a Commissioning Plan and obtain necessary authorisations in order to get the project Ready for Commissioning (RFC),
- II. Liaise with TCTA and other parties to establish the overall requirements for project Commissioning,
- III. Establish the specific Commissioning requirements for the Works in relation to the overall requirements for the project,
- IV. Submit the commissioning requirements to the Contractor to enable him to prepare his detailed pre-commissioning procedures.

### **Sub-task 2.2 Environmental and Social**

This section covers all tasks required to fulfil the Environmental Management requirements during the Detailed Design of the project. These activities include monitoring, routine inspections, environmental monitoring, performance and progress evaluation, review of designs, method statements and other environmental protection and mitigation measures, review of progress and performance of rehabilitation and final acceptance of the rehabilitated section of the Works, monitoring construction processes/activities on the impacted and affected land, resources and the social environment, as well as providing support to TCTA for land acquisition. The objectives for this sub-task are as follows:

- i) The evaluated and assured implementation of the Environmental Specifications and the relevant sections of the Environmental Authorisation, Environmental Management Programme (EMPr) & Water Use Licence by the Consultant and the Contractor during their involvement in the project.
- ii) To issue instructions for corrective and/or preventative actions where there is actual or potential failure to comply with requirements or the intention of the design.

#### **Social Management Plan**

Upon receipt of the Social Specialist Report from the TCTA, the Consultant shall, in consultation with the TCTA, develop a Social Management Plan as follows:

- i) Outline the long-term social performance of the project/construction
- ii) Provide a Social Management Approach relating to, amongst others, methods for information dissemination, Stakeholder Engagement, complaints redress, etc.
- iii) Method of Social Performance Monitoring and Evaluation

#### **Heritage Resources/ Palaeontological Management Plan**

Upon receipt of the Heritage Impact Assessment, the Consultant shall develop a Heritage Resources Management Plan as follows:

- i) Consider the Social Baseline Report and any relevant information
- ii) Provide mitigation measures relating to affected heritage resources.

- iii) Where removal or relocation is unavoidable, provide removal and relocation requirements for heritage resources.
- iv) Provide the necessary permits from the relevant heritage management authorities (National Heritage Council, South African Heritage Resources Agency, Cape Nature).
- v) Estimate the costs associated with the above, including programme implications on the project's overall implementation.

## **2.3 TASK 3 – CONSTRUCTION SUPERVISION**

The Consultant shall provide suitably qualified specialists to perform supervision of engineering design/quality, environmental, social, health and safety tasks carrying out such duties and assuming such powers and responsibilities as necessary for the performance of the Services. The objectives for this sub-task can be broadly described as follows:

- i) to monitor the quality of the construction, manufacturing and/or installation contracts to ensure compliance with the specifications and design intent.

### **Sub Task 3.1 Engineering**

This section covers all tasks required to fulfil the engineering and engineering management requirements during the Construction Phase. The tasks include the adaptation of the designs to accommodate conditions encountered on site and the production of red-line drawings.

The Consultant shall review and accept the Contractors' detail designs to ensure that it meets the performance criteria and are in accordance with the proposed tender design.

The design review shall identify eminent interfaces, with existing infrastructure or future infrastructure to be provided by others that will require Employer's coordination.

The tasks include the review of the Contractors' methods to ensure compliance with the design and performance criteria and to accommodate conditions encountered on site, review of the integrated operation and maintenance manuals and approval of As-Built Drawings.

The Consultant shall monitor the Works being constructed by conducting inspections in accordance with the quality plan to ensure that all the specified criteria are being achieved. The result of the inspections or audits where applicable, will be reported to TCTA on a monthly basis. A report on all non-conformance incidents, the instructions to rectify, the proposed remedial measures as well as confirmations of rectifications will be maintained.

The design intent should be confirmed through the integrated commissioning of all the existing and new components of the project and the results will be recorded in the integrated close-out report.

#### **3.1.1 Construction Activities**

- i) Site Handover and Construction Drawings

The Consultant shall undertake the handover of the sites to the Contractors on behalf of TCTA and issue Construction Drawings.

ii) Method Statements

Review and accept or promptly notify rejection of the Contractor's proposals on work methods, and all other submissions for permanent and temporary Works for the Contracts.

iii) Red-lined Construction Drawings

The Consultant shall be responsible for maintaining at the site a complete set of "as built" drawings (red lines) for the project as the work proceeds. To this end, the Consultant shall, inter alia, on a set of working drawings, maintain a continuous, reproducible "as built" record of the actual alignments, levels, dimensions, etc. to which the Works have been constructed, and the geology and foundation conditions encountered on site.

iv) Pre-Commissioning

The Consultant will be responsible for drawing up a pre-commissioning list and program to make sure all tests needed to reach Ready for Commissioning (RFC) have been determined and scheduled. It is the Consultant's obligation to make sure all tests needed to fulfil the requirements of the test on completion have been satisfactorily completed.

The Consultant shall monitor pre-commissioning tests during construction and keep a record of Pre-Commissioning Test Results.

v) Draft Operation & Maintenance Manuals

The Consultant shall prepare Operation and Maintenance Manuals in accordance with DWS Standard (DWS 2510 Clause 3.22) for all components, equipment and installations to enable TCTA to safely discharge all obligations required to operate and maintain the project to ensure the sustainability and perseverance of the assets.

These manuals should be provided before Tests on Completion of the various components or elements of the works and for RFC before commissioning.

### 3.1.2 Manufacture and Delivery of Plant and Pipes

The Consultant shall respectively ensure that all the appropriate mechanical and electrical plant, including pumps, valves, cranes, instrumentation and appropriate pipe work, for which they are responsible and that are provided by the Contractors, are:

- of adequate design and quality that meets the requirements of the Specifications and performance criteria, and
- delivered to the site to meet the installation dates of the construction programme.

Accordingly, the Consultant shall establish an inspection programme to:

- (i) ensure that the Contractors and manufacturers have acceptable quality assurance programmes for the work,
- (ii) review and approve shop drawings, purchase orders, catalogues, samples, mill test reports, welding procedures, etc., to verify dimensions, quantity, materials, finishes, fits, etc.

- (iii) arrange for quality inspection contracts to carry out factory and site inspections during the course of planning, material procurement, manufacture and testing, to control the quality of materials and workmanship, and to prepare regular inspection reports and copy them to TCTA.

The Consultant shall arrange with the Contractors' Approved Independent Authority (AIA) to visit the factories, review the manufacturing processes and witness tests on a regular basis consistent with the progress of the works.

The Consultant shall, in consultation with the Contractors' AIA, review the programmes to verify delivery of plant to site in accordance with the construction programmes, and shall:

- I. review material procurement, manufacturing and testing programmes to verify that they are in compliance with the project programmes and inspection standards,
- II. identify, as far as reasonably possible, deficiencies in materials, plant production facilities, personnel or other potential threats to the project programmes,
- III. bring any problems identified to the attention of the Contractors so that the Contractors can ensure that manufacturer's programmes are adhered to, that late starts are avoided, and the bottlenecks are identified as early as possible, and
- IV. advise, as far as reasonably possible, the Contractors of potential shipping problems, so that they can ensure that shipping instructions are adhered to and that making or tagging is carried out according to instructions.

### **Sub Task 3.2 Environment and Social**

The Consultant shall undertake daily routine inspections and environmental monitoring of all construction activities to ensure compliance with environmental provisions in the contractual specifications and the Environmental Authorisation/Environmental Management Plan/Water Use Licence.

During the Defects Liability Period of the construction contracts or as required, conduct regular site visits to monitor progress against the programme and specifications of landscaping, rehabilitation and any remedial measures. The Consultant shall be responsible for the final acceptance of rehabilitated sections of the Works, i.e., obtain/facilitate sign-off from all impacted landowners and will remain on the project until 100% of rehabilitation activities are completed as per the Specification and may extend beyond the Defects Liability Period.

#### **3.2.1 Environmental Monitoring and Inspection**

The Consultant shall undertake daily routine inspections and environmental monitoring of all construction activities to ensure compliance with environmental provisions in the contractual specifications and the Environmental Authorisation/Environmental Management Plan. The activities include, but not limited to:

- i) Daily routine site inspection,
- ii) Identification, evaluation and reporting of environmental risks posed by construction activities,
- iii) Monitor the effectiveness of Method Statements in terms of environmental protection,
- iv) Monitor the effectiveness of environmental mitigation measures,

- v) Evaluate and report compliances and non-compliances,
- vi) Preparation of monitoring reports (daily, weekly and monthly),
- vii) Quantitative evaluation and reporting of key environmental parameters,
- viii) Quantitative evaluation, interpretation and reporting of conformances and non-conformances in terms of the level of exceedance,
- ix) Prepare analytical reports (graphs, trend analysis, statistical analysis of data, interpretation, time series analysis and comparative analysis of key parameters),
- x) Ensure landscaping, rehabilitation and re-vegetation occurs according to the programme and the specified standard.

The Consultant shall prepare appropriate tender documents for competitive bidding by sub-contractors (specialist studies, water quality sample collection & analysis, surface water flow rate monitoring & etc) together with a detailed cost estimate for the proposed programme. The programme and cost estimate shall be submitted to the TCTA for approval before any fieldwork is undertaken. The cost for sub-contract(s) is provided for in a Provisional Sum in Annexure O.

### **3.2.2 Environmental and Social Method Statements**

All method statements received must be reviewed for environmental and social compliance.

### **3.2.3 Environmental and Social Protection Measures and Rehabilitation**

The Consultant shall monitor and report on the implementation, operation and maintenance of environmental protection measures and rehabilitation.

The following reports shall be prepared and maintained during construction:

- i) Technical Instructions for Preventative Action
- ii) Technical Instructions for Corrective Action
- iii) Monthly progress report to Client as part of CRE's report.
- iv) Issues and Incidents Register.

The Consultant shall compile an Operations Environmental Management Plan and integrate it into O&M Manuals specified in Clause 3.1.1 (v) & 3.3.5.

### **3.2.4 Incident Management**

Incidents are defined as events, which are either natural (e.g., fires, floods, etc.), human-induced (e.g., oil, diesel or hazardous liquid spill) or related to labour issues (e.g., strike action, etc.) that may cause a significant negative environmental or social impact or that will result in public concern. Incidents can either be accidental or incidents of non-compliance with the contract specifications or the objectives of the EMP.

When an incident arises on-site, it is the responsibility of the Engineers' Environmental Lead (in the case of environmental non-compliance) or Social Monitor (in the case of social non-compliance) to immediately inform TCTA through the CRE. A brief incident report should be submitted to TCTA within 24 hours of the incident occurring.

The purposes of incident reporting are to:

- Accurately record incidents for reference;
- Demonstrate due diligence;
- Describe the nature of non-compliance or accident and outline management response for mitigating the impacts; and
- Ensure that repeat incidents are avoided by conducting a root cause analysis.

Reportable incidents include, but are not limited to:

- Chemical, hydrocarbon and hazardous liquid spills,
- Construction vehicles working in identified sensitive habitats without authorisation,
- Accidental discharge of large quantities of sediment into the river,
- Fire on site,
- Explosion,
- River in flood,
- Community unrest,
- Strike action by employees, and
- Any incident that results in the implementation of emergency procedures.

The information to be reported in an incident report will vary according to the circumstances and context of the incident, but should at a minimum include the following:

- Date, time and location of the incident,
- Brief description of the nature of the incident,
- Impact on the natural and social environment, public health and safety,
- Expected duration, extent and significance of the impact,
- Mitigation actions and methods used to prevent further or ongoing impact,
- Cause of the incident,
- Management actions to prevent re-occurrence.

### **3.2.5 ECO Activities**

The following titles will be applicable for environmental personnel on site:

- Environmental Manager – Client’s representative
- Social Manager- Client’s representative
- Social Monitor – Consultants representative
- Environmental Lead/Monitor – Consultant’s representative
- Environmental Officer – Contractor’s Representative

- Environmental Control Officer (ECO)

### **3.2.5.1 Environmental Control Officer (ECO)**

TCTA will appoint the ECO on behalf of the Department of Environment Forestry & Fisheries. The Consultant shall provide the ECO with environmental and social monitoring data as received from the Contractors. The Consultant shall accompany the ECO on on-site visits and audits. The Consultant shall review and provide input on all ECO monitoring reports. The Consultant shall forward the ECO's monitoring reports to the Contractors for a written response. Where applicable, the Consultant shall instruct the Contractors to implement corrective measures.

### **3.2.5.2 Environmental Monitoring Committee**

The Consultant shall make available the following staff members to attend (as observers) EMC meetings if the Committee is established, namely the CRE (or delegated RE), the Environmental Monitor and the Social Monitor.

### **3.2.6 Social Performance Reports**

The Consultant shall review and provide a response on social performance reporting by the Contractors against the Social Management Plan. Where applicable the Consultant shall instruct the Contractors to implement corrective measures in the case of deviation from planned actions.

### **3.2.7 Environmental Audit Reports**

The Consultant shall review and provide a response on EA & EMP compliance audit reporting by the ECO. The Consultant shall forward the ECO's monitoring reports to the Contractors for a written response. Where applicable, the Consultant shall instruct the Contractors to implement corrective measures.

## **Sub Task 3.3 Commissioning**

This task covers all specific tasks required during the Commissioning Phase. The tasks include planning and monitoring the commissioning activities and production of calibration certificates, commissioning reports, detailed asset register, etc. in accordance with DWS Standards and As-Built Drawings.

The objectives for this task include, inter alia, the following:

- i) to administer the commissioning of the Works,
- ii) to assist with training Operators during contract implementation, especially during Ready for Trial Operation (RFTO)
- iii) to inspect the Works and to issue the Taking-over Certificate when the Contractor has fulfilled all its contractual obligations and handover of the works to DWS.

The services cover all specific tasks required prior to and during the integrated Commissioning, including planning activities.



### **3.3.1 System Compliance Testing**

Based on the Ready for Commissioning Documentation the Consultant shall conduct system compliance testing and give relevant results such as the following, but not limited to:

- i) Alarm Test Results,
- ii) Trip Test Results,
- iii) Inspection Results.

### **3.3.2 Calibration Certificates**

The Consultant shall be responsible for monitoring the commissioning of all works, components and plants covered by this Agreement. The Consultant shall:

- i) ensure that water-tightness of seals and glands is observed,
- ii) all valves and scours are tested,
- iii) carry out check evaluations of observed data during the course of commissioning and advise the Contractors accordingly,
- iv) ensure that any difficulty of operation, vibration or distress will be checked and made good before repeating the commissioning test,
- v) ascertain that both manual and power-driven modes of operation are checked, and
- vi) review and approve commissioning reports to be prepared by the Contractors.

The Consultant shall undertake any calibrations and prepare Calibration Certificates.

### **3.3.3 Record Drawings**

Based on Ready for Commissioning Documentation the Consultant shall finalise and prepare Record of Drawings, taking into account any changes made in the commissioning period. Further,

- i) On substantial completion of the construction of each component, electronically transfer all recorded "As-built" changes onto the Construction Drawings and thereby prepare the Record Drawings.
- ii) Shall submit a full set of Record of Drawings to TCTA in soft copy, in an AutoCAD format, at issuing of the Ready for Operation Certificate. This milestone shall be shown on the Consultant's programme.

### **3.3.4 Asset Register**

The Consultant shall prepare an Asset Register of BRVAS in accordance with the DWS Specification.

### 3.3.5 Final Operation and Maintenance Manuals

The Consultant shall prepare detailed Operation and Maintenance (O&M) manuals, which will include instrumentation for the structures, equipment and plant provided under the Construction Contracts.

The O&M manual will include, *inter alia*:

- i) reference to all relevant design and other reports, in order to provide a complete bibliography pertaining to the structures and plant,
- ii) specifications, data and statements on design for operation and maintenance staff to understand the basis of their functions,
- iii) drawings, diagrams, charts, etc. to facilitate understanding of the O&M requirements,
- iv) complete list of components particularly plant and instrument parts and spares,
- v) standard forms for O&M functions and step-by-step instructions,
- vi) an Emergency Preparedness Plan in accordance with current Dam Safety and Disaster Management legislation,
- vii) River/ pump station operating rules taking cognisance of environmental requirements.
- viii) Manufacturers' O&M and data packs
- ix) Manufacturers' contact numbers and guarantee certificates,
- x) As-built drawings

The O&M Manual shall be divided into sections in such a way that is easy to understand and follow. The requirements will be discussed with TCTA.

The Consultant shall liaise with TCTA and others, as directed by TCTA, to ensure that uniform, complete, high-quality O&M manuals are prepared for the project.

### 3.3.6 Post-Construction Services

During the Defects Liability Period, the Consultant shall periodically check the completed work and notify the Engineer and TCTA of any defect in the construction work or the Plant that requires rectification. The Consultant shall propose a list of personnel to be made available during the Defects Liability Period for approval.

Shortly before the end of the Defects Liability Period, the Consultant shall check the completed work and, after ensuring that all noted defects have been corrected by the Contractor to the Consultant's satisfaction, through the Engineer, issue a Defects Liability Certificate to the Contractor in terms of Clause 11 of the Construction Contracts. The Consultant shall then prepare a Final Certificate based on the Final Statement of the Contractors, in terms of Clause 14 of the Construction Contracts.

The Consultant shall also make his recommendations to TCTA for the return of any outstanding guarantees, etc. provided earlier by the Contractors under the terms of the Construction Contracts, such as the Performance Security.

### **3.3.7 Taking-Over of the Works**

The Consultant shall be responsible for preparing Taking-Over Certificates in terms Of Clause 10 of the Construction Contracts following the successful completion of the relevant commissioning tests.

No Taking-Over Certificate for any section of the Works or the whole of the Works may be issued without the O&M Manuals having been submitted.

It is recognised that all the supervision work to be undertaken by the Consultant will not be complete at the time that construction is complete. A period of three months will be allowed for the Consultant to finalise these activities, during which period they shall issue the Taking-Over Certificate for the Construction Contract (or the last of such certificates, if the work is completed in stages).

### **3.3.8 Construction Completion Reports**

The Consultant shall prepare Completion Reports for all major components and Plant of the Contract Works, incorporating Record of Drawings, within 60 days of the issue of any Taking-Over Certificates. Completion Reports shall also include details of construction methodology, concrete quality, geological and geotechnical conditions, maps and survey information, commissioning reports, etc. prepared during the assignment.

## **TASK 4 – ASSESSMENT & CLOSE-OUT**

The objective of the sub-task is to conclude all contractual obligations and record lessons learnt for the benefit of future projects.

### **Sub-Task 4.1 Engineering**

This section covers all tasks required to fulfil the Engineering requirements during the Assessment and Close-out Phase. The tasks include assessment of project performance in relation to the design and performance criteria, Specifications, recording of lessons learnt and providing inputs to the Project Close-Out Report.

#### **4.1.1 Performance Certificate**

Upon conclusion of the Defects Liability Period, the Consultant shall conduct performance testing and prepare Performance Certificates.

The Consultant shall assess project performance and compile the following Reports:

- (i) Engineering Guidelines for Technical Implementation (GTI) Evaluation Report,
- (ii) Engineering and Close-Out Report,
- (iii) Engineering Lessons Learnt.

### **Sub-Task 4.2 Environment and Social**

The Consultant shall assess the environmental and social aspects of the project and provide input into the Project Close-Out Report.

## **2.5 TASK 5 – PROJECT MANAGEMENT**

This task covers all tasks required to fulfil Project Management of the assigned tasks based on the engineering, environmental and social activities only – from tender design up to the conclusion of the Services. These tasks include assisting in evaluating technical risks, managing resources, assisting in the awarding and supervision of the construction/supply contracts, distributing technical information, ensuring integrated change control, and the production of all technical reports that are deemed necessary to complete the project successfully.

### **2.5.1 Sub-Task 5.1 Integration Management**

The Consultant shall be responsible for integrating all disciplines within their team as part of the scope of service while considering interfaces with the other consultant.

The Consultant's Chief Resident Engineer (CRE) will be responsible for the performance and management of all engineering, environmental and social activities in accordance with the Contract. The Consultant's CRE shall report directly to TCTA.

### **2.5.2 Sub-Task 5.2 Scope Management**

#### **2.5.2.1 General Objectives**

The Consultant shall develop a work breakdown structure as per their scope of services which should include all required authorisation, tender design, and all other relevant engineering, environmental and social project requirements. The Consultant should manage all changes to the project to make sure that their activities are delivered on time, within budget and meet all the project's requirements.

#### **2.5.2.2 Scope Variance Analysis**

The Consultant shall review the tender design on regular bases and bring to the attention of TCTA any apparent discrepancies, errors or omissions in the scope of services and drawings, and make recommendations, supported with appropriate details, for remedial action.

The Consultant will submit as part of the Tender Design Report, a full variance report showing changes from the Feasibility and Conceptual Design Report. Effects of the Environmental Authorisation(s) requirements shall also be taken into consideration.

The Consultant shall revise the approved working drawings and prepare supplementary working drawings, as required to meet field conditions and to complete the works. All construction drawings shall comply with the Technical Specifications and be updated if such specifications are revised by Variation Order.

The Consultant will keep a record of all the scope changes in engineering, environmental and social, activities and will form part of the monthly CRE report. It should clearly indicate any changes to the scope that has happened in the month and why were these changes necessary. These together with all scope changes in other activities will be compiled into a full report as per the construction contract managed by the Engineer.

### **2.5.3 Sub-Task 5.3 Time Management**

The Consultant shall be responsible for the preparation and updating of the design and construction supervision component of the programme as part of the task and no separate reimbursement shall be made for the production of such a programme.

#### **2.5.3.1 Integrated Baseline Programme**

The Consultant shall prepare a detailed programme based on the Client's indicative programme as per Agreement: Appendix 4 (Time Schedule for Services), with milestones and specific key dates, covering only the engineering, environmental and social activities to be carried out during all project phases.

The Consultant shall update the programme to reflect the information forthcoming from the tender design and clearly indicate all long lead items to be procured.

Once accepted by TCTA, the Programme shall be incorporated into the project's baseline programme for the monitoring of the work and will be referred to as an Approved Programme. Monthly progress will be measured against the approved programme, any changes and/or corrective measures in the event of delays to the approved programme shall require TCTA's approval.

### **2.5.4 Sub-Task 5.4 Cost Management**

The Consultant shall be responsible for preparing and/or reviewing and continuous monitoring of all the costs and approved budgets that are related to all engineering, environmental and social (i.e., Consultant's personnel by task, all the direct reimbursable costs, provisional sums, escalation, etc.) Forecasted cash flows must be prepared, considering the effect of escalation, additional scope and variances, claims and notices thereof, advance payments, resources and the construction programme etc. monthly. All cost reports and accruals are due to TCTA by the 1st day of every month.

The Consultant shall ensure that there is no unauthorised expenditure as per National Treasury instruction note 4 of 2021 i.e., actual costs exceeding the approved budgets, for Services always and advise the TCTA in advance of any additional funds required.

#### **2.5.4.1 Preparation of Engineer's Cost Estimate for the Works**

The Consultant shall contribute to the preparation of the Engineer's Cost Estimate for the Works, based on the tender documents and tender drawings prepared under Sub-task 1.1. The estimate shall be prepared in the following manner:

- i. The cost estimate must be suitable for presenting to potential funders (commercial banks, international project funders etc.).
- ii. A Bill of Quantities (BoQ) using the tender design and drawings in accordance with a recognised standard method of measurement of civil engineering works. The accuracy of the BoQ shall be appropriate to the level of information available.
- iii. Construction methodologies and programmes, as well as production rates and quantities, shall be used.

- iv. For civil works, where resource-based costing is not applied, the Consultant may make use of relevant rates and prices for works of a similar nature on other recent contracts. The use of such rates shall be highlighted in the estimate.
  - The contract sums should at least include materials, plant, labour, services, lump sums, time and value-related costs, fixed costs, measured work, sub-contractors, and escalation.
  - Permanent equipment costs shall be estimated based on the manufacturer's quotations.
  - Separate provisions for cost price inflation shall be made in the estimate of the contract sum.
- v. Cash flows shall be prepared from the cost estimates and shall include the effect of contract price escalation. The cash flow shall also consider the effect of any advance payments, interim valuations, retention, etc.

#### **2.5.4.2 Cost Control**

The Consultant shall:

- i. Be responsible for monitoring Contract Costs relative to the Contract Budget related to engineering, environmental and social, services. The Consultant shall prepare an estimate of the contracts' cost incorporating costs of Variation Orders and projected expenditures from provisional sums.
- ii. Carry out this update using a computerised budget and cost forecast system (to be prescribed by TCTA) at intervals of not more than three months. The estimated cash flow to completion of the Contracts shall also be prepared on three monthly bases, based on the
- iii. The actual costs will not at any point in time exceed the approved ceiling amount.
- iv. Ensure that all variations are approved prior to work commencement.

#### **2-5.5 Sub-Task 5.5 Quality Management**

The Consultant shall prepare a Contract Quality Plan for the Services. The plan should include, inter alia, the following and be submitted to the TCTA for approval prior to the commencement of any Services:

- i. management and supervision, administration, monitoring, document control, procurement, engineering, environmental (natural and social) and quality assurance in accordance with recognised standards (ISO 9001) and organisation of the Consultant's own services,

##### **2.5.5.1. Contract Quality Plan**

The Consultant shall:

- i. approve the Contractor's quality plan and make sure that it is in line with his own quality Plan.
- ii. ensure that the Contractors comply with the approved quality plan.

- iii. analyse quality audit reports submitted by the Contractors.
- iv. submit to the Engineer and copy TCTA a report detailing any problems in the Contractors' quality audit report and provide details on the corrective and preventative action taken.

#### **2.5.5.2. Construction Supervision**

The Consultant shall be responsible for monitoring the construction of engineering, environmental and social activities to ensure that:

- i. the quality of workmanship and materials in all works conforms with the construction Contract Specifications,
- ii. the work is carried out by the construction Contractors in a healthy, safe, and appropriate way to acceptable international standards,
- iii. the equipment and staff provided and used by the Contractors are adequate to construct the Works and maintain the programme, and
- iv. all quality control requirements are satisfied.

Whenever work done and/or materials placed by the Contractors deviate from those specified in the Construction Contract and are approved unilaterally by the Consultant, the Consultant shall be liable to TCTA for any damage to TCTA resulting from such deviations.

#### **2.5.5.3. Inspection and Control of Construction Activities**

To ensure that all the construction works are carried out in accordance with the Construction Contract, the Consultant shall undertake, inter alia, the following activities:

- i. Verify that the Contractor's equipment is of adequate condition and capability to perform the Works in accordance with the Contract.
- ii. Review and accept or promptly notify rejection of the Contractors' proposals on work methods, and all other submissions for permanent and temporary Works for the Contract.
- iii. Revise the construction drawings and prepare supplementary construction drawings, as required to meet field conditions and to complete the works. All construction drawings shall comply with the Technical Specifications unless such specifications are revised by Variation Order.
- iv. Ensure that all necessary drawings and other documents are issued to the Contractor in a timely manner such that construction work will proceed without hindrance.
- v. Check the Contractor's surveys, control points and setting out as work proceeds. TCTA will provide sufficient basic survey ground control to enable the Contractors to establish their own survey control, baselines and elevations. The Consultant shall provide experienced surveyor(s) and modern survey equipment.
- vi. Provide an appropriate level of inspection to ensure that the design intent, Specifications, Drawings and general Contractual requirements are being met. The inspection services shall cover but not be limited to:
  - construction workmanship and acceptability of installation,
  - profiles, lines and grades,

- materials and Plant purchased – source, quality etc,
  - materials and Plant as placed – source, properties, performance,
  - monitoring of all instrumentation installed,
  - all construction activities, including preliminary preparatory work, materials production and final finish,
  - all Contractors' testing tools and equipment and
  - finished works, tests on completion and commissioning.
- vii. Establish and carry out a material testing programme, independently of the Contractors, which will determine the quality of construction materials through the control of quarries and borrow areas. The programme results shall be used by the Consultant in the control of the construction works.

Testing by the Consultant shall be carried out by the Consultant's laboratory staff with labour provided by the Contractors, and with the testing facilities available at the Site Laboratory, in accordance with the Specifications of the construction Contract or standards or procedures approved by TCTA. Test reports on standard project forms shall be prepared by the Consultant and promptly issued in accordance with established procedures.

Testing facilities (laboratories, services and testing equipment supplied and installed) will be provided by the Contractors, as required by the Consultant, and stated in Appendix 2, through appropriate items in the construction Contract. All necessary testing equipment and tools to carry out materials testing shall be specified and approved by the Consultant before the order is placed by the Contractors.

The Consultant shall be responsible for ensuring that the testing facilities are complete and appropriate for the Work and are fully operational in time for the materials testing programme.

The testing programme by the Consultant shall be coordinated with the construction Programme of the Contractors so as not to hinder construction progress if the quality of materials is maintained. Annexure W shall also describe the Consultant's planned materials testing programme:

- Resolve problems of conflicts promptly as they arise with respect to discrepancies in drawings, changed conditions, etc. Review problems with TCTA as appropriate before instructing the Contractors.
- Inspect works as they are completed (jointly with TCTA, at TCTA's discretion), prepare deficiency lists and monitor the correction of deficiencies. Issue Taking-Over Certificates and Defects Liability Certificates in accordance with the construction contract and prepare detailed Completion Reports and record drawings for all major elements of the project.
- The Consultant shall prepare a programme of field geotechnical testing to be carried out by the Contractors during the progress of the construction Works.

Equipment and instrumentation for geotechnical testing will be specified in the construction Contract Documents and will be supplied by the Contractors. Any additional equipment or instrumentation required to fulfil the field geotechnical testing programme shall be specified by the Consultant in Agreement: Appendix 2 and will be supplied by the Contractors through billed items in the construction Contract.



During the progress of the construction Works, the Consultant shall supervise the installation and reading of measurement instrumentation and any other in situ or laboratory geotechnical testing carried out in accordance with the programme and shall prepare a complete geological mapping of the structure's foundations and excavations.

The Consultant shall compile and analyse the result of all geotechnical testing and measurements, for immediate use in determining stability and the required support measures, and similarly for the detailed records of all grouting operations.

In carrying out the supervision work, the Consultant shall establish a good liaison between his construction supervision staff and his design staff, to the extent required to ensure that the intent of the designs is properly recognised and carried out.

### **2.5.6 Sub-Task 5.6 Human Resource Management**

The Consultant shall provide adequately qualified and competent personnel to fully carry out all the Services that include, *inter alia*, engineers and other specialists experienced in the design, administration and construction of weirs and dams, diversion and abstraction works, spillway and intake structures, gates and valves, pump stations and pipelines. Provided resources must be as per the following schedules:

- ANNEXURE D: PERSONNEL
- ANNEXURE E: MANPOWER SCHEDULE

The Consultant shall give special consideration to the procedures as they pertain to hazards that affect the work site during construction. The Consultant will supply TCTA with a monthly CRE report detailing any problems and giving details on the corrective and preventative action taken by the Contractors.

#### **2.5.6.1. Project Team Allocation**

The Consultant shall provide adequately qualified and competent staff to fully carry out all the Services of this Contract. The structure of the organisation shall be graphically presented in an organisational chart.

The Consultant shall make an allowance for supervising and inspecting the works on a 2-shifts, 6-days per week basis and they will make sure the team can provide an appropriate level of inspection to ensure that the design intent, Specifications, Drawings and general contractual requirements are being met. The inspection services shall cover, but not be limited to:

- i. construction workmanship and acceptability of installation,
- ii. profiles, lines and grades,
- iii. materials and Plant purchased – source, quality, etc,
- iv. materials and Plant as placed – source, properties, performance,
- v. all construction activities, including preliminary preparatory work, materials production and final finish,
- vi. all Contractor's testing tools and Equipment,
- vii. finished works, test on completion and commissioning, and

### **2.5.6.2. Project Team Maintenance**

The Consultant shall provide adequately qualified and competent staff to fully carry out all the Services of this Contract. The structure of the organisation shall be graphically presented in an organisation chart.

It is the responsibility of the Consultant to manage his team to provide Engineering, Environmental and Social specialist services to define, develop and manage the design, environmental and Social impact of all components and infrastructure. The Consultant shall ensure timeous mobilisation of team members, to allow for integration and cross-field handover. The Consultant shall submit a current organization chart in his monthly report.

## **2.5.7 Sub-Task 5.7 Communication Management**

### **2.5.7.1. Reporting**

The Consultant shall submit at pre-determined milestones, two hard copies and one soft copy (original format and pdf) of all deliverables to the TCTA. The Consultant shall identify the report milestones in its programme.

Preparation of these reports shall be carried out as part of the tasks and no separate remuneration shall be made for production of such reports. The Consultant shall prepare and present to the TCTA, *inter alia*, the following reports:

- i) Inception report, as per Task 1.
- ii) Provide technical input into the monthly progress reports.
- iii) Financial review reports.
- iv) PoE briefing reports.
- v) Responses to PoE reports.
- vi) Any other technical report that TCTA may need from time to time.

#### **(a) Monthly Progress Reports**

The Consultant shall provide input into the monthly reports summarising progress during the month on a quantitative and cost basis with appropriate graphical presentations related to the engineering, environmental and social activities. It shall include a list of person-hours and cost expended on the various tasks, sub-tasks and Variation Orders for out-of-scope work and shall identify variances in their area of work.

The monthly report shall be made as of the end of each calendar month. When any phase of the construction work or the Consultant's services falls behind the programme, the Consultant shall make recommendations in writing to TCTA as to the action to be taken to expedite progress.

## (b) PoE Reports

The Consultant should take note that TCTA has appointed an independent panel of experts (Engineering, Environmental and Social) who will be responsible for reviewing some of the Consultant's works (where required). To enable an efficient review process the Consultant shall prepare and issue a report at least 14 days before a site visit from TCTA's PoEs, highlighting all design issues, technical difficulties and proposed resolutions, cost and programme implications (where applicable).

The Consultant shall provide any special reports related to the Works as reasonably requested by TCTA.

### 2.5.7.2. Interactions with the PoE, DAB and other Consultants

The Consultant shall cooperate with the appointed Consultant, TCTA's PoEs and DAB.

The Consultant shall attend meetings at the site and make technical presentations highlighting design issues, technical difficulties, and proposed resolution, as well as cost and programme implications. In general, the procedure will require, Consultant's input, PoE's comments, and Consultant's response followed by a meeting. The technical presentations should include MS PowerPoint or Primavera slides, drawings and formal handouts.

### 2.5.7.3. Meetings

As part of fulfilling their requirements to ensure satisfactory communication, the Consultant shall attend the following meetings and other ad hoc meetings as requested by TCTA (see table below).

Meeting	Frequency	Responsibility for Minutes	Chairmanship
Project Committee	Monthly	TCTA	TCTA
Management	When required	Engineer	TCTA
Integration	When required	Engineer	TCTA
Technical	Monthly	Consultant	Consultant
Progress	Monthly	Engineer	Engineer
PoE	When required	Engineer	Engineer
Environmental Management Committee (EMC)	When required	TCTA	TCTA

## 2.5.8 Sub-Task 5.8 Risk Management

The Consultant shall update the project risk register for their scope of Services. The consultant's risk register will be incorporated into the overall project risk register. The updated risk register for technical services will be included in the CRE's monthly progress report. The format and structure will be agreed upon with TCTA.

### **2.5.9 Sub-Task 5.9 Procurement Management**

1. The Client will provide procurement strategies for the main contractor and other consultants where required. All procurement activities will be based on Supply Chain Management (SCM) legislative frameworks and their associated amendments, regulations, instructions and standards as follows:
  - a. The Constitution of the Republic of South Africa, 1996 (“the Constitution”);
  - b. Broad-Based Black Economic Empowerment Act 53 of 2003 as amended by Act 46 of 2013, regulations and codes (“B-BBEE”);
  - c. Competition Act 89 of 1998 and its regulations;
  - d. Construction Industry Development Board Act 38 of 2000 (CIDB) and its regulations and standards
  - e. South African Bureau of Standards, SANS 10845-1, Construction procurement – Part 1: Processes, methods and procedures;
  - f. South African Bureau of Standards, SANS 10845-2, Construction procurement – Part 2: Formatting and compilation of procurement documentation;
  - g. Public Finance Management Act 1 of 1999, regulations, standards, instruction notes, practice notes and guidelines (PFMA);
  - h. Preferential Procurement Policy Framework Act 5 of 2000 and regulations (PPPFA);
  - i. Prevention and Combating of Corrupt Activities Act 12 of 2004;
  - j. Promotion of Administrative Justice Act 3 of 2000 (PAJA); and
  - k. Promotion of Access to Information Act 2 of 300 (PAIA).

#### **2.5.9.1 Preparation of Tender Documents for the main contractor**

The Consultant, together with other appointed consultants, shall assist the Client in the preparation of tender documents and evaluation of tenders for the construction contract. It shall also supervise the contracts for the supply and installation of Equipment and commissioning of the Works for BRVAS. The Consultant shall discuss in detail with the Client the extent to which Tenderers should be permitted to suggest alternative designs, construction methods or temporary works.

The Consultant shall also define the following response times in the tender documentation:

- i. The Contractor to indicate the time of submitting its construction programme and the lead times it requires for information for each activity in such construction programme.
- ii. The time required for the approval of workshop detailed drawings and other submissions by the Contractor.

#### **2.5.9.2. Release of Tender, Evaluation and Award of the main contractor**

The Consultant shall assist TCTA with the tendering process and the establishment of construction contracts. This item shall include, but not be limited to, the following activities.

- i. Attend a site inspection meeting for Tenderers, including orientation, site visits and Tenderers' meetings with follow-up written responses to Tenderers' enquiries as addenda to the Tender.
- ii. Assist TCTA to provide technical clarification that may be required by Tenderers during the period of tender preparation. All replies to requests for information shall be sent to TCTA.
- iii. Participation in contract negotiations between TCTA and the selected Tenderer and preparation of a Memorandum of Understanding (MOU).

### **2.5.9.3 Administration of Contracts**

The Consultant shall provide technical input, *inter alia*, to manage claims related to design-related changes by the Contractors and prepare Variation Orders for changes to the scope of the work, in accordance with the requirements of the construction contracts based on the FIDIC First Edition 1999 suite of conditions:

### **2.5.10 Sub-Task 5.10 Stakeholder Management**

The Consultant must:

- i. Promote good project relations and, in so doing, monitor community relations.
- ii. Inform interested and affected parties about project activities, particularly the directly affected communities and landowners.
- iii. Keep a detailed record of all interactions with the interested and affected parties, including details of each interested and affected party.
- iv. Identify and resolve potential problems and challenges promptly.
- v. Record and promptly address all complaints and issues submitted by interested and affected parties.
- vi. Report regularly to TCTA on the above.

## **2.6 TASK 6 – TRANSFORMATION**

The Consultant shall be subject to and comply with the following requirements and conditions related to TCTA's transformation objectives in providing the Services.

### **2.6.1 Subtask 6.1: Participation of Black-Owned Enterprise/s**

TCTA's objective is to ensure that black-owned enterprises participate in the implementation of this contract, to promote enterprise and supplier development and the development of black Professional Service Providers (PSPs). To this end, TCTA requires that a minimum of 30% of the value of work/contract value must be allocated to an enterprise that is 51% or more black-owned. Where the Consultant is a Joint Venture (JV) or Consortium, 30% of the value of work/contract value must be allocated to the JV or Consortium partner/s that is at least 51% black-owned.

## 2.6.2 Subtask 6.2: Employment: Participation of Black Professional People (BPP)

The minimum targets for the participation of South African Black Professional People (BPP), Female Historically Disadvantaged Individuals (HDI) and Youth are based on a person-month for each category within the Built-Environment Sector detailed in Table 2.6 below.

**Table 2.6.:** Targets for the participation of South African PBP

Category	Minimum target for BPP (%)	Minimum target for Female HDI (%)	Minimum target for Youth (%)
MANCO	30	30	0
Environmental (Natural and Social)	20	10	5
Engineering	20	15	10

## 2.6.3 Subtask 6.3: Training and Skills Development: Black People

The minimum targets for the training and skills development of Black People (as defined in the Broad Based Black Economic Empowerment Act 53 of 2003) for various skills programmes should be in line with the CIDB B.U.I.L.D Programme as gazetted (Government gazette No. 48491). The expenditure on the above programme shall be allowed for in Annexure P.

## 2.6.4 Subtask 6.4: Non-Conformance Penalties

Should the Consultant fail to achieve the specified transformation targets for each programme at the date of completion of the Services, the Consultant will be penalised. The penalty amount shall be calculated on the sum of the individual category spends and their respective targets. The penalties will be calculated as follows for each transformation category:

### 2.6.4.1 Participation of Black-Owned Enterprises, Supplier Development, Enterprise Development and Preferential Procurement

Should the Consultant fail to reach the specified targets at the end of the contract, The Consultant will be penalised by an amount calculated as follows:

Penalty amount = (Target % - Actual %) x fee value (staff cost plus fee).

### 2.6.4.2 Employment

Penalty for Employment will be calculated per category in the Table of Employment as follows:

Penalty amount = (Target % - Actual %) x total staff cost of the category paid

### 2.6.4.3 Training and skills development

The penalty for this item will be R250 000 for each person not acquiring a minimum of NQF 6 qualification NQF Level 6 qualification.

Penalty amount (cost) = (Target % - Actual %) x total staff cost.

### **2.6.5 Subtask 6.5: Monitoring and Reporting**

For interim monitoring, the Consultant shall submit to TCTA, within 7 days of the end of each month, throughout the duration of the Contract, a progress report on the implementation of transformation programmes stipulated above. The format of the report shall be provided by TCTA. The Consultant shall sign the report and ensure that the information is true and correct.

Within 60 days after the completion of the Services, an audited statement verifying that agreed targets for each transformation target have been met shall be submitted to TCTA. During the execution of the Contract, transformation implementation shall also be audited annually and submitted to TCTA. The auditing shall be carried out by an independent external auditor appointed and paid by the Consultant. However, TCTA reserves the right to appoint the independent external auditor at the Consultant's cost should the Consultant fail to appoint an independent external auditor in time, or if TCTA is not satisfied with the qualifications, independence or ability of the independent external auditor appointed by the Consultant. The terms of reference for the external auditor shall be agreed upon with TCTA before appointment.

The data so derived will be the figures by which final penalties, if any, will be calculated at the completion of the Services.

### **2.6.6 Subtask 6.6: Measurement and Payment**

Costs for complying with the Consultant's obligations in respect of implementing and managing transformation requirements shall be allowed in the returnables and in Annexure CC (: Appendix 3). The payment schedule shall include full compensation for a part-time officer/manager dedicated to managing this aspect and ensure compliance with and enforcement of the specified requirements.

## **AGREEMENT**

### **APPENDIX 2: PERSONNEL, EQUIPMENT, FACILITIES AND SERVICES OF OTHERS TO BE PROVIDED BY THE CLIENT(TCTA)**

#### **1. PROVISIONS BY THE CLIENT**

The Client will not directly provide any services, facilities, equipment and personnel for the Consultant's operations.

The Client will, however, reimburse certain facilities and equipment for the Consultant's operations. These items and methods of provision are detailed below. The Consultant shall add any other facility or equipment to the schedules if required and deemed necessary for the provision of the Services.

The costs of services, facilities and equipment required for the performance of the Services are deemed to be covered by rates and prices elsewhere in the Agreement.

#### **1.1 Task 1: Tender Design and Documentation**

The Client will not directly provide any services, facilities and equipment for the Consultant during this phase of the Services.

#### **1.2 Task 2: Detailed Design**

The Client will not directly provide any services, facilities or equipment for the Consultant during these phases of the Services.

#### **1.3 Task 3: Construction Supervision**

The Consultant is to provide his requirements for the following items and recommend Provisional Sums, which will be the ceiling for reimbursement, to be included in the Construction Contracts. Agreement: **Appendix 3** shall list the Consultant's requirements, including but not limited to the following:



- i) Laboratory testing equipment, instruments, and consumables.
- ii) Field testing equipment.
- iii) Digital telecommunications infrastructure and associated service costs at the construction site(s).
- iv) International travel including accommodation (where factory witnessing is required) and
- v) The size of office space required for site offices, including laboratory space.

**B-1.4 Task 4: Assessment and Closeout**

The sources of supply by the Client for this Task will be in accordance with the Stage of Services applicable at the time.

**B-1.5 Task 5: Project Management**

The Client will not directly provide any services, facilities or equipment for the Consultant during this task.

**B-1.6 Task 6: Transformation**

The Client will not directly provide any services, facilities and equipment for the Consultant during this phase of the Services.

## AGREEMENT

### APPENDIX 3: REMUNERATION AND PAYMENT

#### 1. BASIS OF REMUNERATION OF THE CONSULTANT

The Client shall remunerate the Consultant in respect of the Services in accordance with the Conditions of Contract and the following provisions:

##### 1.1 ESTIMATE OF COSTS

The cost estimate for the Services payable, for each of the project phases, is set out in the Schedules of Appendix 3. The costs of all services, facilities and equipment required for the performance of the Services but not specifically provided as a line item in Appendix 3 will be deemed to be covered by and incorporated in other elements of the Consultant's estimate of costs.

##### 1.2 CEILING AMOUNTS

Payments under the Contract shall not exceed the ceiling amounts of:

Ceiling No.	Phase/Task	Staff Cost	Direct Cost
1.	Task 1: Tender Design & Documentation		
2.	Task 2: Detail Design		
3.	Task 3: Construction Supervision		
4.	Task 4: Assessment & Close-Out		
5.	Task 5: Project Management		
6.	Task 6: Transformation		
7.	Fee on Total Staff Costs		-

No variation shall be made to a ceiling amount except as provided in Section 1.3.

##### 1.3 VARIATION IN THE CEILING AMOUNT(S)

If, due to a modification in the Scope of Services ordered by the Client, there shall occur a change in the cost of executing the Services envisaged in the cost estimates, then by agreement between the Parties the ceiling(s) shall be increased or decreased by the amount(s) of any such change in cost. Such increase or decrease in the ceiling(s) shall be evaluated in accordance with the applicable terms of payment specified herein and approved by the Client by a Variation in accordance with Clause 4.3 of the Conditions of Contract.

#### **1.4 RATES OF REMUNERATION**

The rates of remuneration are based on the representations made by the Consultant, with respect to his costs and charges, in the proposal for executing the Services.

Should these representations be found by the Client (either through inspections, audits or other means) to be materially incomplete or inaccurate, the Client shall be entitled to introduce appropriate modifications in the remuneration rates affected by such materially incomplete or inaccurate representations. Any such modification shall have a retroactive effect and, where remuneration has already been paid by the Client before any such modification:

- i) the Client shall be entitled to offset any excess payment against the next monthly payment to the Consultant, or
- ii) if there are no further payments to be made by the Client to the Consultant, the Consultant shall reimburse the Client any excess payment within sixty days of receipt of a written claim from the Client. Any such claim by the Client for reimbursement shall be made within twelve months after receipt by the Client of the final invoice.

#### **1.5 COSTS ASSOCIATED WITH CLIENT SECONDMENTS**

The Consultant is not responsible to pay salaries & site allowances for the Client seconded officials. However, all other direct costs (accommodation, vehicles, reimbursable travel, etc.) associated with the employment of Client seconded staff shall be payable, without employer prejudice, at the rates set out in the Schedules of this Appendix.

#### **1.6 MONITORING OF COSTS**

The Consultant will be required to monitor his estimated costs to completion of the Services. The Client will monitor staff costs by task and directly reimbursable costs by line item. The Client, at his discretion, may permit an overrun of one budget item to be offset by a saving in another completed budget item. However, the Consultant shall not incur any expenditure on in-scope work for which they expect reimbursement in excess of the budget for any task or line item without the prior approval of the Client.

The Consultant shall notify the Client as soon as cumulative charges incurred for the Services have reached 80% of the respective ceilings and shall simultaneously furnish its best estimate of the cost at completion of the tasks related to the ceiling.

## 2. CURRENCY OF PAYMENT

Payments to the Consultant shall only be made in South African Rand (ZAR). The Client shall reimburse the Consultant at the rates in ZAR specified in the Schedules of this Appendix.

For costs incurred outside the Rand Common Monetary Area, the Consultant is responsible to purchase the necessary foreign currency and the risk of all currency exchange rate fluctuations shall be borne by the Consultant.

## 3. PAYMENT OF STAFF COSTS

The following conditions shall apply to the payment of staff costs:

### 3.1 GENERAL

The client will accept invoiced amounts only for those staff named in the agreement or assigned to positions nominated in the Agreement or approved in advance of submission of the relevant invoice. Costs of administration support personnel in a home office such as secretaries and clerks, shall not be separately reimbursed but shall be deemed to be covered by billing rates for professional staff.

The Consultant will not be entitled to assign and charge for additional staff, nor change person-months in excess of those estimated for any position, without the prior approval of the Client. The Consultant will not be entitled to assign and charge for additional staff, nor change person-months in excess of those estimated for any position, without the prior approval of the Client. Such changes will be subject to confirmation in a subsequent Variation in accordance with Clause 4.3 of the Conditions of Contract.

### 3.2 STAFF CATEGORIES AND LEVELS

Staff residing on-site (category "R") are defined as those staff assigned to the site for continuous periods exceeding six months. All other staff shall be deemed to be home office staff (category "H").

Billing rate categories have different levels which are dependent on staff qualifications and years of experience.

Level	Engineers		Technologists		Technicians		Tech Assistants	
	Qualification	Exp	Qualification	Exp	Qualification	Exp	Qual	Exp
1							Tech Ass	<4
2					Technician	<4	Tech Ass	4-7
3			Technologist	<4	Technician	4-7	Tech Ass	8-12
4	Engineer	<4	Technologist	4-7	Technician	8-12	Tech Ass	13-18
5	Engineer	4-7	Technologist	8-12	Technician	>12	Tech Ass	>18

Level	Engineers		Technologists		Technicians		Tech Assistants	
	Qualification	Exp	Qualification	Exp	Qualification	Exp	Qual	Exp
6	Engineer	8-12	Technologist	>12	Pr Techni Eng	4-7		
7	Engineer	>12	Pr Tech Eng	4-7	Pr Techni Eng	8-12		
8	Pr Eng	4-7	Pr Tech Eng	8-12	Pr Techni Eng	>12		
9	Pr Eng	8-12	Pr Tech Eng	13-18				
10	Pr Eng	13-16	Pr Tech Eng	>18				
11	Pr Eng	17-20						
12	Pr Eng	21-24						
13	Pr Eng	>25						

An average cost-to-company component of the billing rate is applicable to all staff on the same level, with only a multiplier distinguishing between categories H and R as shown in Annexure R. For billing levels greater than level twelve, separate motivation is required. These levels are generally reserved for industry specialists, review panel members and executive managers of the Consultant.

### 3.3 CALCULATION OF BILLABLE TIME

Billable time for staff shall be determined on the basis of time actually spent by the staff in the performance of the Services at the billing rates specified in respect of such staff in Annexure R. For any particular month, the total time charged for each individual shall not exceed one person-month. Billable time for the two staff categories shall be calculated as follows:

- i. Services of staff based in the home office shall be measured, invoiced, and paid in calendar months or parts thereof, calculated by dividing person-hours of time actually engaged in providing services by a standard person-month of 168 hours.
- ii. Services of staff that are resident on site will be measured, invoiced and paid in calendar months or parts thereof. For site staff, no measurement will be made of working days on which vacation leave, sick leave or other (paid or unpaid) leave has been taken by the site staff, all of which shall be deemed to be covered by the billing rates and which will be deducted from the number of working days in the month. The amount to be billed for a “net” month of staff services on site will thus be calculated as:

$$(\text{Billing Rate}) \times \left[ \frac{(\text{Working days in the month concerned}) - (\text{Leave})}{(\text{Working days in the month concerned})} \right]$$

Where:

Billing Rate = billing rate per calendar month

Working day = a day on which work is scheduled in accordance with the Contractor's Programme

Leave = Working days taken as vacation leave, sick leave or other (paid or unpaid) leave in the month concerned

### **3.4 BILLING RATES**

#### **3.4.1 Home Office Staff**

For the measured time of home office staff (principals, partners, directors, and salaried professional and technical staff), remuneration shall be made on a person-month basis at the billing rates set out in Annexure R.

The billing rates shall be deemed to cover, *inter alia*:

- i) Cost-to-company remuneration consisting of:
  - all actual direct salary costs,
  - social charges (medical and retirement benefits, vacation leave, sick leave or other leave, statutory holidays, etc.),
- ii) costs of overtime worked by both professional and non-professional staff, as required by the Services and Works programmes,
- iii) company overhead costs (administration, office rent and services, communications, computer charges and all other such costs not directly reimbursable),
- iv) secretarial, clerical and any other support staff who are not nominated in Appendix 3, and
- v) all other costs of the Consultant in performing the home office service except the directly reimbursable costs.

#### **3.4.2 Resident Site Staff**

For staff residing on-site, reimbursement shall be made on a person-month basis at the billing rates set out in Annexure R.

The billing rates shall be deemed to cover, *inter alia*:

- i) Cost-to-company remuneration consisting of:
  - all actual direct salary costs,

- social charges (medical and retirement benefits, vacation leave, sick leave or other leave, etc.),
- ii) site working hours, shift work and costs of overtime worked by both professional and non-professional staff, as required by the Services and Works programmes,
- iii) company overhead costs, and
- iv) all other costs to the Consultant of performing the field services except the directly reimbursable costs.

### **3.4.3 Applicable Conditions for Staff Costs**

The Client reserves the right to audit all annual salary rates.

Factors for social charges and overheads shall be based on the Consultant's average costs.

Bonuses or other means of profit-sharing shall not be allowed as an element of overhead.

Billing rates shall be specified against junior staff positions for which staff have not been nominated. Such vacancies shall be filled by suitable staff as agreed with the Client, two calendar months prior to the services being required. Suitability will be assessed according to the categories for billing purposes in Annexure R.

The Ceiling Amounts as specified in Section 1.2 above shall apply and payment to the Consultant shall not exceed such amounts.

## **4. PAYMENT OF DIRECT REIMBURSABLE COSTS**

Subject to the ceiling amounts, the Client shall reimburse the Consultant for the directly reimbursable costs incurred.

The directly reimbursable costs shall be those actually and reasonably incurred by the Consultant in the performance of the Services. The Client will reimburse the direct costs at the unit rates, up to the limits listed in Section 1.2 above and Annexure T

The Client shall pay or reimburse the Consultant for the direct costs incurred in respect of the Services, as follows:

- i) per diem allowances to cover additional expenses for home office staff working on-site,
- ii) a site allowance to cover additional expenses for resident staff working on site,
- iii) cost of procured items and charges, if and to the extent required for the purpose of the Services,

- iv) any such additional payments for properly procured items as the parties may have agreed upon pursuant to the provisions of variations, and
- v) cost of such further items as may be required by the Consultant for the purposes of the Services, as agreed by the Client.

#### **4.1 APPLICABLE CONDITIONS FOR REIMBURSABLE COSTS**

Directly reimbursable costs shall be paid monthly. Supporting documentation, such as invoices from suppliers, sub-consultants and sub-contractors, shall be submitted to the Client for all items. The Client will reimburse only rates or actual costs, without markup.

The Consultant shall remunerate sub-consultants and sub-contractors directly for their services, in accordance with his contract with them.

The Client shall remunerate the Consultant in respect of sub-consultants' and sub-contractors' costs on the same basis as the Consultant is reimbursed for his costs, without any further markup or handling charges.

#### **5. PAYMENT OF CONSULTANCY FEE**

The fee shall be a fixed amount, which shall be a fixed percentage of the estimated staff costs as given in Annexure Q, regardless of the amount ultimately paid to the Consultant in staff costs for in-scope services excluding provisional sums.

Interim payments of the fee shall be made monthly in accordance with the actual approved escalated staff costs claimed in the month and calculated as specified above. Payment of the fee shall cease when the un-escalated cumulative fee reaches the fixed fee amount. In the event that the Services are completed before the total estimated staff costs are expended, the balance of the fixed fee amount shall be escalated and payable in the final invoice.

The fee shall be subject to price variation (escalation) in accordance with Section 8 hereof. The fee percentage shall remain fixed and not be subject to escalation.

Variations in the fixed fee amount shall be made only in the following circumstances:

- i) in proportion to the staff costs for executing the services required under the provisional item for "Assistance to Client".
- ii) in the event of a variation (Section 7) to the Scope of Services, which may be an addition or reduction.



- iii) in the event of any position for staff resident on site not being billed for a full month, the unbilled amount will automatically reduce the fee for the construction Supervision phase.

The amount of the fees so added or deducted shall be proportional to the corresponding staff costs and shall be calculated using the fee percentage.

## **6. PROVISIONAL SUMS**

Provisional sums shall be expended only on the direction or with the prior written approval of the Client, in accordance with the scope of services and terms of payment contained in such direction or approval.

The provisional sum for “Adjudication Fees” in **Annexure O** is an allowance for the Client’s contribution to the Adjudicator’s payments as per the Agreement.

## **7. VARIATIONS**

### **7.1 GENERAL**

No payment will be made for Additional or Exceptional Services which have not been authorised in advance by the Client.

Amendments to the Services and the ceiling for the Service will be made by means of an instruction issued by the Client (which will be called a “Variation Order”) and confirmed in accordance with the Conditions of Contract.

### **7.2 REMUNERATION**

For Additional or Exceptional Services carried out under such a Variation Order, remuneration will be made in accordance with the provisions of the Agreement, including a fee element as provided in **Section 4**.

In the event of an extension to the duration of the Services, remuneration will be made in accordance with the provisions of the Agreement, at billing and directly reimbursable rates escalated in accordance with **Section 8** and including a fee element (fee percentage to remain fixed).

### **7.3 MONITORING OF VARIATIONS**

Invoiced amounts for Variation Orders shall be included with the monthly invoice but must be kept separate from the other amounts in order to show the staff costs, direct costs and

the fee element that are applicable to the Variation Order.

## 8. PRICE ADJUSTMENT (ESCALATION)

The remuneration of the Consultant will be adjusted in accordance with the conditions below. The staff billing rates and directly reimbursable unit rate costs, such as *per diem* and monthly living allowances, given in the Schedules, shall be those in effect on the proposal submission date.

Staff billing rates, consultancy fees (fee percentage to remain fixed) and direct reimbursable unit rate costs shall remain in effect (without escalation) for the first twelve months of the Agreement. Thereafter, they shall be adjusted for escalation on the annual anniversary date of the Agreement, in arrears, as explained below.

### 8.1 ESCALATION CALCULATION PROCEDURES

The following conditions and procedures shall apply in the calculation of the escalation:

- i) staff costs, the fee and reimbursable unit rate costs shall be billed monthly at the rates stated in the Schedules.
- ii) the base date for escalation shall be the Commencement Date.
- iii) escalation to staff billing, consultancy fees (fee percentage to remain fixed) shall be based on the actual audited average percentage salary increase of the Consultant. In the case of Joint Ventures, the weighted average increase according to Joint Venture participation shall apply.
- iv) Escalation to personnel billing rates, consultancy fee (fee percentage to remain fixed), and direct reimbursable unit rates and costs shall be calculated using the Consumer Price Index (CPI for all urban areas – STATS SA Statistical Release P0141, all items (i.e., CPI Headline)).
- v) escalation to direct reimbursable unit rate costs shall be calculated as follows:

Where:

E	=	escalation to be included in the present invoice
P <sub>0</sub>	=	amount of un-escalated cost included in the present invoice
I	=	escalation index for the period in question
I <sub>0</sub>	=	escalation index for the base date for escalation

- vi) If any index relevant to any particular invoice is not known at the time, the certificate is valued the latest available index shall be used and any adjustments necessary shall be made only when the actual index relevant to that particular certificate is published.
- vii) Reimbursable that are paid at actual cost will not be subject to any further adjustment.

## 9. INVOICES

In respect of Services, the Consultant shall submit a single invoice at the end of each month, in accordance with the Agreement.

Before submitting his first invoice, the Consultant shall agree with the Client on the format of the invoices and the administrative procedures to be followed for its submission and payment. The Consultant shall submit a draft of the format for approval by the Client. No payment (except any advance payment) will be made until the format has been agreed.

The invoice shall show the following information:

- i) for staff costs
  - 1. net person-months expended for the month, by staff member, and by task
  - 2. billing rates, by staff member
  - 3. person-month budget, by task
  - 4. cumulative person-months expended to date, by task
  - 5. staff costs for the month, by staff member and by task
  - 6. staff cost budget, by task
  - 7. balance forward and cumulative staff costs to date, by task
- ii) fee,
- iii) escalation,
- iv) for reimbursable costs, all by line item,
  - 1. budget
  - 2. costs for the month
  - 3. costs to date
- v) repayment of advance,
- vi) net payment due in the month,
- vii) balance forward and cumulative total payment.

- viii) All reimbursable costs to be paid at actual shall be invoiced as two components – base cost and escalation.

## **9.1 SUBMISSION OF MONTHLY INVOICES**

As soon as practicable and not later than seven (7) days after the end of each calendar month during the period of the Services, the Consultant shall submit to the Client an acceptable Tax Invoice in respect of the Services executed, deliverables provided, and the associated costs incurred in that month. Invoices submitted after the seventh day shall only be processed the following month.

## **9.2 FINAL PAYMENT**

The final payment for the Services shall be made only after any final report and a final invoice, identified as such, shall have been submitted by the Consultant and approved by the Client. The Services shall be deemed to be complete and finally accepted by the Client and the final report and final statement shall be deemed to be approved by the Client sixty calendar days after receipt by the Client of the final report and final invoice unless the Client, within such sixty-day period, had given written notice to the Consultant specifying in detail deficiencies in the Services, the final report or the final invoice.

The Consultant shall thereupon promptly make any necessary corrections, and upon completion of such corrections, the foregoing process shall be repeated. Any amount which the Client has paid or caused to be paid in excess of the amounts actually payable in accordance with the provisions of the Contract shall be reimbursed by the Consultant to the Client within sixty (60) days after receipt by the Consultant of notice thereof.

## **10. CASH FLOW**

The Consultant, prior to his first invoice, shall provide a programme for the work and an estimated cash flow for the duration of the Services. The cash flow shall be based on the expected dates of submission of monthly invoices.

- i) The cash flow shall show the following information, by month and, where appropriate, show amounts by sub-consultants and sub-contractors:
- ii) staff costs,
- iii) reimbursable costs,
- iv) consultancy fee,
- v) estimated escalation.

Appropriate allowances shall be made for Provisional Sums as approved by the Client.

The cash flow shall be updated each month to show payments to date in each category, changes in scope, programme, progress and escalation which will affect the cash flow and total forecast costs from that date to completion. This revised cash flow will be subject to Section 1.2 and Section 1.3.

If at any time the Consultant has reason to expect that the total cost to the Client for the performance of the Services will exceed the total amount provided for in the Agreement, they shall notify the Client to that effect, giving the revised estimate of total payable costs and the reason(s) for the expected overrun.

## **11. RECORDS**

The Consultant shall maintain comprehensive records of accounts relating to the Services and shall make such records available for inspection by the Client for the purposes of audit.

The Consultant shall cooperate with the Client in the establishment of working arrangements and management practices, especially reporting, approval, cost control and billing procedures, which will expedite routine activities and minimise the costs of these activities for both parties.

The Client, at his option and his cost, shall have the right to obtain, through the Consultant's auditors, details of the Consultant's (and the respective Joint Venture Members) records of Project time charges for professional staff, management and cost-control procedures, salary rates, annual remuneration increases, books of accounts relating to the operation of home offices and site offices, and any other factor relating to charges for the Services.

## **12. METHOD OF PAYMENT**

Payments by the Client will be made by direct transfer to the Consultant's bank account. The Consultant shall provide to the Client the following information and documents:

- i) formal written notice from the Consultant's authorised representative designating which officials of the Consultant are authorised to issue bank instructions on behalf of the Consultant,
- ii) certified original specimen signatures of the persons named above; and bank destination instructions duly signed by an official of the Consultant who is authorised above. Bank destination instructions must include:
  1. Bank name and address
  2. Beneficiary name (i.e., account title)

3. Account number
4. Any special instructions

Please note that the information must be in its original form, e-mails, photocopies and or facsimile copies will not be accepted.

With regard to any future changes that the Consultant may wish to make in respect of destination bank accounts, such changes must be provided in accordance with the authorities provided to the Client and delivered to the Client in original form. Any such changes must be received at least ten working days before payment is required.

All payment instructions and destination documents must be received by the Client prior to any payments being made.

## AGREEMENT

### APPENDIX 4: TIME SCHEDULE FOR SERVICES

#### 1. PROGRAMME

##### 1.1 INDICATIVE PROGRAMME

An indicative programme for the project is attached hereto. The Tenderer shall refer to or consider the information in preparing its programme. The estimated period for construction is 18 months, i.e. from the construction commencement date to the taking-over certificate for the whole of the infrastructure or works. The objective of this RFB is to set out the criteria to be followed by all tenderers when submitting their tender proposals to ensure uniformity of tender rules and an impartial evaluation by TCTA.

##### 1.2 PROGRAMME

The charts and schedules must be provided as described below:

- i. A detailed Programme, with a critical path analysis, and comprehensive Gantt chart for the engineering, environmental and social Services. The Programme is to have calendar time in months and must be suitable for monitoring changes and to fulfil the reporting requirements, under Task 5 of the Services.
- ii. The Gantt chart shall illustrate start and finish dates, including the dependency relationship, of all the elements of the work breakdown structure and the task, sub-tasks, activities, deliverables and milestones in the Programme.
- iii. The allocation of personnel and durations thereof must be linked to the Programme. The personnel must be retained for as long as it is necessary to complete the Services to the required standard, but TCTA will not be obliged to compensate the Consultant for resources that exceed the tendered durations.
  - The periods for Construction Supervision (Task 3) and Assessment and closeout (Task 4) should be based on the TCTA's indicative programme and the Scope of Services. This will form the basis for extending or curtailing the Consultant's personnel to suit the actual contract programmes.
  - The personnel and determined person-months by the Consultant must be summarised, and adjusted if so required for uncertainties and carried forward into the Consultant's Remuneration.

## 2. TCTA INDICATIVE PROGRAMME

Table 2.1. BRVAS Indicative Programme

No	Activity	Duration (months)	Planned Start Date	Planned Completion Date
1.	Professional Service Provider tender period	4	October 2023	February 2024
2.	Negotiations and Letter of Acceptance	1	March 2024	
3.	Review Feasibility and Conceptual Design reports, Inception Report, Field Reconnaissance	2	April 2024	June 2024
4.	Tender designs and documentation	2	July 2024	September 2024
5.	Tendering process for the procurement of Contractor	8	October 2024	July 2025
6.	Detail Designs (DWS licenses to construct)	10	March 2024	January 2025
7.	Construction Supervision	15	September 2025	December 2026
8.	Commissioning	3	March 2027	May 2027



**APPENDIX 5**  
**Consultant's Health and Safety Specification**

# Occupational health and safety specification

for

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## 1. DEFINITIONS

In this document the following expressions shall bear the meanings assigned to them below:

- 1.1 **TCTA** means the client (as defined by Construction Regulation 1) for whom construction work is being performed and/or undertaken;
- 1.2 **Agent** means a competent person as per the Construction Regulation who acts as a representative for a client.
- 1.3 **Construction Regulations** means the Occupational Health and Safety Act's, No 85 of 1993, Construction Regulations that came into effect on 09 July 2014;
- 1.4 **Occupational health and safety plan** means a sufficiently documented plan to the standards of TCTA, which addresses hazards identified and includes safe working procedures to mitigate, reduce or control the hazards identified;
- 1.5 **Occupational health and safety specification** means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons working, visiting, passing, staying and/or working close to the construction site and/or other applicable areas such as site camp;
- 1.6 **OHSA** means the Occupational Health and Safety Act, No 85 of 1993, as amended;
- 1.7 **Consultant** means TCTA's agent-who acts as a representative for a TCTA in providing professional services for the engineering and construction management (ECP) for the overall work, which shall also include the professional engineer or professional certified engineer as referred to in the Construction Regulations who shall also be obliged to carry out as part of the contract, with TCTA, geotechnical field investigations which includes work classified as construction work or excavation work in Construction Regulations 1 and ;
- 1.8 **Principal Contractor** means an employer, as defined by Section 1 of the OHSA who performs construction work, i.e. civil, building, electrical or mechanical work, and is appointed by TCTA to be in overall control and management of the construction site and works.



## **2. INTRODUCTION**

In terms of Construction Regulation 5 (1) (b) of the OHSA, TCTA is required to compile an occupational health and safety specification for any intended project and provide such specification to prospective tenderers/bidders.

In terms of Construction Regulation 5(5) TCTA will appoint an independent incumbent as an Agent to act on its behalf in fulfilling its health and safety obligations during the engineering and construction stages of the project. The incumbent will be contracted to TCTA directly.

This specification has an objective to ensure that the Consultant entering into a contract with TCTA for the services ensures that construction work is undertaken in accordance with the OHSA and Construction Regulations as further elaborated in these specifications.

This document defines roles, obligations and duties for the Consultant regarding health and safety on the entire project.

Compliance with this document does not absolve the Consultant from complying with any other minimum legal requirements and the Consultant remains responsible for the health and safety of his employees, those of his mandataries as well as any persons coming on site or on adjacent properties as far as it relates to the construction activities.

## **3. SCOPE**

The occupational health and safety obligation by the Consultant on this project entails:-

- 3.1 Develop a project specific occupational health and safety specification that addresses the reasonable and foreseeable risks, exposures and aspects of occupational health and safety as affected by the construction work to be undertaken by the Principal Contractors. The specification will include the requirements that the Principal Contractor will have to comply with in order to reduce the risks associated with work which is definable under Construction Regulation 1 which may lead to incidents causing injury and/or ill health, to a level as low as reasonably practicable and possible.
- 3.2 Prepare health and safety plan based on the specification herein included and the OHSA for field work or similar work which falls under the definition of such as included in Construction Regulation 1. TCTA will evaluate the health and safety plan as part of its formal tender adjudication processes to ensure compliance with Construction Regulation 5 that stipulates that TCTA may only appoint a Principal Contractor who has the necessary competencies and resources to carry of the work appointed for safely. The plan will be submitted by all consultants interested in being appointed by TCTA for the purposes of the RFP as a draft occupational health and safety plan.

3.3 Submit for review and approval by the Client the health and safety plans and the customized specification for the construction contract.

## **4. GENERAL OCCUPATIONAL HEALTH AND SAFETY PROVISIONS**

### **4.1 HEALTH AND SAFETY ASPECTS OF DESIGNS**

#### **4.1.1 Hazard analysis of scheme**

The Construction Regulations require the designer of the work among others to carry out inspections during construction, thereby ensuring compliance with the design. The designer also has other obligations. The client should ensure that the appointment of the designer includes these obligations.

The Consultant shall ensure that the project is designed to achieve a high health and safety standards, and in accordance with TCTA's requirements of international best practice. The designer shall, in the case of a structural work provide the Principal Contractor with a geotechnical report (where appropriate) and to inform the Principal Contractor of the dangers posed by the construction work, the loading which the structure is designed to resist and any requirements regarding method and sequence of construction.

For the selected general arrangement, preliminary designs, definition of design criteria, tender design and production of tender drawings the Consultant shall assemble a team of individuals with varying expertise and background to undertake a process of hazard identification through a collectively brainstorming of the entire operational processes.

The Consultant shall study the complete construction requirements for ensuring healthy and safe working environment with particular emphasis on tunneling methods if applicable. He shall address any climatic influences and external and internal influences affecting construction activities such as quarry operations and construction processes. The outcome of the hazard identification process shall be included in the risk assessment and identification of the project.

The process shall be undertaken at every incidence of design change taking into consideration the previous observation during the hazard identification process.

#### **4.1.2 Health and safety during construction**

By his appointment the Consultant shall liaise with the Agent who shall be obliged to act as TCTA's appointed agent regarding the health and safety management of the project, in

terms of Construction Regulation 5(5), and therefore shall perform all the required deliverables as provided in the regulation to be undertaken by TCTA's agent.

The Consultant together with the Agent shall provide an appropriate level of inspection to ensure compliance of the Principal Contractor regarding the Construction Regulations and other obligations as required by the OHSA. Processes shall be placed to ensure that the design intent, specifications, drawings, and general contractual requirements are being met to ensure all Principal Contractor's general obligations with particular regard to health and safety including the provision of adequate personal protective clothing, the maintenance of a safe working environment and adequate means of evacuation and treatment in emergencies.

The Designer shall carry out inspections during construction to ensuring compliance with the design and to stop any construction work that is not in accordance with the design.

## **4.2 HAZARD IDENTIFICATION AND RISK ASSESSMENT (CONSTRUCTION REGULATION 9)**

This section shall apply to all cases where the Consultant undertakes, as a deliverable under the contract, work classified in Construction Regulation 1 as Construction Work which shall include but not limited to geotechnical field investigations.

### **4.2.1 Risk assessments**

Attachment 7 of this specification contains a list of risk assessment headings that have been identified by TCTA as possibly applicable to the abovementioned contract work. It is, by no means, exhaustive and is only offered as assistance to the Principal Contractor intending to tender for the applicable works. It therefore remains the overall responsibility of the Consultant to consider all applicable risks and pro-actively undertake risk assessments and implement appropriate risk mitigation measures.

### **4.2.2 Development of risk assessments**

Every Consultant performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, ensure that risk assessments are undertaken by a competent person, appointed in writing, and the risk assessments shall form part of the occupational health and safety plan and be implemented and maintained as contemplated in Construction Regulation 9 (1).

The risk assessments shall include, at least:

- The identification of the current as well as emerging risks and hazards to which persons may be exposed to;
- The analysis and evaluation of the risks and hazards identified;
- A documented plan of safe working procedures (SWP) and any method statements to mitigate, reduce or control the risks and hazards that have been identified;
- A plan to monitor the application of the SWPs; and
- A plan to review the risk assessments as the work progresses and changes are introduced or incidents occurred which requires the re-evaluation of the processes/risk mitigation.

Based on the risk assessments, the Consultant must develop a set of site-specific occupational health and safety rules that will be applied to regulate the occupational health and safety aspects of the construction.

The risk assessments, together with the site-specific occupational health and safety rules, must be submitted to TCTA before mobilization on site commences.

Despite the risk assessments listed in Attachment 7, the Consultant is required to conduct a baseline risk assessment and the aforesaid risk assessments must be incorporated into the baseline risk assessment. The baseline risk assessment must further include the SWPs and the applicable method statements based on the risk assessments.

Hazard identification and risk assessments must be undertaken whilst SWPs must be developed for all out-of-scope work.

#### **4.2.3 Review of risk assessments**

The Consultant is to review the hazards identified, the risk assessments and the SWPs at each production planning and progress report meeting as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and/or processes.

It is also proposed that should an incident occurs the SWPs and all other applicable processes be re-evaluated to ensure that the mitigation measures are still applicable and appropriate and if not a revision of the risk assessments must be undertaken.

The Consultant must provide TCTA, the Principal Contractor and all other concerned or affected parties with copies of any changes, alterations or amendments as soon as possible but within 14 calendar days of such changes.

### **4.3 LEGAL REQUIREMENTS**

All Principal Contractors entering into a contract with TCTA shall, as a minimum, comply with the -

- OHSA and a current, up-to-date copy of the OHSA and its Regulations must be available on site at all times;
- Compensation for Occupational Injuries and Diseases Act, No 130 of 1993 (COIDA) as amended. The Consultant will be required to submit a letter of registration and “good-standing” from the Compensation Commissioner or compensation insurer before being awarded the contract. A current, up-to-date copy of the COIDA must be available on site at all times; and
- Where work is being carried out on mine premises, the Principal Contractor will comply with the Mine Health and Safety Act and Regulations (Act. 29 of 1996) as amended, the Minerals Act and Regulations (Act 50 of 1991) as amended and any other occupational health and safety requirements that the mine may specify. Current, up-to-date copies of the last two mentioned Acts must also be available on site at all times.

#### **4.4 STRUCTURE AND RESPONSIBILITIES**

##### **4.4.1 Overall supervision and responsibility for occupational health and safety**

- a. The Consultant [appointed in terms of Construction Regulation 5 (1) (k)] is responsible to implement and maintain the occupational health and safety plan approved by TCTA and ensure implementation of plans submitted by Principal Contractors on the Project.
- b. The Chief Executive Officer (in terms of Section 16(1) of the OHSA) of the Consultant is to ensure that the Employer (as defined in the OHSA) complies with the OHSA. Attachment 2 “Legal Compliance Checklist” may be used for this purpose and assistance.
- c. The Consultant’s Chief Executive Officer may appoint any person reporting to him/her as Designated Person in terms of Section 16(2) of the OHSA. Such Designated Person is responsible to assist the Chief Executive Officer to ensure that the Employer complies with the requirements of the OHSA.
- d. The construction supervisor and assistant construction supervisor(s) appointed in terms of Construction Regulation 8 are responsible for supervising the construction work and in specific to ensure that all work undertaken comply with the requirements of the OHSA, its Regulations and TCTA’s specifications.

##### **4.4.2 Operational responsibilities for occupational health and safety**



In carrying out his duties TCTA the Consultant shall appoint designated competent employees and/or other competent persons as required by the Act.

The Consultant shall ensure that the Principal Contractor make the necessary appointments during construction. This list below shows the minimum requirements and is therefore not exhaustive.

<b>Appointment description</b>	<b>Appointment required in terms of</b>
Assistant construction supervisor	Construction Regulation 8(2)
Blasting supervisor	Explosives Regulation 12 (1)
Construction vehicle, mobile plant and machinery supervisor	Construction Regulation 23
Construction supervisor	Construction Regulation 8(7)
Drivers of construction vehicles and operators of plant	Construction Regulation 23
Electrical installation and appliances inspector	Construction Regulation 24
Emergency, security and fire coordinator	Construction Regulation 29
Excavation supervisor (including piling)	Construction Regulation 13
Fall protection supervisor	Construction Regulation 10
First-aiders	General Safety Regulation 3
Fire fighting equipment inspector	Construction Regulation 29
Hazardous chemical substances supervisor	Hazardous Chemicals Substances Regulations 10
Incident investigator	General Administrative Regulation 9
Ladder inspector	General Safety Regulation 13(a)
Lifting machines and equipment inspector	Construction Regulation 22
Occupational health and safety committee	OHSA Section 19
Occupational health and safety officer	Construction Regulation 8(5)
Occupational health and safety representatives	OHSA Section 17
Person responsible for machinery	General Machinery Regulation 2
Risk assessor	Construction Regulation 9(1)
Scaffolding supervisor	Construction Regulation 16
Stacking and storage supervisor	Construction Regulation 28
Suspended platform supervisor	Construction Regulation 17(1)
Suspended platform inspector	Construction Regulation 17(8)(a)
Traffic management supervisor	OHSA Section 9(1)
Traffic safety officer	OHSA Section 9(1)
Vessels under pressure supervisor	Vessels under Pressure Regulations
Working on, over or next to water supervisor	Construction Regulation 26

These appointments must be in writing and the responsibilities clearly stated together with the period for which each appointment is made. This information must be communicated to and agreed with the appointees.

Copies of appointments must be submitted to TCTA together with concise CV's of the appointees as part of the Consultant's health and safety plan and if appointed copies of the

appointments included in the occupational health and safety file. All appointments must be approved by TCTA and any changes of appointees or appointments must be communicated to TCTA and agreed upon before being implemented.

The Consultant must, furthermore, provide TCTA with an organogram of all sub-consultants that he/she has appointed or intends to appoint and keep this list updated on a weekly basis.

#### **4.4.3 Designation of occupational health and safety representatives (Section 18 of the OHSA)**

Where the Consultant employs more than 50 persons [including the employees of sub-consultant and its supervisors] to the consultant shall appoint one occupational health and safety representative for every 50 employees or part thereof. General Administrative Regulation 6 requires that the election, appointment and subsequent designation of the occupational health and safety representatives be executed in consultation with employee representatives or employees. (Section 17 of the OHSA as well as General Administrative Regulation 6 and 7 refer).

Occupational health and safety representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

#### **4.4.4 Duties and functions of the occupational health and safety representatives (Section 19 of the OHSA)**

- a. The Consultant must ensure that the designated occupational health and safety representatives conduct a weekly inspection of their respective areas of responsibility, using a checklist, and report thereon to the Consultant.
- b. Occupational health and safety representatives must be included in accident and/or incident investigations.
- c. Occupational health and safety representatives must attend all occupational health and safety committee meetings.

#### **4.4.5 Appointment of occupational health and safety committee (Section 20 of the OHSA)**

The Consultant must establish an occupational health and safety committee consisting of all the designated occupational health and safety representatives, management and a representative of TCTA who shall act as the chairperson without voting rights. The members of the occupational health and safety committee must be appointed in writing and copies of the appointments included in the occupational health and safety file.

The occupational health and safety committee must meet as a minimum on a monthly basis and consider, at least, the following agenda items:

1. Opening and welcome.
2. Members present, apologies and absent.
3. Minutes of previous meeting.
4. Matters arising from the previous meeting.
5. Occupational health and safety representatives' reports.
6. Incident and/or accident reports and investigations.
7. Incident, accident and/or injury statistics.
8. Other matters.
9. Endorsement of registers and other statutory documents by a duly authorised representative of the Consultant.
10. Close and next meeting.

#### **4.5 MANDATORY'S**

The Consultant, comply with the relevant sections of the Construction Regulations when he appoints sub-consultants.

#### **4.6 ADMINISTRATIVE CONTROLS AND THE OCCUPATIONAL HEALTH AND SAFETY FILE**

##### **4.6.1 The occupational health and safety file [Construction Regulation 7(1)]**

As required by Construction Regulation 7(1), the Consultant and other contractors will each keep an occupational health and safety file on site containing the following documents as a minimum:

1. Notification of construction work (Construction Regulation 4).
2. Updated copies of the OHSA and its Regulations as well as the COID Act (General Administrative Regulation 4.).
3. Proof of registration and good standing with the Compensation Commissioner or a COID Insurer [Construction Regulation 5(1) (j)].
4. Occupational health and safety plan agreed with TCTA including the underpinning risk assessment(s) and method statements [Construction regulation 9(1)].
5. Copies of occupational health and safety committee meetings and other relevant minutes.

6. Designs and/or drawings [Construction Regulation 7(1) (e)].
7. A list of contractors (sub-contractors) including copies of the agreements between the parties, proof of good standing with the Compensation Commissioner or COID Insurer, and the type of work to be undertaken by each contractor (Construction Regulation 5).
8. Appointment and designation forms as per paragraphs 4.3.1 and 4.3.2 above.
9. The following registers:
  - Accident and/or incident register (Attachment 1 of the General Administrative Regulations);
  - Occupational health and safety representatives' inspection register;
  - Construction vehicles and mobile plant inspections by controller;
  - Daily inspections of vehicles, plant and other equipment by the operator, driver and/or user;
  - Designer's inspections and structures record;
  - Inspection and maintenance of explosive powered tools;
  - Inspection of electrical installations (including inspection of portable electrical tools, electrical equipment and other electrical appliances);
  - Fall protection inspections;
  - First-aid box content;
  - Record of first-aid treatment;
  - Fire equipment inspections and maintenance;
  - Record of hazardous chemical substances kept and used on site;
  - Ladder inspections;
  - Machine safety inspections (including machine guards, lock-outs etcetera);
  - Inspection registers and logbooks for lifting machines and –tackle (including daily inspections by drivers/operators);
  - Inspections of scaffolding;
  - Inspections of stacking and storage;
  - Inspections of structures;
  - Vessels under pressure inspections; and

- Inspections of welding equipment.

10. All other applicable records.

TCTA will conduct and evaluation of the Consultant's occupational health and safety file from time to time.

#### **4.7 OCCUPATIONAL HEALTH AND SAFETY GOALS AND OBJECTIVES AND ARRANGEMENTS FOR MONITORING AND REVIEW OF OCCUPATIONAL HEALTH AND SAFETY PERFORMANCE**

TCTA upholds a principle of "Zero Injury" on projects it implements. The Consultant shall aim to achieve the maximum results from measures implemented on all work fronts of the Project. The Consultant is required to maintain a Recordable Case Rate statistics on the Project per contract included his own with TCTA (See Attachment 3 to this document: "Measuring Injury Experience") and report on to TCTA on a monthly basis.

#### **4.8 NOTIFICATION OF CONSTRUCTION WORK (CONSTRUCTION REGULATION 4)**

The Consultant shall, where the contract meets the requirements laid down in Construction Regulation 4, within 5 working days, ensure that the Department of Labour is notified of the intention to carry out construction work and use the form (Annexure A in the Construction Regulations) for this purpose. A copy of the notification must be held on the occupational health and safety file and a copy must also be forwarded to TCTA for record purposes.

#### **4.9 TRAINING, AWARENESS AND COMPETENCE**

The contents and syllabus of all training required by the OHSA and Regulations must be included in the Consultant's occupational health and safety plan.

##### **4.9.1 General induction training**

All members of the contractor's site management as well as all the persons appointed as responsible for occupational health and safety in terms of the Construction and other Regulations will be required to attend a general induction session.

All employees of the principal and other contractors must be in possession of proof of general induction training.

All subsequent and newly appointed employees must also be subjected to the induction training as soon as possible after the appointment but prior to starting to work on site.



#### 4.9.2 Site-specific induction training

The Consultant will be required to develop a contract work project specific induction training course based on the risk assessments for the contract work and train all employees and other contractors and their employees in this.

All employees of the principal and other contractors must be in possession of proof that they have attended a site-specific occupational health and safety induction training at all times.

#### 4.9.3 Other training

1. All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training and where applicable licenses or proof of competency.
2. All employees in jobs requiring training in terms of the OHSA and Regulations must be in possession of valid proof of training.
3. Occupational health and safety training requirements [as required by the Construction Regulations and as indicated by the occupational health and safety specification and the risk assessment(s)] i.e. -
  - a. General induction (Section 8 of the OHSA);
  - b. Site and job specific induction, including visitors (Sections 8 and 9 of the OHSA);
  - c. Site and project manager;
  - d. Construction supervisor;
  - e. Occupational health and safety representatives [Section 18 (3) of the OHSA];
  - f. Training of the appointees indicated in paragraphs 4.3.1 and 4.3.2;
  - g. Operators and drivers of construction vehicles and mobile plant (Construction Regulation 23);
  - h. Basic fire prevention and protection (Environmental Regulations 9 and Construction Regulation 29);
  - i. Basic first-aid (General Safety Regulations 3);
  - j. Storekeeping methods and safe stacking (Construction Regulation 28); and
  - k. Emergency, security and fire coordinator.

#### 4.9.4 Awareness and promotion

The Consultant is required to encourage promotion and awareness programme in place to create an occupational health and safety culture within project employees. The following are some of the methods that may be used:

- Toolbox talks
- Posters
- Videos
- Competitions
- Suggestion schemes
- Participative activities such as employee “occupational health and safety circles”.

#### 4.9.5 Notices and signs

The following notices and signs shall, where applicable, be compulsory on the construction site as well as the contractors’ yards:

Area and/or activity where notice or sign is required	Notice or sign required in terms of
Display of notices and signs	General Safety Regulation 2B and SABS Code 1186
Entry	General Safety Regulation 2C(2)
First-aid	General Safety Regulation 3(6)
Toilets and change rooms	Facilities Regulation 2 (5) 4(2)(f)
Storage of flammable materials	General Safety Regulation 4(8)(a)(i) and (ii) [10(e) only applicable to contractor’s yards]
Grinding wheels	Driven Machinery Regulation 8(1)(7)
Machinery	General Machinery Regulation 9 (Schedule D)
Explosive powered tools	Construction Regulation 21(2)(f)
Prohibition on smoking and eating or drinking at the workplaces where high risk substances [FR5 (1)] are stored or handled	Facilities Regulation 6(b)
Non-potable water	Facilities Regulation 7(B)



#### **4.9.6 Competence**

The Consultant shall ensure that his and other contractors' employees appointed are competent and that all training required to undertake the work safely and without risk to health of their or other persons, has been successfully completed before work commences.

The Consultant shall ensure that follow-up and refresher training is conducted on a regular basis as well as the contract work progresses and the work situation or requirements changes.

Records of all training must be kept on the occupational health and safety file for auditing purposes.

#### **4.10 CONSULTATION, COMMUNICATION AND LIAISON**

The following arrangements will apply-

- 4.10.1 Occupational health and safety liaison between TCTA, the Consultant, other contractors, the designer and other concerned parties will be through the occupational health and safety committee. In the absence of a health and safety committee, TCTA and Consultant will agree on an alternative communication forum to be implemented.
- 4.10.2 In addition to the above, communication may be directly to TCTA or his appointed Agent, verbally (followed up in writing within 14 calendar days) or in writing, as and when the need arises.
- 4.10.3 Consultation with the workforce on occupational health and safety matters will be through their supervisors, occupational health and safety representatives, the occupational health and safety committee and their elected trade union representatives, if any.
- 4.10.4 The Consultant will be responsible for the dissemination of all relevant occupational health and safety information to the other contractors, for example design changes agreed with TCTA and the designer, instructions by TCTA and/or his Agent, exchange of information between contractors, the reporting of hazardous and/or dangerous conditions and/or situations etcetera.
- 4.10.5 The Consultant will be required to do site safety inspections with TCTA Agent and/or his Health & Safety Auditor on a basis to be determined and agreed between the parties.
- 4.10.6 The principle and other contractors will be required to conduct toolbox talks with their employees on at least a weekly basis and records of these including the topics discussed must be kept on the occupational health and safety file. Employees must acknowledge the receipt of toolbox talks which record must, likewise, be kept on the occupational health and safety file.

4.10.7 TCTA Health and Safety Auditor and the Consultant will agree on the dates, times and venues of the occupational health and safety meetings.

#### **4.11 CHECKING, REPORTING AND CORRECTIVE ACTIONS**

##### **4.11.1 Monthly compliance assessment by TCTA [Construction Regulation 5(1)(n)]**

TCTA will be conducting a monthly assessment to comply with Construction Regulation 5(1)(n) and to confirm that the Consultant has implemented and is maintaining the agreed and approved occupational health and safety plan.

##### **4.11.2 Other assessments and inspections by TCTA**

TCTA reserves the right to conduct other ad-hoc assessments and inspections as deemed necessary. This could include among others site safety walks.

##### **4.11.3 Conducting an assessment.**

A representative of the Consultant must accompany TCTA on all assessments and inspections and may conduct his/her own inspection at the same time. Each party will, however, take responsibility for the results of his/her own assessment and/or inspection.

##### **4.11.4 Contractor's assessments and inspections**

The Consultant is to conduct his own internal assessments and inspections to verify compliance with his own occupational health and safety plan and management system as well as the requirements of this specification and the compliance of other contractors under his/her control.

##### **4.11.5 Inspections by occupational health and safety representatives and other appointees**

Occupational health and safety representatives must conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees must conduct inspections and report thereon as specified in their appointments for example vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

#### 4.11.6 Recording and review of inspection results

All the results of the abovementioned inspections must be in writing, reviewed at occupational health and safety committee meetings, endorsed by the chairperson of the meeting and placed on the occupational health and safety file.

#### 4.11.7 Reporting of inspection results

The Consultant is required to provide TCTA with a monthly report providing technical progress updates on issues in 4.11 hereof.

### 4.12 INCIDENT REPORTING AND INVESTIGATION

#### 4.12.1 Reporting of accidents and incidents (Section 24 and General Administrative Regulation 8 of the OHSA)

The Consultant in liaison with the Agent must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

or where -

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control
- to TCTA within two calendar days and to the Provincial Director of the Department of Labour within seven calendar days from date of incident (Section 24 of the OHSA and General Administrative Regulation 8), **except** that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or

suffer a permanent physical defect, the incident must be reported to both TCTA and the Provincial Director of the Department of Labour forthwith by telephone, telefax or e-mail. All other reports should still be completed and provided as required.

The Consultant is required to provide TCTA with copies of all statutory reports required in terms of the OHS Act within seven calendar days of the incident occurring.

The Consultant is required to provide TCTA with copies of all internal and external accident/incident investigation reports, including the reports contemplated in 4.12.2 (3) and (4) below, within seven calendar days of the incident occurring.

#### **4.12.2 Accident and incident investigation (General Administrative Regulation 9)**

1. The Consultant together with the Agent is responsible for the investigation of all accidents and/or incidents where employees and non-employees were injured to the extent that he, she and/or they had to be referred for medical treatment by a doctor, hospital or clinic.
2. The results of the investigation to be entered into the accident and/or incident register.
3. The Consultant is responsible for the investigation of all minor and non-injury incidents as described in Section 24 (1) (b) and (c) of the OHS Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents/incidents in future.
4. The Consultant is responsible for the investigation of all road traffic accidents, related to the construction activities, and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.
5. TCTA reserves the right to hold its own investigation into an incident or call for an independent external investigation.

## **5. OPERATIONAL CONTROL**

### **5.1 EMERGENCY PREPAREDNESS, CONTINGENCY PLANNING AND RESPONSE**

- 5.1.1 The Consultant must appoint a competent person to act as emergency controller and/or coordinator.
- 5.1.2 The Consultant must conduct an emergency identification exercise and establish what emergencies could possibly develop. He/she must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that TCTA may have in place.

5.1.3 The Consultant and the other contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarize employees with them.

## **5.2 FIRST-AID (GENERAL SAFETY REGULATION 3)**

5.2.1 The Consultant must provide first-aid equipment (including a stretcher) and have qualified first-aider(s) on site as required by General Safety Regulation 3 of the OHSA.

5.2.2 The contingency plan of the Consultant must include arrangements for the speedily and timeously transportation of injured and/or ill person(s) to a medical facility or getting emergency medical support to person(s) who may require it.

5.2.3 The Consultant must have firm arrangements with his contractors in place regarding the responsibility of these contractor's first-aid arrangements as well as treatment of injured and/or ill employees.

## **5.3 RESCUE PROCEDURES**

5.3.1 No later than 56 days after the commencement date and in any event no later than 7 days before the start of work in any area, the Consultant shall prepare and submit a method statement detailing evacuation procedures for the approval of TCTA.

5.3.2 The procedures shall detail the nature of the emergencies contemplated, the training of employees forming rescue teams, their numbers, availability (at least one team shall be available for each shift), any delegation of responsibility, liaison with the emergency services and TCTA, the equipment needed, actual methods of evacuation including transport methods, medical facilities to be used, communications systems to be used and any other matter that the Consultant considers relevant to the subject of emergency evacuation.

5.3.3 The emergencies contemplated shall include, among others, injury, fire, flood, falls of ground, accidental leaks, spillages and explosion.

5.3.4 The equipment requirements shall include for the need for items to be used exclusively by the rescue teams, and also the continuous operational readiness of plant and equipment, including standby facilities, during the construction of the works.

5.3.5 The procedures shall cover the level of medical competence of the rescue team, the use of support medical facilities and evacuation off site to a relevant hospital or otherwise, including the use of helicopter services or the access to air evacuation facilities.

5.3.6 The Consultant shall immediately implement and prominently advertise the procedures in each work area. The Consultant shall test the effectiveness of the rescue procedures under the inspection of TCTA at least every three months and shall make due allowance in his programs for the testing of the procedures.

## **5.4 Security**

5.4.1 The Consultant must establish site access rules and implement and maintain these throughout the construction period. Access control must, amongst other, include the rule that non-employees will not be allowed on site unaccompanied.

5.4.2 The Consultant must develop a set of project applicable security rules and procedures and maintain these throughout the construction period.

## **5.5 ACCOMMODATION OF TRAFFIC**

5.5.1 Where construction work is undertaken in, next to or close to a public road, the use of appropriate as well as a sufficient number of road signs is of paramount importance to protect employees against traffic and to warn motorists of the presence of construction work as well as construction employees/risks/vehicles.

5.5.2 The Consultant shall ensure that appropriate as well as a sufficient number of road signs are posted to protect employees against traffic and to warn motorists of the presence of construction work as well as construction employees/vehicles. These signs shall be repeated and utilised, where appropriate, as actual construction work is approached.

5.5.3 The following signage is required as a minimum where construction work is undertaken in, next to or close to a public road:

- a. "Construction work ahead" sign at least 45 meters before the start of the construction work;
- b. "Lane narrows" sign 30 meters before the start of the construction work;
- c. "Keep right/left" sign 15 meters before the start of the construction work and again where the tapering begins; and
- d. Delineators and cones every 5 meters for the entire stretch of construction work.

5.5.4 Where construction work includes excavations in or next to a public road, warning lights or visible boundary indicators should be provided after dark or when visibility is poor.

5.5.5 The maintenance of all signage and especially those that is suitable after dark should be duly managed.

- 5.5.6 Where appropriate duly trained flag persons should be deployed a good distance ahead of areas where traffic is deviated or lanes closed off. These flag persons should be managed assertively to ensure that they add optimal value and should they not do so they should be retrained and if necessary replaced.
- 5.5.7 The community liaison officer (CLO) should also be sensitised on the optimal management of traffic and the risks involved and then be instructed to increase community awareness through talking to all stakeholders including the distribution of suitable information brochures.

## **5.6. FALL PROTECTION [WORKING IN ELEVATED POSITIONS (CONSTRUCTION REGULATION 10)]**

- 5.6.1 A pre-emptive risk assessment will be required for any work to be carried out above two metres from the ground or any floor level and will be classified as “work in elevated positions”.
- 5.6.2 As far as is practicable, any person working in an elevated position will work from a stable platform, ladder or other device that is at least as safe as if he or she is working at ground level and whilst working in this position be wearing a safety belt with lanyard to prevent the person falling from the platform, ladder or other device utilized. This safety belt will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge.
- Alternatively any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with suitable guard rails at two different heights as prescribed in SANS 10085 code of practice for the design, erection, use and inspection of access scaffolding.
- 5.6.3 Where the requirement in paragraph 5.4.2 is not practicable, the person will be provided with a full body harness that will be worn and attached above the wearer’s head at all times and the lanyard must be fitted with a shock absorbing device or the person must be attached to a fall arrest system that is approved by TCTA.
- 5.6.4 Where the requirements in paragraph 5.4.3 are not practicable, a suitable catch net, which must be able to sustain the weight of at least the average person working in the elevated position, must be erected.
- 5.6.5 Employees working in elevated positions must be trained to do this safely and without risk to their or other person’s health and safety.
- 5.6.6 Updated records confirming the physical and psychological fitness of employees working at elevated positions should be kept on the health and safety file at all times.

## 5.7 ACCESS SCAFFOLDING (CONSTRUCTION REGULATION 16)

Access scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 10085 entitled, "The Design, Erection, Use and Inspection of Access Scaffolding".

Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly and safely.

Scaffolding must be erected, altered or dismantled by person(s) who has/have adequate training and experience in this type of work or under the continuous supervision of such a person.

## 5.8 LIFTING EQUIPMENT (CONSTRUCTION REGULATION 22)

Lifting equipment must be designed and constructed in accordance with the manufactures/designers specifications as well as generally accepted technical standards and operated, used, inspected and maintained in accordance with the manufactures requirements as well as that of the Driven Machinery Regulation 18 of the OHSA:

The Driven Machinery Regulation requires that:

- a. Lifting equipment to be clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. When the MML varies with the conditions of use, the table of maximum loads should be used by the driver/operator;
- b. Each winch on a lifting machine must at all time have, at least, three full turns of rope on the drum when the winch has been run to its lowest limit;
- c. Lifting equipment be fitted with a brake or other applicable device capable of holding the MML. This brake or device must automatically prevent the downward movement of the load when the lifting power is interrupted;
- d. Lifting equipment fitted with a load limiting device that automatically arrest the lift when the load reaches its highest safe position or when the mass of the load is greater than the MML;
- e. Every chain or rope on a lifting machine that forms an integral part of the machine must have a factor of safety as prescribed by the manufacturer of the machine and where no standard is available the factor of safety must be:
  - chains – 4 (four)
  - steel wire ropes - 5 (five)



- fibre ropes- 10 (ten)
- f. Every hook or load attaching device must be designed as such or fitted with a device that will prevent the load from slipping off or disconnecting;
  - g. Every lifting machine must be inspected and load tested by a competent person every time it has been dismantled and re-erected and every 12 months after that. The load test must be in accordance with the manufacturers prescription or to 110% of the MML in addition all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices forming an integral part of a lifting machine must be inspected every 6 months by a competent person;
  - h. All maintenance, repairs, alterations and inspection results must be recorded in a log book and each lifting machine must have its own log book; and
  - i. No person may be lifted by a lifting machine not designed for lifting persons unless in a cradle approved by an inspector of the Department of Labour.

## 5.9 LIFTING TACKLE

- a. Manufactured of sound material, well constructed and free from latent defects;
- b. Clearly and conspicuously marked with an identity number;
- c. Maximum mass load factor of safety:
  - Natural fibre ropes - 10(ten)
  - Man-made fibre ropes and woven webbing - 06(six)
  - Steel wire ropes – single rope - 06(six)
  - Steel wire ropes – combination slings - 08(eight)
  - Mild Steel chains - 05(five)
  - High tensile/alloy steel chains - 04(four)
- d. Steel wire ropes must be discarded (not used any further for lifting purposes) when wear and corrosion is evident and must be examined by a competent person every three months for this purpose and the results recorded in a designated log book.

## 5.10 CONSTRUCTION VEHICLE AND MOBILE PLANT OPERATORS

The following requirements will apply to construction vehicle and mobile plant operators:

- a. Only certified and/or competent employees may be allowed to operate any construction vehicle and mobile plant.

- b. Every lifting machine operator must be trained specifically for the type of lifting machine that he or she is operating.
- c. Operators of jib cranes with a maximum mass load of 500 kg or more must be in possession of a certificate of training issued by an accredited (by the Department of Labour) training provider.
- d. Only employees duly authorized to do so may operate any construction vehicle and mobile plant.
- e. Only employees physically and psychologically fit, i.e. in possession of a medical certificate of fitness, may be allowed to operate any construction vehicle and mobile plant.

#### **5.11 CONSTRUCTION VEHICLES AND MOBILE PLANT (CONSTRUCTION REGULATION 23)**

Construction vehicles and mobile plant will initially during the competency evaluation process be inspected by TCTA prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the OHS Act and Regulations.

Construction vehicles and mobile plant must be:

- a. Of acceptable design and construction;
- b. Maintained in good working order;
- c. Used in accordance with their design and intention for which they were designed;
- d. Operated and/or driven by trained, competent and authorized operators/drivers. No unauthorized persons to be allowed to drive construction vehicles and mobile plant;
- e. Provided with safe and suitable means of access;
- f. Fitted with adequate signaling devices to make movement safe including reversing;
- g. Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into same;
- h. Provided with roll-over protection;
- i. Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/log book and any defects addressed as matter of urgency;
- j. Fitted with two head and two tail lights that is in good working condition whilst operating under poor visibility conditions; and

- k. Used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported.

No loose tools, material etcetera is allowed in the driver and/or operators compartment/cabin nor in the compartment in which any other persons are transported.

No person may ride on construction vehicles and mobile plant except for in a safe place designed and provided for this purpose.

The construction site must be organized to facilitate the movement of construction vehicles and mobile plant in such a manner that pedestrians and other vehicles are not endangered. Traffic routes to be suitable, sufficient in number and adequately demarcated.

Construction vehicles and mobile plant left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights, reflectors or adequate barricades to prevent moving traffic from a sudden emergency, or to come into contact with the parked construction vehicles and mobile plant.

In addition construction vehicles and mobile plant left unattended after hours must be parked with all buckets, booms etc. full lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely.

All construction vehicles and mobile plant daily inspection records must be kept in the occupational health and safety file.

## **5.12 ELECTRICAL INSTALLATIONS (CONSTRUCTION REGULATION 24)**

The installation of temporary electricity for construction use shall be in accordance with Construction Regulation 24 and the Electrical Installation Regulations.

The Consultant must ensure that:

- a. Existing services are to be located and clearly marked before construction commences and during the progress thereof;
- b. Where the abovementioned is not possible, employees with jackhammers etc. will be protected against electric shock by the use of suitable protective equipment e.g. rubber mats, insulated handles etcetera;
- c. Electrical installations and -machinery are sufficiently robust to withstand normal working conditions on site;
- d. Temporary electrical installations must be inspected at least once per week by a competent person and a record of the inspections kept on the occupational health and safety file;

- e. Electrical machinery used on a construction site must be inspected daily before start-up by the competent driver/operator or any other competent person and a record of the inspections kept on the occupational health and safety file; and
- f. A competent person appointed in writing must control all temporary electrical installations.

### **5.13 USE AND STORAGE OF FLAMMABLES (CONSTRUCTION REGULATION 25)**

The Consultant must ensure that:

- a. No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapors being present unless adequate precautions is taken;
- b. No flammables is used or applied e.g. in spay painting, unless in a room or cabinet or other enclosure specially designed and constructed for the purpose unless there is no danger of fire or explosion due to the application of adequate ventilation;
- c. The workplace is effectively ventilated. Where this cannot be achieved:
  - Employees must wear suitable respiratory equipment
  - No smoking or other sources of ignition is allowed in the area
  - The area is conspicuously demarcated as “flammable”
- d. Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container, cage or room that is kept locked with consistent access control measures in place and sufficient fire fighting equipment installed and fire prevention methods practiced for example proper housekeeping;
- e. Flammables stored in a permanent flammable store are stored so that no fire or explosion is caused i.e.:
  - Stored in a locked and well-ventilated reasonably fire resistant container, cage or room conspicuously demarcated as “Flammable Store – No Smoking or Naked Lights”
  - The flammables store to be constructed of two-hour fire retardant walls, door and roof and separated from adjoining rooms or workplaces by means of a two-hour fire retardant fire wall
  - Adequate and suitable fire fighting equipment installed in close vicinity of the flammables store and marked with the prescribed signs
  - All electrical switches and fittings to be of a flameproof design

- Any work done with tools in a flammable store or work areas to be of a non-sparking nature
  - No Class A combustibles such as paper, cardboard, wood, plastic, straw etcetera to be stored together with flammables
  - The flammable store to be designed and constructed to, in the event of spillage of liquids in the store, to contain the full quantity + 10% of the liquids stored
  - A sign indicating the capacity of the store to be displayed on the door
- f. Only one day's quantity of flammable is to be kept in the workplace;
- g. Containers (including empty containers) to be kept closed to prevent fumes/vapors from escaping and accumulating in low lying areas;
- h. Metal containers to be bonded to earth whilst decanting to prevent build-up of static forces; and
- i. Welding and other flammable gases to be stored segregated as to the type of gas and empty and full cylinders.

#### **5.14 HOUSEKEEPING (CONSTRUCTION REGULATION 27)**

The Consultant must ensure that:

- a. Housekeeping is continuously implemented and maintained;
- b. Materials and equipment is properly stored;
- c. Scrap, waste and debris is removed off site regularly;
- d. Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and vehicular traffic;
- e. Waste and debris not to be removed by throwing from heights but by chute or crane;
- f. Where practicable, construction sites are fenced off to prevent entry of unauthorized persons;
- g. Catch platforms or -nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects;
- h. An unimpeded work space is maintained for every employee;
- i. Every workplace is kept clean, orderly and free of tools and the likes that are not required for the work being done;
- j. As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials;

- k. The walls and roof of every indoor workplace be sound and leak-free; and
- l. Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling.

#### **5.15 STACKING AND STORAGE (CONSTRUCTION REGULATION 28)**

The Consultant must ensure that:

- a. A competent person is appointed in writing to supervise all stacking and storage on a construction site;
- b. Adequate storage areas are provided and demarcated;
- c. The storage areas are kept neat and under control;
- d. The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
- e. The items in the lower layers can support the weight exerted by the top layers;
- f. Cartons and other containers that may become unstable due to wet conditions are kept dry;
- g. Pallets and containers are in good condition and no material is allowed to spill out;
- h. The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector of the Department of Labour has been obtained to build the stacks higher with the aid of a machine. (The operator of the machine must be protected against items falling from overhead or off the stack and no items may overhang);
- i. The articles that make up a single tier are consistently of the same size, shape and mass;
- j. Structures for supporting stacks are structurally sound and able to support the mass of the stack;
- k. No articles are removed from the bottom of the stack first but from the top tier first;
- l. Anybody climbing onto a stack can and does do it safely and that the stack is sufficiently stable to support him or her;
- m. Stacks that are in danger of collapsing are broken down and restacked;
- n. Stability of stacks are not threatened by vehicles or other moving plant and machinery;
- o. Stacks are built in a header and stretcher fashion and that corners are securely bonded; and

- p. Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations.

## **5.16 STORAGE OF FLAMMABLE AND HAZARDOUS CHEMICALS (HAZARDOUS CHEMICAL SUBSTANCES REGULATIONS)**

See paragraphs 5.13 above and 5.22 below.

## **5.17 FIRE PREVENTION AND PROTECTION**

The Consultant must ensure that:

- a. The risk of fire is avoided;
- b. Sufficient and suitable storage of flammables is provided;
- c. Sources of ignition is obviated wherever flammable or highly combustible material is present in the workplace, for example:
  - Notices prohibiting smoking is displayed and enforced
  - Welding and flame cutting is only allowed under controlled conditions that includes written hot work permits and by duly competent persons
  - Only spark-free hand and power tools are used
  - No grinding, cutting and shaping of ferrous metals are allowed using electrically driven power tools that produces sparks
  - Flameproof switches and fittings are to be used in the flammable atmosphere
  - Good housekeeping is maintained to prevent the accumulation of unnecessary combustibles
  - Adequate ventilation is maintained
  - Adequate and suitable fixed and portable fire fighting equipment are provided and maintained in good working order with unrestricted access.
- d. Maintenance must include:
  - Regular inspections by a competent person appointed in writing and records of such inspections should be kept in the occupational health and safety file
  - Annual inspection and service by an accredited service provider
- e. All employees are instructed in the use of the fire fighting equipment and know how to attempt to extinguish a fire;

- f. A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;
- g. Employees are informed regarding emergency evacuation procedures and escape routes;
- h. Emergency escape routes are kept clear at all times and clearly marked;
- i. Evacuation assembly points are demarcated and made known to employees;
- j. Evacuation is regularly practiced to ensure that all persons are evacuated timeously and;
- k. Roll call is held after evacuation to account for all employees and to ensure that no-one including visitors and disabled persons have been left behind; and
- l. A clearly audible, to all persons on site, siren or alarm is fitted and regularly tested.

## **5.18 EATING, CHANGING, WASHING AND TOILET FACILITIES (CONSTRUCTION REGULATION 30)**

### **5.18.1 Toilets**

- a. The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 30.
- b. Chemical toilets are allowed instead of the water borne sewerage type. Toilets have to be provided at a ratio of at least 1 toilet per 30 employees.

### **5.18.2 Showers**

At least cold-water showers of some sort for each sex have to be provided at a ratio of at least 1 shower per 15 employees.

### **5.18.3 Change rooms**

Some form of screened off changing facility must be provided separately for each sex.

### **5.18.4 Eating facility**

Some form of eating facility sheltered from the sun, wind and rain must be provided.



### 5.18.5 Living accommodation

Where the site is in a remote location and transport to home is not readily available, reasonable and suitable living accommodation must be provided after obtaining of the necessary permission from authorities and adhering to requirements such as Bylaws of the local municipality.

### 5.19 Personal and other protective equipment (Sections 8, 15 and 23 of the OHSA)

The Consultant is required to proactively identify the hazards in the workplace and deal with them on an ongoing basis. He/she must either remove them or, where impracticable take steps to protect employees and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply re-engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered.

Where it is not possible to create an absolutely safe and healthy workplace the Consultant is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the Consultant maintain the said equipment that he/she instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s in a consistent and correct manner.

Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other valid reason, the employee cannot be allowed to continue working under the hazardous condition(s) for which the equipment was prescribed but an alternative solution has to be found that may include relocating the employee.

The Consultant may **not charge any fee** for protective equipment prescribed by him or her **but may charge for equipment under the following conditions**, following a disciplinary hearing:

- Where the employee requests additional issue in excess of what is prescribed;
- Where the employee has blatantly abused or neglected the equipment leading to early failure; and
- Where the employee has lost the equipment.

## **5.20 PORTABLE ELECTRICAL TOOLS AND EQUIPMENT (ELECTRICAL MACHINERY REGULATION 9)**

Portable electrical tools and equipment includes every unit that takes electrical power from a 15 ampere plug point and is moved around for use in the workplace i.e. drills, saws, grindstones, portable lights, etcetera. In addition electrical appliances such as fridges, hotplates, heaters, and etcetera must be inspected regularly but at least on a weekly basis and maintained to the same standards as portable electrical tools and appliances.

The use, inspection and maintenance of portable electrical tools and equipment must be governed by the following:

- Regular inspections by a competent person appointed in writing;
- Inspection results must be recorded in a register;
- Only competent authorized persons are allowed to use portable electrical tools and equipment; and
- The correct protective equipment is worn/ used whilst operating portable electrical tools and equipment.

This equipment -

- Must be maintained in good condition at all times to prevent an electrical shock to the user;
- The main source should incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such; and
- All equipment must be fitted with a switch to allow for safe and easy starting and stopping.

## **5.21 PUBLIC HEALTH AND SAFETY (SECTION 9 OF THE OHSA)**

The Consultant is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimize those dangers. This includes among others:

- a. Non- employees entering the site for whatever reason;
- b. The surrounding community; and
- c. Passers by the site.

Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times.

All non-employees entering the site must receive site applicable induction into the hazards and risks and the control measures for these.

## 5.22 HAZARDOUS CHEMICAL SUBSTANCES

The Consultant must ensure that:

- a. Employees receive the necessary information and training to be able to use, handle and store hazardous chemical substances safely;
- b. Employees obey lawful instructions regarding:
  - The wearing and use of personal protective equipment
  - The use, handling and storage of hazardous chemical substances
  - The prevention of the release of hazardous chemical substances
  - The wearing and using of exposure monitoring and measuring equipment
  - The cleaning up and disposal of materials containing hazardous chemical substances
  - Housekeeping, personal hygiene and the protection of the environment
- c. The risk assessments required in terms of Construction Regulation 9 include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace;
- d. Suppliers provide the necessary information in the form of material safety data sheets regarding hazardous chemical substances required to ensure the safe use, handling and storage of these substances;
- e. An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the said hazardous chemical substances;
- f. Hazardous chemical substances containers be clearly marked as to the contents and main hazardous category e.g. “Flammable” or “Corrosive” and the reference number of the hazardous chemical substances on the list indicated above;
- g. Hazardous chemical substances for example asbestos dust is not cleared by using compressed air but should be vacuumed;
- h. No person eats or drinks in a hazardous chemical substances workplace; and

- i. Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.

### 5.23 EXCAVATIONS (INCLUDING PILING) (CONSTRUCTION REGULATION 13)

Where excavations or any part thereof will exceed 1,5 meters in depth the Consultant will be required to submit a method statement which includes a risk assessment to TCTA for approval before commencing with the excavation and TCTA will issue a permit to proceed once the risk assessment and method statement is approved.

Regardless of the above, all excavation work has to comply with the following:

- 5.23.1 Excavation work must be carried out under the supervision of a competent person with at least two years practical experience in excavation work who has been appointed in writing.
- 5.23.2 Before excavation work begins the stability of the ground must be evaluated.
- 5.23.3 Whilst excavation work is being performed, the Consultant must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material.
- 5.23.4 No person may be required or permitted to work in an excavation that has not been adequately shored or braced.
- 2.23.5 Where the excavation is in stable material or where the sides of the excavation are sloped back to at least the maximum angle of repose measured relative to the horizontal plane, shoring or bracing may be left out **but only after** written permission has been obtained from the appointed competent person.
- 5.23.6 Shoring and bracing must be designed and constructed to safely support the sides of the excavation and prevent it from collapsing.
- 5.23.7 Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained, before excavation proceeds, whose opinion will be decisive. The opinion must be in writing and signed by TCTA or technologist as well as the appointed excavator.
- 5.23.8 No load or material may be placed near the edge of an excavation if it is likely to cause a collapse of the excavation, unless suitable shoring has been installed to be able to carry the additional load.
- 5.23.9 Neighbouring/adjoining buildings, structures or roads that may be affected or endangered by the excavation must be suitably protected.
- 5.23.10 Every excavation must be provided with means of access that must be within 6 metres of any employee within the excavation at any time.

- 5.23.11 The location and nature of any existing services such as water, electricity, gas, telecommunication etcetera must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for employees working in or near in the excavation.
- 5.23.12 Every excavation, including the shoring and bracing or any other method to prevent a possible collapse, must be inspected by the appointed competent person as follows:
- a. Daily before work commences
  - b. After every blasting operation
  - c. After an unexpected collapse of the excavation or part thereof
  - d. After substantial damage to any support
  - e. After rain
- 5.23.13 The results of any inspections must be recorded in a register kept on site in the health and safety file.
- 5.23.14 Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced off, on all sides, to at least one meter high and as close to the excavation perimeter as practicable.
- 5.23.15 Provided with warning lights or visible boundary indicators after dark or when visibility is poor.
- 5.23.16 Upon entering an excavation the requirements of General Safety Regulation 5 must be observed:
- Any confined space may only be entered after the air quality has been tested to ensure that it is safe to breathe and does not contain any flammable or noxious air mixture.
  - The confined space must be purged and ventilated of any hazardous or flammable gas, vapour, dust or fumes.
  - The safe atmosphere must be maintained.
  - Employees are to be provided with breathing apparatus and wearing a safety harness with a rope with the free end of the rope being continuously attended to by a competent person outside the confined space.
  - Furthermore, an additional person, trained in resuscitation, to be in full-time attendance immediately outside the confined space.

- Additional serviceable breathing and rescue apparatus is kept immediately outside the confined space for rescue purposes.
- All pipes, ducts etcetera that may leak into the confined space to be blanked off sufficiently to prevent any leakage or seepage.
- The employer must ensure that all employees have left the confined space after the completion of work.
- Where flammable gas is present on or in a confined space no work may be performed in close proximity to the flammable atmosphere that may ignite the flammable gas or vapour.

## **5.24 BLASTING**

The Consultant must ensure that:

- a. Blasting activities are carried out under the supervision of a competent person with at least five years practical experience in blasting who has been appointed in writing.
- b. A method statement is developed in accordance with all applicable explosives legislation, by an appointed person who is certified as a competent person in the use of explosives.
- c. The necessary permits are in place for the transportation of explosives to be used.
- d. Access to the blasting area is strictly restricted.
- e. No smoking or hot work is allowed close to explosives or the blasting areas.
- f. Reasonable steps are taken to prevent damage to structures in the vicinity of the blasting area.
- g. Any other industry required safety measures are considered and implemented specifically taking the construction site's specific requirements into account including the removal of any surplus explosives off the site.

## **5.25 USE OF EXPLOSIVES**

The Consultant shall comply with the requirements of the relevant Explosives Act for all requirements involving the use of explosives for the construction of the Works.

In addition to his compliance with the Explosives Act, the Consultant shall submit to TCTA, for his approval, a full and detailed Method Statement as to his proposals for the use of explosives in the construction of the Works. This shall be submitted at least 7 days before any blasting work is required, and shall include proposals for:

- a. The locations of blasting works;
- b. The location and size of storage magazines, explosives register, security fencing, earthing of building;
- c. Danger signs in English, Afrikaans and Xhosa that shall be prominently displayed at all areas where explosives are stored or used;
- d. Transportation of explosives to and from the magazine;
- e. Licenses required for the magazine(s);
- f. The storage at the place of use;
- g. The use of explosives and dealing with misfires;
- h. The types of explosive and detonators contemplated;
- i. Ensuring that all excavation spoil is free of undetonated caps;
- j. Fencing off excavation spoil dumps and preventing unauthorized entry; and
- k. The names, qualifications and experience of those people responsible for the handling and use of explosives. In addition to the blasting license referred to in the Explosives Act, the employees who shall be responsible for supervising the charging of drill holes with explosives and the blasting shall have documentary proof that they have at least five years experience in supervising the loading and firing of charges in surface works such as quarries or underground works such as tunnel excavation, depending on where it is proposed that they shall be employed.

Notwithstanding the provisions of the Explosives Act, any person who is licensed in the storage, handling and in the use of explosives must be literate, of good sight and hearing and well experienced in the work he is to carry out. TCTA shall have the right of access to storage areas and all registers.

Notwithstanding the provisions of the Explosives Act, the Consultant shall:

- a. Accept a decision of TCTA to suspend the holder of a blasting certificate for an act of negligence or a contravention of the Explosives Act, as if he, as the 'Employer' of the holder of the certificate had made that decision;
- b. Not permit the underground storage of explosives;
- c. Keep on site the originals of licenses for his own staff and acknowledged copies of licenses for any subcontracted works. All license holders will carry acknowledged copies on their person when at work. All blasting licenses or certificates should be valid for the period required on site; and

- d. Install and operate at each point where a blast is to take place a siren of sufficient volume to be easily heard above the general site noise from all points within a 1 km radius of any blast. Hand operated sirens may only be used in areas of restricted access such as a tunnel heading where access is fully controlled. Sirens will be sounded for at least 5 minutes before any blast takes place and will continue for one minute after the blast has taken place. In addition to the above, the Consultant shall station men on roads and elsewhere with red flags to prevent persons, animals and traffic entering or remaining within the danger zone.

Care shall be taken to ensure that all possible approach routes to the danger zone are covered by these warning arrangements. Blasting shall not be carried out until occupants of any nearby buildings or working areas have been notified by the Consultant at least 24 hours in advance. After blasting, no person shall approach the area until it has been examined by the blasting supervisor or other responsible person and declared safe.

The Consultant shall provide for the approval of TCTA details of each and every blasting operation at least 24 hours before that operation is to be carried out. The details shall show the location of and the intended time of each blast, the number, size and length of each blast hole, the quantity and types of explosives and detonators to be used and the name of the licensed blaster and shift foreman responsible.

## **5.26 WORKING OVER OR CLOSE TO WATER**

Where construction or other support work is undertaken over or in close proximity to water or similar liquids such as wastewater and sludge, the Consultant shall –

- a. Appoint a competent person in writing to supervise, control and inspect any work on or over or in close proximity of the water as well as the construction, installation, and dismantling of caissons and/or cofferdams and/or other support or safety structures;
- b. Ensure that written proof of the competence of above appointee is available on site;
- c. Ensure that risk assessments are carried out by the competent person before any work is undertaken, mitigation measures documented as well as implemented and thereafter evaluated on a daily basis;
- d. Undertake the necessary induction and refresher training;
- e. Ensure that measures for the timeous warning of flooding are in place;
- f. Ensure that provision is made to prevent employees from falling into the water and the rescuing of employees in danger of drowning;



- g. Ensure that where an employee is exposed to the risk of drowning by falling into the water, a lifejacket is provided to and worn by the employee; and
- h. Provide applicable personal protective equipment such as safety harnesses etcetera and enforce the utilization thereof.

## **5.27 SUSPENDED PLATFORMS**

5.27.1 The Consultant shall ensure that all suspended platform work operations are carried out under the supervision of a competent person who has been appointed in writing, and that all suspended platform erectors, operators and inspectors are competent to carry out their work.

5.27.2 The Consultant shall not use or permit the use of a suspended platform, unless-

- a. the design, stability and construction thereof comply with the applicable safety standards;
- b. he or she is in possession of a certificate of system design issued by a professional engineer, certificated engineer or a professional technologist for the use of the suspended platform system; and
- c. he or she is, prior to the commencement of the work, in possession of an operational compliance plan developed by a competent person based on the certificate of system design and applicable to the environment in which the system is being used, this must include proof of the-
  - competent person who has been appointed for supervision;
  - competency of erectors, operators and inspectors;
  - operational design calculations which should comply with the requirements of the system design certificate;
  - performance test results;
  - sketches indicating the completed system with the operational loading capacity of the platform;
  - procedures for and records of inspections having been carried out; and
  - procedures for and records of maintenance work having been carried out.

- 5.27.3 The Consultant making use of a suspended platform system shall forward a copy of the certificate of system design issued by a professional engineer, certificated engineer or professional technologist including a copy of the design calculations, sketches and test results, to the provincial director of the Department of Labour before commencement of the use of the system and must further indicate the intended type of work the system would be used for.
- 5.27.4 The Consultant shall need not re-submit a copy of the certificate of system design for every new project, provided that the environment in which the system is being used does not change to such an extent that the system design certificate is no longer applicable and, should uncertainty exist of the applicability of the system design certificate, the decision of a professional engineer, certificated engineer or professional technologist will be decisive.
- 5.27.5 The Consultant shall ensure that the outriggers of each suspended platform-
- a. are constructed of steel or any other material of similar strength and have a safety factor of at least four in relation to the load it is to carry; and
  - b. have suspension points provided with stop devices or other effective devices at the outer ends to prevent the displacement of ropes.
- 5.27.6 The Consultant shall ensure that-
- a. the parts of the building or structure on which the outriggers are supported, are checked by means of calculations to ensure that the required safety factor is adhered to without risk of damage to the building or structure;
  - b. the suspension wire rope and the safety wire rope are separately connected to the outrigger;
  - c. each person on a suspended platform is provided with and wears a safety harness as a fall prevention device which must at all times, be attached to the suspended platform or to the anchorage points on the structure whilst on the suspended platform;
  - d. the hand or power driven machinery to be used for the lifting or lowering of the working platform of a suspended platform is constructed and maintained in such a manner that an uncontrolled movement of the working platform cannot occur;
  - e. the machinery referred to in paragraph (d) is so situated that it is easily accessible for inspection;
  - f. the rope connections to the outriggers are vertically above the connections to the working platform; and

- g. where the working platform is suspended by two ropes only, the connections of the ropes to the working platform are of such height above the level of the working platform as to ensure the stability of the working platform.

5.27.7 The Consultant shall ensure that the suspended platform-

- a. is suspended as near as possible to the structure to which work is being done and, except when light work is being done, is secured at every working position to prevent horizontal movement between the suspended platform and the structure;
- b. is fitted with anchorage points to which employees will attach the lanyards of the safety harnesses worn and used by the employees and such anchorage connections will have sufficient strength to withstand any potential load applied to it; and
- c. is fitted with a conspicuous notice easily understandable by all employees working with the suspended platform, showing the maximum mass load which the suspended platform can carry.

5.27.8 The Consultant shall cause-

- a. the whole installation and all working parts of the suspended platform to be thoroughly examined in accordance with the manufacturer's specification;
- b. the whole installation to be subjected to a performance test as determined by the standard to which the suspended platform was manufactured;
- c. the performance test be undertaken by a competent person appointed in writing with the knowledge and experience of erection and maintenance of suspended platforms or similar machinery and who will determine the serviceability of the structures, ropes, machinery and safety devices before they are used, every time suspended platforms are erected; and
- d. the performance test of the whole installation of the suspended platform to be subjected to a load equal to that prescribed by the manufacturer or, in the absence of such load, to a load of 110 per cent of the rated mass load, at intervals not exceeding 12 months and in such a manner that every part of the installation is stressed accordingly.

5.27.9 The Consultant shall cause every hoisting rope, hook or other load-attaching device which forms part of the suspended platform to be thoroughly examined in accordance with the manufacturer's specification by the competent person before they are used following every time they are assembled, and, in cases of continuous use, at intervals not exceeding three months.

5.27.10 The Consultant shall ensure that the suspended platform supervisor appointed, or the suspended platform inspector, carries out a daily inspection of all the equipment prior to use, including establishing whether-

- a. all connection bolts are secure;
- b. all safety devices are functioning;
- c. all safety devices are not tampered with or vandalized;
- d. the maximum mass load of the platform is not exceeded;
- e. the occupants in the suspended platform are using safety harnesses which have been properly attached;
- f. there are no visible signs of damage to the equipment; and
- g. all reported operating problems have been attended to.

5.27.11 The Consultant shall ensure that all inspection and performance test records are kept on the construction site at all times and made available to an inspector, TCTA, TCTA's agent or employee upon request.

5.27.12 The Consultant shall ensure that all employees required to work or to be supported on a suspended platform are-

- a. physically and psychologically fit to work safely in such an environment by being in possession of a valid medical certificate of fitness;
- b. competent in conducting work related to suspended platforms safely;
- c. trained or had received training which include at least-
  - how to access and egress the suspended platform safely;
  - how to correctly operate the controls and safety devices of the equipment;
  - information on the dangers related to the misuse of safety devices;
  - information on the procedures to be followed in the case of-
    - (i) an emergency;
    - (ii) the malfunctioning of equipment;
    - (iii) the discovery of a suspected defect in the equipment; and
  - instructions on the proper use of safety harnesses.

5.27.13 Where the outrigger is to be moved, the Consultant will ensure that only persons trained and competent to effect such move, perform this task and that an inspection be carried out and the results thereof be recorded by the competent person prior to re-use of the suspended platform.

5.27.14 The Consultant shall ensure that the suspended platform is properly isolated after use at the end of each working day such that no part of the suspended platform will present a danger to any person thereafter.

## **5.28 TRANSPORTATION OF EMPLOYEES**

5.28.1 Any vehicle used to transport employees must have seats firmly secured and adequate for the number of employees to be carried.

5.28.2 The Consultant shall not allow employees to be transported in a goods vehicle unless the portion of the vehicle in which the employees are being conveyed is enclosed to a height of –

a. at least 350 mm above the surface on which employees are seated; or

b. at least 900 mm above the surface on which employees are standing,

in a manner and with a material of sufficient strength to prevent employees from falling from such vehicle when it is in motion.

## **5.29 EPIDEMICS**

In the event of any outbreak of illness of a highly contagious or epidemic nature the Consultant shall comply with and carry out such regulations, orders and requirements as may be made by the relevant authorities.

## **5.30 LIGHTNING**

The Consultant shall take precautions against lightning by the use of lightning protection equipment and earthing mats, all of which shall be properly designed and installed to the satisfaction of TCTA. Metalwork and conductors on the site shall be properly earthed. No charging or blasting shall take place if the imminent approach of lightning to the site is forecast. All charged areas shall be immediately evacuated.

## **5.31 HEALTH MEASURES TO ADDRESS INDUSTRIAL HYGIENE**

The Consultant shall institute and operate a medical screening and examination system for prospective employees. The screening system shall be established and monitored in consultation with TCTA, the Department of Health and the Department of Labour. Medical screening shall take place before employment, annually, and on termination of employment, for whatever reason.

Subject to the approval of TCTA, the Consultant shall establish a procedure for detecting and treating work related disorders, such as hearing defects or breathing disability. The procedures shall be a best working practice, and shall include for the medical examination of all people whom he proposes to employ on the works. Records of the prospective employee's history of employment and the results of similar examinations shall be required to be produced at this pre-employment examination and shall be duly recorded. The procedure shall also include for annual re-examination and a final one on completion of employment. In addition, further examinations at shorter intervals may be necessary due to the work environment of the employee. Medical examination records of all employees shall be kept by the Consultant on the site in a standard format approved by TCTA. These records shall be sent to TCTA on completion of the works, or sooner as requested by TCTA.

Work related disorders shall include, but not be limited to:

- a. The effect on hearing due to noise exposure. The Consultant shall not expose people to a noise level in excess of 85 dB(A) unless adequate hearing protection in the form of ear muffs or plugs, of a type approved by TCTA for the noise levels emitted, is supplied and worn. The medical examinations referred to above shall include audiometric measurement for air and bone conduction.
- b. The effects on the respiratory system due to dust exposure. The Consultant shall not expose people to dust levels in excess of those specified, unless adequate protection is provided by the use of dust masks or respiratory systems as approved by TCTA for the working conditions prevailing. The examinations referred to above shall include radiographic testing for pneumoconiosis and other similar disorders.
- c. Chest diseases due to exposure to such contaminable diseases as tuberculosis. The examinations referred to above shall include tests by the use of radiographs and spirometry.
- d. Allergic symptoms due to exposure to conditions to which the person is allergic. Examinations shall include such tests as are appropriate, and will be carried out on demand only.
- e. Local or temporary disorders which may be due to poor sanitary conditions, lack of nutritional food value and the like. Examinations and testing shall be as appropriate and on demand only.

Where referral or rehabilitation is required, the Consultant shall obtain and keep recorded information as to the treatments given and the results achieved.

The Consultant shall identify and negotiate with locally based and operational HIV/Aids and tuberculoses NGOs to provide applicable HIV/Aids awareness training and counseling to the workforce. Suitable HIV/Aids referral facilities should also be identified.

## **6. HEALTH AND SAFETY POLICY**

The Consultant has to provide TCTA, as an annexure to the health and safety plan, with a detailed health and safety policy outlining the Consultant's stance on and principles adopted for health and safety.

## **7. COST FOR HEALTH AND SAFETY MEASURES DURING THE CONSTRUCTION PROCESS**

To enable TCTA to comply with Construction Regulation 5(1) (g), all potential Consultants submitting tenders/bids have to demonstrate to TCTA that sufficient provision has been for the cost to implement and maintain the health and safety plan proposed by the Consultant to meet the requirements of this health and safety specification as well as that of the OHSA and its Regulations.

A detailed schedule of costs has to be included in the health and safety plan submitted as part of the potential Consultant's tender document. Failure by the Consultant to adhere to this requirement will force TCTA to reject the tender/bid in terms of Construction Regulation 5(1) (h).

## **8. NOT USED**

## **9. OVERVIEW OF ATTACHMENTS**

Attachment 1: Specified framework for the Consultant's occupational health and safety plan.

Attachment 2: Legal compliance assessment.

Attachment 3: Measuring injury experience.

Attachment 4: A Sample SHE Risk Management Report.

Attachment 5: Not Used.

Attachment 6: Not Used.

**ATTACHMENT 1: HEALTH AND SAFETY PLAN**



## **Specified framework for the principal contractor's occupational health and safety plan**

### **1. DEFINITIONS**

In this document the following expressions shall bear the meanings assigned to them below:

- 1.1 **Client** means any person for whom construction work is being performed and/or undertaken [i.e. Trans Caledon Tunnel Authority (TCTA) for purposes of this specification];
- 1.2 **Construction Regulations** means the Occupational Health and Safety Act's, No 85 of 1993, Construction Regulations that came into effect on 18 July 2003;
- 1.3 **Occupational health and safety plan** means a documented plan which addresses hazards identified and includes safe working procedures to mitigate, reduce or control the hazards identified;
- 1.4 **Occupational health and safety specification** means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons working and/or visiting the site;
- 1.5 **OHSACT** means the Occupational Health and Safety Act, No 85 of 1993, as amended; and
- 1.6 **Principal Contractor** means an employer, as defined by section 1 of the OHSACT who performs construction work and is appointed by the Client to be in overall control and management of the construction works.

### **2. INTRODUCTION**

In terms of the Construction Regulations [Regulation 5 (1) (a)] of the OHSACT, the Client is required to compile an occupational health and safety specification for each of its projects and the principle contractor, appointed by the Client in terms of Regulation 5 (1) (k), is required to prepare an occupational health and safety plan.

This plan has to be prepared in terms of Regulation 5 (1) as well as the Client's occupational health and safety specification. In terms of Regulation 5 (1)(l), the Client and the principle contractor are required to agree on the occupational health and safety plan before any work may commence.

The principal contractor's health and safety plan has to follow the framework specified in this annexure a minimum guideline.

### **3. SPECIFIED FRAMEWORK FOR THE OCCUPATIONAL HEALTH AND SAFETY PLAN**

#### **3.1 INTRODUCTION**

The principal contractor has to demonstrate to the Client that it has developed a suitable and sufficiently documented occupational health and safety plan for the specific project appointed as well as the necessary competencies, experience and resources to perform the construction work safely. The principle contractor should submit the following documentation for perusal and verification by the client:

- a. Management structure.
- b. Quality plan.
- c. Human resources plan.
- d. Registered workplace skills plan.
- e. "Letter of good standing" from the Compensation Commissioner or licensed compensation insurer.
- f. Proof of induction and other training of employees.
- g. Copy of minutes as an example of other project's occupational health and safety committee meetings and copies of incident investigation reports.

#### **3.2 CONTENTS OF THE OCCUPATIONAL HEALTH AND SAFETY PLAN**

##### **3.2.1 Occupational health and safety management programme**

The occupational health and safety management programme should at least provide a detailed overview of the following matters:

- a. Management of occupational health and safety risks.
- b. Occupational health and safety structures and appointments.
- c. Programme of occupational health and safety inspections.
- d. Occupational health and safety representatives.
- e. Occupational health and safety committee.

##### **3.2.2 Communication principles and management of work**

The communication and management principles to be applied should be in the format as illustrated in Attachment 4 herein and of the content to cover the minimum of the following:

- a. Management structure and responsibilities.

- b. Occupational health and safety goals for the project and arrangements for monitoring and reviewing occupational health and safety performance.
- c. Arrangements for:
  - Regular liaison between parties on site; and
  - Consultation with the workforce.
- d. The exchange of design information between the client, designers, supervisors and contractors on site.
- e. Handling of design changes during the project.
- f. Selection and control of contractors.
- g. The exchange of occupational health and safety information between all contractors on matter such as:
  - Security;
  - Site induction and onsite training;
  - Facilities and first-aid;
  - The reporting and investigation of accidents and incidents;
  - The production and approval of risk assessments and method statements;
  - OHSACT site rules; and
  - Fire and emergency procedures.
- h. Reporting to the client i.e. results of occupational health and safety inspections, incidents, incident investigations and committee meetings.
- i. Reporting of incidents to the Department of Labour and compensation insurer where appropriate.

### **3.2.3 Arrangements for controlling significant site risks and exposures**

The following are some examples of the arrangements for controlling the most significant site risks/exposures:

#### **3.2.3.1 Safety risks**

- a. Services, including temporary electrical installations.
- b. Preventing employees from falling into excavations, from trucks etcetera.
- c. Work with, on or near fragile materials.

- d. Control of lifting operations.
- e. The maintenance of plant and equipment.
- f. Poor ground conditions.
- g. Traffic routes and segregation of vehicles and pedestrians.
- h. Storage of hazardous materials.
- i. Dealing with existing unstable structures and/or land.
- j. Accommodating adjacent land use.
- k. Other significant safety risks as and when identified.

### **3.2.3.2 Health risks**

- a. Storage and use of hazardous chemical substances.
- b. Dealing with contaminated land or material.
- c. Manual handling.
- d. Reducing noise and vibration.
- e. Provision of adequate lighting.
- f. Ventilation considerations.
- g. Extreme heat and cold temperature considerations.
- h. Dealing with HIV/Aids and other illnesses.
- i. Provision of and maintaining ablution and eating facilities.
- j. Other significant health risks as and when identified.

## **3.3 PREPARATION OF AN OCCUPATIONAL HEALTH AND SAFETY OPERATIONAL REFERENCE FILE AND/OR MANUAL**

The following are some of the minimum requirements to be addressed:

- a. Layout, format and content requirements.
- b. Arrangement for the collection and gathering of information.
- c. Storage and archiving of all the information.
- d. Copy to the client at completion of project.

### **3.3.1 Minimum contents of an occupational health and safety file and/or manual**

- a. Occupational health and safety policy.
- b. Notice of new projects.
- c. Relevant site start-up documentation.
- d. Security measures.
- e. Copies of written designations and appointments.
- f. Arrangements with contractors and/or mandataries.
- g. Occupational health and safety rules and procedures.
- h. Induction training details.
- i. Occupational health and safety training.
- j. Occupational health and safety promotion.
- k. Occupational health and safety representatives.
- l. Occupational health and safety committees.
- m. Workplace facilities, for example ablution, sheltered eating areas etcetera.
- n. Personal protective equipment.
- o. Workplace inspections and assessments.
- p. Investigation and reporting of incidents and/or accidents.
- q. Mechanical safeguarding.
- r. Electrical safeguarding.
- s. Safeguarding against hazardous substances.
- t. Lifting machinery and equipment.
- u. Construction vehicles and mobile plant.
- v. Welding, heating and flame cutting.
- w. Excavations.
- x. Protection of the environment affected by construction activities.
- y. Keeping of records in terms of the OHSACT.

### **3.4 RISK ASSESSMENTS**

Every principle contractor performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, ensure that a risk assessment is undertaken by a competent person, appointed in writing, and the risk assessment shall form part of the occupational health and safety plan and be implemented and maintained as contemplated in Construction Regulation 5 (1).

The risk assessment shall include, at least:

- a. The identification of the risks and hazards to which persons may be exposed to;
- b. The analysis and evaluation of the risks and hazards identified;
- c. A documented plan of safe working procedures (SWP) and any method statements to mitigate, reduce or control the risks and hazards that have been identified;
- d. A plan to monitor the application of the SWPs; and
- e. A plan to review the risk assessments as the work progresses and changes are introduced.

In order to ensure compliance with the Construction Regulations, the principal contractor will be required to carry out the following three forms of risk assessment:

#### **3.4.1 Baseline or datum risk assessments**

The principal contractor will be required carry out a risk assessment before the commencement of construction activities. This "baseline" or 'datum" risk assessment will form part of the principal contractor's health and safety plan. The risks and hazards to which persons, plant, vehicles and facilities may be exposed during the construction should be identified and evaluated. Measures to reduce or control these risks or hazards should be defined during this assessment. The effectiveness of the measures defined and the baseline risk assessment prepared shall be monitored and reviewed from time to time to ensure that it remains relevant and accurate

#### **3.4.2 Issue based risk assessments**

The Contractor will be required to carry out separate risk assessments during construction of the Works when methods and procedures are varied, for example when:

- a. Designs are amended,
- b. New machines are introduced,
- c. Plant is periodically cleaned and maintained,

- d. Plant is started-up or shut-down,
- e. Systems of work change or operations alter,
- f. Incidents or near-misses occur, or
- g. Technological developments invalidate prior risk assessments

### **3.4.3 Continuous risk assessments**

The OHSACT specifically requires that employers shall provide and maintain working environments that are safe and without risk to health. The general awareness of hazards needs to be raised as work ethic to maintain a safe and risk free environment on an ongoing basis. This is achieved by continuous risk assessments, the most important form of risk assessment that takes place as an integral part of day-to-day management. Examples of continuous risk assessments include:

- a. Regular audits,
- b. Maintaining general hazard awareness, and
- c. Pre-work risk assessment

The principal contractor's health and safety plan should include a comprehensive list (based on Annexure 7 of the client's occupational health and safety specification) to be carried out as well as the methodology to be followed. The plan should also include detailed site-specific occupational health and safety rules to be applied during the project.

### **3.5 COST FOR HEALTH AND SAFETY MEASURES DURING THE CONSTRUCTION PROCESS**

To enable the Client to comply with Construction Regulation 4 (1) (h), all potential contractors submitting tenders have to demonstrate to the Client that sufficient provision has been for the cost to implement the health and health and safety plan proposed by the principal contractor to meet the requirements of this health and safety specification as well as that of the OHSACT and its Regulations.

A detailed schedule of costs has to be included in the health and safety plan submitted as part of the potential principal contractor's tender document. Failure by the principal contractor to adhere to this requirement will force the Client to reject the tender in terms of Construction Regulation 4 (4).

**Attachment 2: Legal Compliance Assessment**



# Occupational health, -safety and environment: Risk assessment checklist

(Based on the Construction Regulations of the Occupational Health and Safety Act)

\* Denotes items applicable to both construction sites, contractor plant and storage yards

ELEMENT	REMARKS
1. Administrative and legal requirements	
2. Education, training and promotion	
3. Public safety, security measures and emergency preparedness	
4. Personal protective equipment	
5. Housekeeping	
6. Working at heights (including roof work)	
7. Scaffolding, formwork and support work	
8. Ladders	
9. Electrical safeguarding	
10. Emergency, fire prevention and protection	
11. Excavations and demolition	
12. Tools	
13. Cranes	
14. Builder's hoist hoists	
15. Transport and materials handling equipment	
16. Site plant and machinery	
17. Plant and storage yard or site workshop specifics	
18. Workplace environment, health and hygiene	

## 1. ADMINISTRATIVE AND LEGAL REQUIREMENTS

OHSA Section or Regulation	Subject	Requirements	Yes/No
Construction Regulation 4	<b>Notice of carrying out Construction work</b>	Department of Labour notified. Copy of notice available on site.	
General Admin. Regulation 4	<b>*Copy of OHSA</b>	Updated copy of the OHSA and Regulations on site. Readily available for perusal by all employees.	
COID Act Section 80	<b>*Registration with Compensation Commissioner or other approved compensation insurer</b>	Written proof of registration/Letter of good standing available on site.	
Construction	<b>OHSA specification, plans and</b>	OHSA spec received from TCTA.	

OHSA Section or Regulation	Subject	Requirements	Yes/No
Regulation 5 & 7(1)	<b>programme</b>	OHSA plan developed. OHSA programme implemented. Plans and programme updated regularly.	
Section 8(2)(d) Construction Regulation 9	<b>*Hazard identification and risk assessment</b>	Hazard identification carried out and recorded. Risk assessment and –plan drawn up and updated. Employees and sub-contractors informed and trained.	
Section 16(2)	<b>*Assigned duties (Managers)</b>	Responsibility of complying with the OHSA assigned to other person/s by CEO.	
Construction Regulation 8(1)	<b>Designation of person responsible on site</b>	Competent person appointed in writing as construction supervisor.	
Construction Regulation 8(2)	<b>Designation of assistant for responsible person</b>	Competent person appointed in writing as assistant construction supervisor.	
Section 17 & 18 and General Administrative Regulations 6 & 7	<b>*Election and designation of occupational health and safety representatives</b>	More than 20 employees - one representative and one additional representative for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful reports. Reports actioned by management.	
Section 19 & 20 and General Administrative Regulations 5	<b>*Occupational health and safety committee/s</b>	Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by management.	
Section 37(1) & (2)	<b>*Agreement with mandataries, contractors and sub-contractors</b>	Written agreement with contractors and sub-contractors. List of contractors and sub-contractors displayed. Proof of Registration with Compensation Commissioner or Compensation Insurer as well as Letter of Good Standing. Construction Supervisor designated. Written arrangements regarding representatives and committee. Written arrangements regarding first-aid.	
Section 24 and General Administrative Regulation 8 COID Act Section 38, 39 and 41	<b>*Reporting of incidents (Department of Labour)</b>	Incident reporting procedure displayed. All incidents in terms of section 24 reported to the Provincial Director, Department of Labour, within 3 days (Annexure 1 and/or WCL 1 or 2). Cases of occupational disease reported. Copies of reports available on site. Record of first-aid injuries kept.	
General Administrative Regulation 9	<b>*Investigation and recording of incidents</b>	All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing. Copies of reports (Annexure 1) available on site. Tabled at committee meeting. Actioned taken by site management.	
Construction Regulation 10	<b>Fall prevention and protection</b>	Competent person appointed to draw up and supervise the fall protection plan. Proof of appointees' competence available	

OHS Section or Regulation	Subject	Requirements	Yes/No
		on site. Risk assessment carried out for work at heights. Fall protection plan drawn up and updated. Plan available on site.	
Construction Regulation 10(5)	<b>Roof work</b>	Competent person appointed to plan & supervise roof work. Proof of appointees' competence available on site. Risk assessment carried out. Roof work plan drawn up and updated. Roof work inspect before each shift and inspection register kept. Employees medically examined for physical and psychological fitness and written proof on site.	
Construction Regulation 11	<b>Structures</b>	Information regarding the structure being erected received from the designer including: geo-science technical report where relevant; the design loading of the structure; the methods and sequence of construction; and anticipated dangers, hazards and/or special measures to construct safely. Risk assessment carried out. Method statement drawn up. All above available on site. Structures inspected before each shift. Inspections register kept.	
Construction Regulation 12	<b>Temporary works</b>	Competent person appointed in writing to supervise erection, maintenance, use and dismantling of support and formwork. Design drawings available on site. Risk assessment carried out. Support and formwork inspected: before use and inspection; before pouring of concrete; weekly whilst in place; and before stripping or dismantling and inspection register kept.	
Construction Regulation 16	<b>Scaffolding</b>	Competent persons appointed in writing to: erect scaffolding (scaffold erector/s); act as scaffold team leaders; and inspect scaffolding weekly and after inclement weather (scaffold inspector/s). Written proof of competence of above appointees. Appointees available on site. Copy of SABS 085 available on site. Risk assessment carried out. Inspected weekly and/or after bad weather. Inspection register/s kept.	
Construction Regulation 17	<b>Suspended platforms</b>	Competent persons appointed in writing to: control the erection of suspended platforms;	

OHS Section or Regulation	Subject	Requirements	Yes/No
		<p>act as suspended platform team leaders; and  inspect suspended scaffolding weekly and after inclement weather.  Risk assessment conducted.  Certificate of authorization issued by a registered professional engineer available on site and copy forwarded to the Department of Labour.  The following inspections of the whole installation carried out by a competent person  after erection and before use;  daily prior to use; and  inspection register kept.  The following tests to be conducted by a competent person:  load test of whole installation and working parts every 12 months; and  hoisting ropes, hooks and load attaching devices quarterly; and  tests log book kept.  Employees working on suspended platforms should be medically examined for physical and psychological fitness.  Written proof available.</p>	
Construction Regulation 13	<b>Excavations</b>	<p>Competent person/s appointed in writing to supervise and inspect excavation work.  Written proof of competence of above appointee/s available on site.  Risk assessment carried out.  Excavations inspected:  before every shift;  after any blasting;  after an unexpected fall of ground;  after any substantial damage to the shoring; and  after rain.  Inspections register kept.  Method statement developed where explosives will be and/or are used.</p>	
Construction Regulation 14	<b>Demolition work</b>	<p>Competent person/s appointed in writing to supervise and control demolition work.  Written proof of competence of above appointee/s available on site.  Risk assessment carried out.  Engineering survey and method statement available on site.  Inspections to prevent premature collapse carried out by competent person before each shift.  Inspection register kept.</p>	
Construction Regulation 19	<b>Materials hoist</b>	<p>Competent person appointed in writing to inspect the material hoist.  Written proof of competence of above appointee available on site.  Materials hoist to be inspected weekly by a competent person.  Inspection register kept.</p>	

OHS Section or Regulation	Subject	Requirements	Yes/No
Construction Regulation 26	<b>Water environments (including caissons and cofferdams)</b>	Competent person appointed in writing to supervise, control and inspect work on or over water and the construction, installation, and dismantling of caissons and/or cofferdams. Written proof of competence of above appointee available on site. Risk assessment carried by a competent person on a daily basis. Inspection register kept.	
Construction Regulation 21	<b>Explosive powered tools</b>	Competent person appointed to control the issue of the explosive powered tools and cartridges as well as the service, maintenance and cleaning. Register kept of above. Empty cartridge cases, nails and fixing bolts returns recorded. Cleaned daily after use.	
Construction Regulation 20	<b>Bulk Mixing plants</b>	Competent person appointed to control the operation of the batch plant as well as the service, maintenance and cleaning of this plant. Register kept of above. Risk assessment carried out.  Batch plant to be inspected weekly by a competent person and inspections register kept.	
Construction Regulation 15 and Mine Health and Safety Act	<b>Tunneling</b>	Complying with Mines Health and Safety Act (29 of 1996). Risk Assessment carried out.	
Construction Regulation 22 Driven Machinery Regulations 18 and 19	<b>Cranes and lifting machines equipment</b>	Competent person appointed in writing to inspect cranes, lifting machines and equipment. Written proof of competence of above appointee available on site. Cranes and lifting tackle identified and numbered. Register kept for lifting tackle. Logbook kept for each individual crane. Inspection: <b>All cranes:</b> Daily by operator. <b>Tower cranes:</b> After erection and thereafter 6 monthly. <b>Other cranes:</b> Annually by competent person. <b>Lifting tackle (slings, ropes, chain slings etcetera):</b> Three monthly.	
Construction Regulation 24 Electrical Machinery Regulations 9 and 10 Electrical Installation Regulations	<b>*Inspection and maintenance of electrical installation and equipment (including portable electrical tools)</b>	Competent person appointed in writing to inspect/test the installation and equipment. Written proof of competence of above appointee available on site. Inspections: Electrical installation and equipment inspected after installation, alterations and quarterly thereafter. Inspection registers kept. Portable electric tools and -lights and	

OHS Section or Regulation	Subject	Requirements	Yes/No
		extension leads identified/numbered. Monthly visual inspection by user, issuer or storeman. Register kept.	
Diving Regulations	<b>Diving operations</b>	Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an approved inspection authority of equipment used. Written proof of competence of above appointee available on site. Proof of registration of all divers present on site available. Risk assessment carried out. Diving manual produced and available on site. Record of voice communications kept. Diving operations record kept. Each diver keeps a personal logbook and entries countersigned by the diving supervisor. Decompression tables available on site. Records of any decompression illness kept. Certificate of manufacture of any compression chamber or diving bell in use available on site.	
Construction Regulation 28 General Safety Regulation 8(1)(a)	<b>*Designation of stacking and storage supervisor</b>	Competent persons with specific knowledge and experience designated to supervise all stacking and storage. Written proof of competence of above appointee available on site.	
Construction Regulation 29 Environmental Regulation 9	<b>*Designation of a person to coordinate emergency planning and fire protection</b>	Person/s with specific knowledge and experience designated to coordinate emergency contingency planning and execution and fire prevention measures. Emergency evacuation plan: Developed and available on site; Drilled and practiced; and Records of drills and practices available on site. Fire risk assessment carried out. All fire extinguishing equipment: Identified and on register; Inspected weekly and inspection registers kept; Replaced after use; and Serviced annually.	
General Safety Regulation 3	<b>*First-aid</b>	Every workplace provided with sufficient number of first-aid boxes (required where 5 persons or more are employed). First-aid boxes freely available. Content of boxes as per the minimum requirements of the OHS. One qualified First-aiders appointed for every 50 employees (required where more than 10 persons are employed). List of First-aiders and competency	

OHS Section or Regulation	Subject	Requirements	Yes/No
		<p>certificates available on site.</p> <p>Name and contact details of person in charge of first-aid box clearly displayed.</p> <p>Location of first-aid boxes clearly demarcated.</p> <p>Signs instructing employees to report all injuries and/or illness including first-aid injuries.</p>	
General Safety Regulation 2	<b>Personal protective equipment (PPE)</b>	<p>PPE risk assessment carried out.</p> <p>Items of PPE prescribed and use enforced.</p> <p>Records of issue kept.</p> <p>Undertaking by employee to use and/or wear PPE.</p>	
General Safety Regulation 9	<b>*Inspection and use of welding and/or flame cutting equipment</b>	<p>Competent person/s with specific knowledge and experience designated to inspect electric arc, gas welding and flame cutting equipment.</p> <p>Written proof of competence of above appointee available on site.</p> <p>Equipment identified/numbered and entered into a register.</p> <p>Equipment inspected monthly.</p> <p>Inspection register kept.</p>	
Hazardous Chemical Substances (HCS) Regulations Construction Regulation 25	<b>*Control of storage and usage of HCS and other flammables</b>	<p>Competent person/s with specific knowledge and experience designated to control the storage and usage of HCS (including flammables).</p> <p>Written proof of competence of above appointee available on site.</p> <p>Risk assessment carried out.</p> <p>Register of HCS kept and/or used on site.</p>	
Vessels under Pressure Regulations	<b>Vessels under pressure (VUP)</b>	<p>Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections and testing of VUPs.</p> <p>Written proof of competence of above appointee available on site.</p> <p>Risk assessment carried out.</p> <p>Certificates of manufacture available on site.</p> <p>Register of VUPs on site.</p> <p>Inspections and testing by approved inspection authority (AIA):</p> <p>after installation, re-erection or repairs;</p> <p>every 36 months; and</p> <p>register or log kept of inspections, tests, modifications and repair on site.</p>	
Construction Regulation 23	<b>Construction vehicles and earth moving equipment</b>	<p>Operators or drivers appointed to:</p> <p>Carry out a daily inspection prior to use; and</p> <p>Drive the vehicle or plant that he/she is competent to drive or operate.</p> <p>Written proof of competence of above appointee available on site.</p>	

OHS Section or Regulation	Subject	Requirements	Yes/No
		Record of daily inspections kept on site.	
General Safety Regulation 13A	<b>*Inspection of Ladders</b>	Competent person appointed in writing to inspect ladders. Ladders inspected at arrival on site and monthly thereafter. Inspections register kept on site.	
General Safety regulation 13B	<b>Ramps</b>	Competent person appointed in writing to supervise the erection and inspection of ramps. Inspection register kept on site.	

## 2. EDUCATION, TRAINING AND PROMOTION

Subject	Requirement	Yes/No
*Occupational Health and Safety Policy as per OHS Section 7(1)	Policy signed by CEO and published and communicated to employees. Policy displayed on employee notice boards. Management and employees committed.	
*Company and site health and safety rules as per OHS Section 13(a)	Rules published. Rules displayed on employee notice boards. Rules issued and explained to employees with written proof hereof. Follow-up to ensure employees understand and adhere to the rules.	
*Induction and task safety training as per OHS Section 13(a)	All new employees receive health and safety induction training. Training includes task safety instructions. Employees acknowledge receipt of training. Follow-up to ensure employees understand and adhere to instructions.	
*General health and safety training as per OHS Section 13(a)	All employees receive basic health and safety training. Written proof kept. Operators of plant and equipment receive specialized training. Follow-up to ensure employees understand and adhere to instructions.	
*Occupational health and safety promotion	Incident experience board indicating among others - <ul style="list-style-type: none"> <li>• Number of hours worked without an injury; and</li> <li>• Number of days worked without an injury.</li> </ul> Safety grading - Board kept up to date. Relevant safety posters displayed and changed regularly. Employee notice board for health and safety notices. Site health and safety competitions. Company health and safety competition. Participation in regional health and safety competitions. Suggestion scheme.	



### 3. PUBLIC SAFETY, SECURITY MEASURES AND EMERGENCY PREPAREDNESS

Subject	Requirement	Yes/No
*Notices and signs	Notices and signs at entrances along perimeters indicating “ <b>No unauthorized entry</b> ” and “ <b>Entry at own risk</b> ”. Notices and signs at entrance instructing visitors and non-employees what to do, where to go and where to report on entering the site or yard with directional signs for example “ <b>Visitors to report to office</b> ”. Notices and signs posted to warn of overhead work and other hazardous activities for example <b>General Warning Signs</b> .	
Site safeguarding	Nets, canopies, stills, fans etcetera to protect members of the public passing and/or entering the site.	
*Security measures	Access control measures and register in operation. Security patrols after hours and weekends. Sufficient lighting after dark. Guard has access to telephone or other means of emergency communication.	
*Emergency preparedness	Emergency contact numbers displayed near telephone. Emergency evacuation instructions posted up on all notice boards (including employees’ notice boards). Emergency contingency plan available on site or in yard. Doors open outwards and unobstructed. Emergency alarm audible all over (including in toilets).	
*Emergency drill and evacuation	Adequate number of employees trained to use fire equipment. Emergency evacuation plan available, displayed and practiced. <b>(See Section 1 for designation and register).</b>	

### 4. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Subject	Requirement	Yes/No
*PPE needs analysis	Need for PPE identified and prescribed in writing.	
*Head protection	It is compulsory for all persons on site to wear safety helmets including sub-contractors and visitors (where prescribed).	
*Foot protection	All persons on site have to wear safety footwear including gumboots for concrete or wet work and non-slip shoes for roof work.	
*Eye and face protection	Eye and face protection (such as goggles, face shields, welding helmets) to be used when operating the following: <ul style="list-style-type: none"> <li>• Jack or kango hammers;</li> <li>• Angle or bench grinders;</li> <li>• Electric drills (overhead work into concrete, cement and bricks);</li> <li>• Explosive powered tools;</li> <li>• Concrete vibrators or pokers;</li> <li>• Hammers and chisels;</li> <li>• Cutting or welding torches;</li> <li>• Arc welding equipment;</li> <li>• Skill or bench saws; and</li> <li>• Spray-painting equipment etcetera.</li> </ul>	
*Hearing protection	Hearing Protectors (such as muffs, plugs) used when operating the following: <ul style="list-style-type: none"> <li>• Jack or kango hammers;</li> <li>• Explosive powered tools; and</li> <li>• Wood or aluminum working machines such as saws, planers, routers.</li> </ul>	

Subject	Requirement	Yes/No
*Hand protection	Protective gloves to be worn by employees handling or using: <ul style="list-style-type: none"> <li>• Cement, bricks, steel or chemicals;</li> <li>• Welding equipment;</li> <li>• Hammers and chisels; and</li> <li>• Jack or kango hammers etcetera.</li> </ul>	
*Respiratory protection	Suitable and efficient respirators to be worn correctly by employees handling or using: <ul style="list-style-type: none"> <li>• Dry cement;</li> <li>• Dusty areas;</li> <li>• Hazardous chemicals;</li> <li>• Angle grinders; and</li> <li>• Spray-painting etcetera.</li> </ul>	
*Fall Prevention Equipment	Suitable safety belts or fall arrest equipment correctly used by persons working on or in unguarded, elevated positions such as: <ul style="list-style-type: none"> <li>• Scaffolding;</li> <li>• Riggers;</li> <li>• Lift shafts;</li> <li>• Edge work; and</li> <li>• Ring beam edges etcetera.</li> </ul> Other applicable methods of fall prevention should al be applied such as catch nets.	
*Protective clothing	All jobs requiring protective clothing (such as overalls, rain wear, welding aprons etcetera) to be identified and clothing worn.	
*PPE issue and control	Identified equipment to be issued free of charge. All PPE should be maintained in good condition (i.e. regular checks). Workers instructed in the proper use and maintenance of PPE. Commitment obtained from wearer accepting conditions and to wear the PPE. Record of PPE issued kept on file.	

## 5. HOUSEKEEPING

Subject	Requirement	Yes/No
*Scrap removal system	All items of scrap, unusable off cuts, rubble and redundant material removed from working areas on a regular basis. Scrap and/or waste removal from heights by chute, hoist or crane (i.e. nothing thrown or swept over sides). Scrap disposed of in designated containers or areas. Removal from site or yard on a regular basis.	
Stacking and storage <b>(See Section 1 for designation and register)</b>	Stacking: <ul style="list-style-type: none"> <li>• Stable;</li> <li>• On firm level surface or base;</li> <li>• Not leaning and/or collapsing;</li> <li>• Irregular shapes bonded;</li> <li>• Not exceeding 3 times the base;</li> <li>• Stacks accessible; and</li> <li>• Removal from top only.</li> </ul> Storage: <ul style="list-style-type: none"> <li>• Adequate storage areas provided;</li> <li>• Functional for example demarcated storage areas, racks, bins etcetera;</li> </ul>	

Subject	Requirement	Yes/No
	<ul style="list-style-type: none"> <li>Special areas identified and demarcated for example flammable gas, cement etcetera:</li> <li>Neat, safe, stable and square:</li> <li>Store and storage areas clear of superfluous material;</li> <li>Storage behind sheds etcetera should be neat and under control; and</li> <li>Storage areas free from weeds, litter etcetera.</li> </ul>	
*Waste control or reclamation	<p>Re-usable off cuts and other re-useable material removed daily and kept to a minimum in the work areas.</p> <p>All re-useable materials neatly stacked or stored in designated areas (i.e. nails removed or bent over in re-useable timber).</p> <p>Issue of hardware, nails, screws and cartridges etcetera should be controlled and return of unused items monitored.</p>	
Sub-contractors	Sub-contractors required to comply with the site or yard's housekeeping requirements.	

## 6. WORKING AT HEIGHTS (INCLUDING ROOF WORK)

Subject	Requirement	Yes/No
Openings	<p>Unprotected openings adequately guarded, fenced and barricaded with catch nets installed where necessary.</p> <p>Covers over openings in roof of robust construction and secured against displacement.</p>	
General requirements	<p>Roof work discontinued when bad or hazardous weather prevails.</p> <p>Fall protection measures (including warning notices) when working close to edges or on fragile roofing material.</p>	

## 7. SCAFFOLDING, FORMWORK AND SUPPORT WORK

Subject	Requirement	Yes/No
Access and system scaffolding <b>(See Section 1 for designation and register)</b>	<p>Foundation firm and stable.</p> <p>Sufficient bracing.</p> <p>Tied to structure and secured from side or cross movement.</p> <p>Platform boards in good condition and secured.</p> <p>Sufficient platform boards to be used.</p> <p>Handrails and toe boards provided.</p> <p>Access ladders or stairs provided.</p> <p>Area/s under scaffolding tidy.</p> <p>Safe and unsafe for use signs to be used.</p> <p>Complying with OHSA and SABS 085.</p>	
Free Standing Scaffolding	<p>Foundation firm and stable.</p> <p>Sufficient bracing.</p> <p>Platform boards in good condition and secured.</p> <p>Sufficient platform boards to be used.</p> <p>Handrails and toe boards provided.</p> <p>Access ladders or stairs provided.</p> <p>Area/s under scaffolding tidy.</p> <p>Safe or unsafe for use signs to be used.</p> <p>Height and base ratio correct.</p> <p>Outriggers used and tied to structure where necessary.</p> <p>Complying with OHSA and SABS 085.</p>	

Subject	Requirement	Yes/No
*Mobile scaffolding	<p>Foundation firm and stable.  Sufficient bracing.  Platform boards in good condition and secured.  Sufficient platform boards to be used.  Handrails and toe boards provided.  Access ladders or stairs provided.  Area/s under scaffolding tidy.  Safe and unsafe for use signs to be used.  Wheels and swivels in good condition  Brakes working and applied.  Height to base ratio correct.  Outriggers used where necessary.  Complying with OHSA and SABS 085.</p>	
Suspended scaffolding	<p>Outriggers securely supported and anchored.  Correct number of steel wire ropes used.  Platform as close as possible to the structure.  Handrails on all sides.  All winches, ropes, cables and brakes inspected regularly.  Inspection registers kept on site.  Scaffolding complies with OHSA.  Winches maintained by competent person.</p>	
Formwork and support work	<p>All components in good condition.  Foundation firm and stable.  Adequate bracing and stability ensured.  Good workmanship, uprights straight and plum.  Good cantilever construction.  Safe access provided.  Areas under support work tidy.  Same standards as for system scaffolding.</p>	
Special scaffolding	<p>Special scaffolding for example cantilever, jib and truss-out scaffolds erected to an acceptable standard and inspected by specialists.  Inspection registers to be kept on site.</p>	
Edges and openings	<p>Edges barricaded to acceptable standards.  Manhole openings covered and/or barricaded.  Openings in floor and other openings covered, barricaded or fenced.  Stairs provided with handrails.  Lift shafts barricaded or fenced off.</p>	

## 8. LADDERS

Subject	Requirement	Yes/No
*Physical condition, use and storage (See Section 1 for designation and register)	<p>Stepladders – hinges, stays, braces and stiles in order.  Extension ladders – ropes, rungs, stiles, safety latch and hook in order.  Extension or straight ladders secured or tied at the bottom or top.  No joined ladders used.  All ladders stored on hooks or racks and not on ground.  Ladders protrude 900 mm above landings, platforms or roof.  Fixed ladders higher than 5 m have cages or fall arrest system.</p>	

## 9. ELECTRICAL SAFEGUARDING

Subject	Requirement	Yes/No
*Electrical distribution boards and earth leakage	<p>Colour coded, numbered and symbolic sign displayed.</p> <p>Area in front kept clear and unobstructed.</p> <p>Fitted with inside cover plate, openings blanked off and no exposed "live" conductors or terminals.</p> <p>Door kept close.</p> <p>Switches and/or circuit breakers identified.</p> <p>Earth leakage protection unit fitted and operating.</p> <p>Tested with instrument - test results within 15 – 30 milli-amps.</p> <p>Aperture openings provided for the plugging in and removal of extension leads without the need to open the door.</p>	
*Electrical installations and wiring	<p>Temporary wiring or extension leads in good condition with no bare or exposed wires.</p> <p>Earthing continuity and polarity correct:</p> <p><b>"Brown is live, Blue is neutral, Green and Yellow earth the lot"</b></p> <p>Cables protected from mechanical damage and moisture.</p> <p>Correct loading observed for example no heating appliance used from lighting circuit etcetera.</p> <p>Light fittings and lamps protected from mechanical damage/moisture.</p>	
*Physical condition of electrical appliances and tools	<p>Electrical Equipment and Tools (includes all items plugging in to a 15 Amp supply socket):</p> <ul style="list-style-type: none"> <li>• Insulation and casing in good condition.</li> <li>• Earth wire connected or intact where not of double insulated design.</li> <li>• Double insulation mark where no earth wire.</li> <li>• Cord in good condition/no bare wires/secured to machine &amp; plug.</li> <li>• Plug in good condition, connected correctly and correct polarity.</li> </ul>	

## 10. EMERGENCY, FIRE PREVENTION AND PROTECTION

Subject	Requirement	Yes/No
*Fire extinguishing equipment (See Section 1 for designation and register)	<p>Fire Risks Identified and on record.</p> <p>Fire Extinguishing Equipment available for:</p> <ul style="list-style-type: none"> <li>• Offices;</li> <li>• General stores;</li> <li>• Flammable store;</li> <li>• Fuel storage tanks;</li> <li>• Gas welding or cutting operations; and</li> <li>• Where flammable substances are being used or applied.</li> </ul>	
*Maintenance	Fire equipment serviced minimum annually, but preferably 6 monthly.	
*Location & Signs	<p>Fire Extinguishing Equipment:</p> <ul style="list-style-type: none"> <li>• Clearly visible;</li> <li>• Unobstructed; and</li> <li>• Sign posted including "No Smoking" and "No Naked Lights" where required i.e. (flammable store, gas store, fuel tanks etc.).</li> </ul>	
* Storage issue and control of flammables (incl. gas cylinders)	<p>Storage area provided for flammables with suitable doors, ventilation, bund etcetera.</p> <p>Flammable store neat and tidy with no Class A combustibles.</p> <p>Decanting of flammable substances carried out in ignition free and adequately ventilated area.</p> <p>Container bonding principles applied.</p> <p>Only sufficient quantities issued for one day's use.</p>	

Subject	Requirement	Yes/No
	Special gas cylinder store or storage area. Gas cylinders stored, used and transported upright and secured in trolley, cradle or structure that is well ventilated. Types of gas cylinders identified and stored separately. Full cylinders stored separately from empty cylinders.	
*Storage, issue and control of Hazardous Chemical Substances (HCS) (See Section 1 for designation and register)	HCS storage principles applied i.e. products segregated. Provision made for leakage and spillage containment. Emergency (serviceable) showers and eye wash facilities provided. HCS under lock and key as well as controlled by designated person. Decanted or issued in containers with information and warning labels. Disposal of unwanted HCS by recognized disposal agent.	

## 11. EXCAVATIONS AND DEMOLITION

Subject	Requirement	Yes/No
Excavations deeper than 1.5 m. (See Section 1 for designation and register)	Shored or braced to prevent caving or falling in. Provided with an access ladder. Excavations guarded, barricaded or lighted after dark in public areas. Soil dumped at least 1 m away from edge of excavation. On sloping ground soil dumped on lower side of excavation.	

## 12. TOOLS

Subject	Requirement	Yes/No
*Hand tools	Shovels, Spades and Picks: <ul style="list-style-type: none"> <li>• Handles free from cracks and splinters;</li> <li>• Handles fit securely; and</li> <li>• Working end sharp and true.</li> </ul> Hammers: <ul style="list-style-type: none"> <li>• Good quality handles, no pipe or reinforcing steel handles;</li> <li>• Handles free from cracks and splinters; and</li> <li>• Handles fit securely.</li> </ul> Chisels: <ul style="list-style-type: none"> <li>• No mushroomed heads or heads chamfered;</li> <li>• Not hardened; and</li> <li>• Cutting edge sharp and square.</li> </ul> Saws: <ul style="list-style-type: none"> <li>• Teeth sharp and set correctly; and</li> <li>• Correct saw used for the job.</li> </ul>	
*Explosive powered tools (See Section 1 for designation and register)	Only used by trained and authorised personnel. Prescribed warning signs placed or displayed where tool is in use. Inspected at least monthly by competent person and results recorded in on site register. Issue and return recorded including cartridges or nails and unused cartridges, nails, empty shells recorded. Cleaned daily after use in on site register.	

### 13. CRANES

Subject	Requirement	Yes/No
Tower crane <b>(See Section 1 for designation and register)</b>	Only operated by trained authorized operator with valid certificate of training. Certificate available on site. Structure - no visible defects. Electrical installation good and safe. Crane hook - throat pop marked, safety latch fitted and functional. SWL/MML displayed. Limit switches fitted and operational. Access ladder fitted with backrests or fall arrest system installed. Lifting tackle in good condition and inspection colour coding current.	
*Mobile crane <b>(See Section 1 for designation and register)</b>	Only operated by trained authorized operator with valid certificate of training. Certificate available on site. Rear view mirrors and windscreen visibility good. Windscreen wipers operating effectively. Indicators operational. Hooter working. Tyres safe with sufficient tread and pressure visibly sufficient. No missing wheel nuts. Headlights, taillights operational. Grease nipples and grease on all joints. No visible oil leaks. Hydraulic pipes visibly sound with no leaks. No undue corrosion on battery terminals. Boom visibly in good condition with no apparent damage. Cable and sheaves greased with no visible damage, split wires or corrosion. Brakes working properly. Crane hook - throat pop marked, safety latch fitted and functional. SWL/MML displayed. By-pass valves operational. Deflection chart displayed and visible to operator or driver. Outriggers functional used.	
*Gantry crane	Only operated by trained authorized persons. Correct slinging techniques used. Recognized displayed on chart signals used. Log book kept up to date. Prescribed inspections conducted on crane and lifting tackle. "Crane overhead" signage, where applicable. Crane hook - throat pop marked, safety latch fitted and functional. SWL/MML displayed and load limiting switches fitted and operational.	

### 14. BUILDER'S HOIST

Subject	Requirement	Yes/No
Builder's hoist <b>(See Section 1 for designation and register)</b>	<b>"Hoist in operation"</b> - sign displayed. General construction strong and free from latent defects. Tower: <ul style="list-style-type: none"> <li>• Adequately secured and braced.</li> <li>• At least 900 mm available for over travel.</li> <li>• Barricaded at least 2 100 mm high at ground level and floors.</li> <li>• Landing place provided with gate at least 1 800 high.</li> </ul> Platform: <ul style="list-style-type: none"> <li>• No persons conveyed on platform.</li> </ul>	

Subject	Requirement	Yes/No
	<ul style="list-style-type: none"> <li>• Steel wire ropes with breaking strain of six times maximum weight.</li> <li>• Signal systems used.</li> <li>• Goods prevented from moving/falling off.</li> <li>• Effective brake capable of holding maximum weight.</li> </ul>	

## 15. TRANSPORT AND MATERIALS HANDLING EQUIPMENT

Subject	Requirement	Yes/N
*Site vehicles	<p>All site vehicles, dumpers, bobcats, loaders etcetera checked daily before used by driver or operator.</p> <p>Inventory of vehicles used/operated on site.</p> <p>Inspection by means of a checklist and results recorded.</p> <p>No persons will ride on equipment not designed for passengers.</p> <p>Site speed limit posted and not exceeded.</p> <p>Drivers and operators trained and licensed.</p> <p>Licenses available on site.</p> <p>No unauthorized persons allowed to drive or operate equipment.</p>	
Conveyors	<p>Conveyor belt nip points and drive guarded.</p> <p>Emergency stop and lever brake fitted, clearly marked and accessible.</p>	

## 16. SITE PLANT AND MACHINERY

Subject	Requirement	Yes/No
Brick cutting machine	<p>Operator trained and only authorized persons use the machine.</p> <p>Emergency stop switch clearly marked and accessible.</p> <p>Area around the machine dry and slip or trip free as well as clear of off cuts.</p> <p>All moving drive parts guarded.</p> <p>Electrical supply cable protected.</p> <p>Operator using correct PPE i.e. eye, face, hearing, foot, hands and body.</p>	
*Electric arc welder	<p>Welder trained.</p> <p>Only authorized and trained persons use welder.</p> <p>Adequately earthed.</p> <p>Electrode holder in good condition and safe.</p> <p>Cables, clamps, lugs and connectors in good condition.</p> <p>Area in which welding machine is used is dry and protected from wet.</p> <p>Welder using correct PPE i.e. eye, face, foot, body and respiratory.</p> <p>Screens and warning signs placed.</p>	
*Woodworking machines	<p>Operator's trained and only authorized persons use machines.</p> <p>Provided with guards and guards used.</p> <p>Operators using correct PPE i.e. eye, face, foot and hearing.</p>	
*Compressors	<p>Relief valves set, locked and sealed.</p> <p>Maximum safe working pressure (MSWP) indicated on face of pressure gauge face and not on glass cover.</p> <p>All drives adequately guarded.</p> <p>Receiver and lines drained daily.</p> <p>Hoses good condition and clamped, not wired.</p>	
Concrete mixer and batch plant	<p>Top platform provided with guardrails.</p> <p>Dust abatement methods in use.</p> <p>Operators using correct PPE i.e. eye, hands and respiratory.</p> <p>All moving drive parts guarded.</p> <p>Emergency stops identified, indicated and accessible.</p> <p>Area kept clean, dry and free from tripping and slipping hazards.</p> <p>Banksman identified and crane signals displayed and used.</p>	



Subject	Requirement	Yes/No
*Gas welding and flame cutting equipment	<p>Only authorized and trained persons use the equipment.</p> <p>Torches and gauges in good condition.</p> <p>Flashback arrestors fitted at cylinders and gauges.</p> <p>Hoses in good condition, correct type and all connections with clamps.</p> <p>Cylinders stored, used and transported in upright position, secured in trolley or cradle.</p> <p>Fire prevention control methods applied.</p> <p>Hot work permits.</p>	

## 17. PLANT AND STORAGE YARD OR SITE WORKSHOP SPECIFICS

Subject	Requirement	Yes/No
<p>OHSA, Section 8(2)(1)</p> <p>General Machinery Regulation 2(1)</p> <p><b>Supervision of the use and maintenance of machinery</b></p>	<p>Persons with specific knowledge and experience designated to supervise the use and maintenance of machinery.</p> <p>Critical items of machinery identified, numbered and placed on register or inventory.</p> <p>Inspection or maintenance schedules for abovementioned.</p> <p>Inspections or maintenance carried out to above schedules.</p> <p>Results recorded.</p>	
<p>General Machinery Regulation 9(2)</p> <p><b>Notices regarding operation of machinery</b></p>	<p>Schedule D notice posted in work areas.</p>	
<p>Vessels under Pressure Regulation 13(1)(b)</p> <p><b>Supervision of the use and maintenance of vessels under pressure (VUP)</b></p>	<p>Persons with specific knowledge and experience designated to Supervise the use and maintenance of VUPs.</p> <p>VUPs identified, numbered and placed on register.</p> <p>Manufacturers plate intact.</p> <p>Inspection or maintenance schedules for abovementioned.</p> <p>Inspections or maintenance carried out to above schedules.</p> <p>Results recorded and test certificates available.</p>	
<b>Lock-out procedure</b>	<p>Lock-out procedure in operation.</p>	
<b>Ergonomics</b>	<p>Ergonomics survey conducted.</p> <p>Results on record.</p> <p>Survey results applied.</p>	
<b>Demarcation and colour coding</b>	<p>Demarcation principles applied.</p> <p>All services, pipes, electrical installation, stop-start controls, emergency controls etcetera colour coded to own published or SABS standard.</p> <p>Employees trained to identify colour coding.</p>	
<b>Portable and bench grinders</b>	<p>Area around grinder clear and trip/slip free.</p> <p>Bench grinders mounted securely and grinder generally in good condition.</p> <p>No excessive vibration.</p> <p>On and off switch or button clearly demarcated and accessible.</p> <p>Adequate guards in place.</p> <p>Tool rest – secure, square and maximum 2 mm gap.</p> <p>Stone or disk - correct type and size, mounted correctly and dressed.</p> <p>Use of eye protection enforced.</p>	
<b>Ancillary lifting equipment</b>	<p>Chain blocks, tirsors, jacks and mobile gantries etcetera identified and numbered on register.</p> <p>Chains in good condition and links no excessive wear.</p>	

Subject	Requirement	Yes/No
	Lifting hooks – throat pop marked and safety latch fitted. SWL/MML marked or displayed.	
<b>Presses, guillotines and shears</b>	Only operated by trained and authorized persons. PPE used by operators Interlocks or lockouts fitted.	

## 18. WORKPLACE ENVIRONMENT, HEALTH AND HYGIENE

Subject	Requirement	Yes/No
*Lighting	Adequate lighting in places where work is being executed for example stairwells and basements or after sunset. Light fittings placed and installed causing no irritating or blinding glare.	
*Ventilation	Adequate ventilation, extraction and exhausting in hazardous areas for example where chemicals and adhesives are stored, welding takes place and where petrol or diesel motors are running in confined spaces or basements.	
*Noise	Tasks identified where noise exceeds 85 dBa. All reasonable steps taken to reduce noise levels at the source. Hearing protection used where noise levels could not be reduced to below 85 dBa.	
*Heat stress	Measures in place to prevent heat exhaustion in heat stress problem areas e.g. steel decks, when the WBGT index reaches 30 (see Environmental Regulation 4). Cold drinking water readily available when extreme temperatures are experienced.	
*Ablution facilities	Sufficient toilets provided for men and women separately i.e. 1 per 30 employees (National Building Regulations prescribe chemical toilets for Construction sites). Toilet paper available. Sufficient showers provided for men and women separately. Facilities for washing hands provided. Soap available for washing hands. Means of drying hands available. Changing facilities or area provided for men and women separately. Ablution facilities hygienic and clean.	
*Eating and cooking facilities	Adequate storage facilities provided. Weather protected eating area provided, separate from changing area. Refuse bins with lids provided. Facilities clean and hygienic.	
*Pollution of environment	Measures in place to minimize dust generation. Accumulation of empty cement pockets, plastic wrapping or bags, packing materials etcetera prevented. Spillage or discarding of oil, chemicals and dieseline into storm water and other drains prevented.	
*Hazardous chemical substances (See Section 1 for designation and register)	All substances identified and list available e.g. acids, flammables, poisons etc. Material Safety Data Sheets (MSDS) indicating hazardous properties and emergency procedures in case of incident on file and readily available. Substances stored safely.	

<b>Name of person who have undertaken the assessment</b>	
<b>Signature</b>	
<b>Date</b>	
<b>Received by</b>	
<b>Designation</b>	
<b>Date</b>	
<b>Tabled at health and safety committee</b>	

**Attachment 3:      Measuring Injury Experience**

# MEASURING INJURY EXPERIENCE

## 1. BACKGROUND

Injury experience has moved from measuring injury by the use of a disabling injury frequency rate, the so-called “DIFR”. The DIFR was calculated by multiplying the number of disabling injuries by 1 million and dividing by the number of person-hours worked.

The DIFR has been replaced internationally with a Recordable Case Rate (RCR). The only difference between the two rates is that the 1 million in the calculation is replaced with 200 000 (200 000 purported to be the number of hours and average person works in a lifetime).

In using of the two rates with manipulation of disabling injuries to hide the facts by returning the injured employee to the workplace so as not to lose a shift and therefore having not to register a disabling injury will not be tolerated.

This Attachment provides guidance in the use of RCR rate based on the number of compensation injury claims, which are found not to be easy to manipulate because the reporting of compensational injuries is a legal requirement.

Measure of the RCR rate shall include professional staff on the project.

## 2. RECORDABLE CASE RATE (RCR)

### 2.1 FORMULA

No of Recordable Cases X 200 000

\*220 person hours X No of employees

### 2.2 DEFINITIONS

<b>No of compensation claims:</b>	The number of recordable cases for the period under review which, while being inclusive shall cover disabling and compensation claims. The Consultants shall keep his own register of cases regardless of their submission for compensation and use for reporting.
<b>200 000:</b>	The fixed factor to align the rate with other rates used internationally.
<b>Person hours worked Include:</b>	The denominator of the equation covers the total hours worked on the project to date of the report. The monthly data for the person hours shall be obtained from labour returns kept by the

	Consultant. Should an alternative calculation method be applicable to obtain hours for the daily paid employees the employee number is multiplied by a common factor of 220 (No of employees X *220 each) for construction workers and (No of employees X *168 hours each) for professional staff
<b>220 and 168 person-hours:</b>	The *average number of hours worked by one construction employee in one month in the construction industry and by one professional in construction industry.
<b>Note: *</b>	Overtime, absence on leave or sick leave, unrecorded after hours time worked by senior and middle management factored into this average. The total worked hours is always available from the contractor's labour data.
<b>No of employees:</b>	The actual or average number of employees employed for the period under review

**MONTHLY HEALTH AND SAFETY REPORT**

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$$RCR = \frac{[ \textit{recordable cases} ] \times 200\,000}{[ \textit{total hours} ]}$$

**Attachment 4: Sample SHE Management Report**



# **SAMPLE SAFETY, HEALTH AND ENVIRONMENT (SHE): RISK MANAGEMENT REPORT**

Please note that this is an example only and all information is fictitious.

## **XYZ Construction**

### **SHE risk management report for the period January 2004 to March 2004**

#### **1. INTRODUCTION**

We trust that this quarterly SHE Risk Management report will provide a clear picture of the company's performance as far as occupational health, safety and environment is concerned.

The first quarter of 2004 generally reflected an improvement in injury experience and indicates a decline in the number of injuries. Although Building was the only division where there was an increase in compensation claims, figures are still well down from the average 2003 figures. A sub-contractor experienced one fatality.

All divisions are eagerly awaiting the final implementation during May 2004 of the new electronic SHE Management system that will provide the tools to implement the SHE programme and make it available to all management and supervisory staff.

#### **2. INCIDENT STATISTICS**

##### **2.1 RECORDABLE CASE RATE (RCR)**

See a sample report provided as Attachment 3: Measuring Injury Experience

##### **2.2. OTHER MAJOR INCIDENTS**

Three other major incidents were experienced in the period under review:

- 2.3.1. A major trench collapsed at Job. 00123: XYZ Head Office, Braamfontein: No personnel injured, extensive damage to foundations: 3 days delay.
- 2.3.2. A concrete dumper ran away when its brakes failed. It smashed into the glass façade of the building on Job 00332: McDonalds, Randburg. The driver jumped off and was not injured. Cost of damage to façade: R45 000.

2.3.3. A storage hut on Job 00567: BP Petrol Station, Swartruggens was demolished by fire when the night watchman made a fire inside the storage hut which contained concrete vibrators and leveling machines. Cost of replacing the hut and machines: R30 000.

### 3. RISK AREAS

The following items of concern need priority consideration by management:

- 3.1. New employees must undergo pre-employment medical examinations to:
- protect XYZ from possible claims at a later stage
  - ensure that only capable persons are employed
  - prevent injuries and illness in the workplace
  - enhance XYZ image
- 3.2. Vehicle drivers and plant operators must be instructed to inspect their vehicles daily before start-up using the prescribed checklists to ensure that these are safe to operate and in good condition.

### 4. RISK ASSESSMENTS

Three SHE risk assessments were conducted in February and March:

Job 00432:	Gillooly's Mall	Compliance: 56%
Job 00786:	Cullinan Head Office	Compliance: 83%
Job 00589:	Cleveland Station	Compliance: 76%

### 5. TRAINING

One hundred and forty two employees, representing 7% of employees, attended nine training courses. \*Our objective is to train 5,5% of employees on a quarterly basis.

Month	No. of Employees Trained	Course	Source
January	26	Induction	Internal
	15	OH&S Reps	Consultant
	3	Crane Drivers	External
February	23	Induction	Internal
	17	OH&S Reps	Consultant
March	43	Induction	Internal
	9	OH&S Reps	Consultant
	3	Bomag Rollers	Supplier
	3	First Aiders	St. John's

## **6. LEGAL MATTERS**

- 6.1. An inspector of the Department of Labour issued an improvement notice on Job 00987: Gilooley's Mall. The notice requires that all scaffolding comply with the SABS standards for the Erection and Maintenance of Access Scaffolding (SANS 085). This is currently being attended to and the inspector will return on 15 April 2004 to ascertain if the notice has been complied with.

## **7. OCCUPATIONAL HEALTH MATTERS**

### **7.1 HIV AIDS**

The proposed clinic will soon be operational and we will then be able to send our employees who have tested positive for HIV/Aids to the clinic for counseling and eventual treatment when necessary.

The mobile clinic attended to and tested fifty employees on a voluntary basis at 3 sites this month. Eighteen of them tested positive.

### **7.2 TUBERCULOSIS (TB)**

The mobile clinic will be calling at Gillooly's Mall and Cleveland Station on 15 and 16 April 2004 respectively to screen employees for TB.

### **7.3 NOISE**

All suspected noise pollution areas have been identified and tested and the results are awaited. Employees working in areas testing over 85dBa will be issued with suitable hearing protectors.

## **8. ENVIRONMENTAL MEASURES**

Inspectors from the Botswana Department of Environment visited Djwaneng and inspected the site and yard. They gave it a "clean bill of health" and advised that we should increase the dust control measures by spraying roads three times per day with water instead of the present twice per day.

## **9. ACHIEVEMENTS AND AWARDS**

- 9.1 The client at Djwaneng (Job 00786) awarded the XYZ site first position in the housekeeping competition conducted bi-monthly by the client's SHE managers. The project manager and his team are to be congratulated for this sterling effort.
- 9.2 Job 0987: Refurbishment of Pretoria Main Railway Station has just completed 1 million compensation claim free days. This was no easy achievement if we consider the conditions being worked under after the extensive fire that caused major damage.

**Source:** SAFCEC Occupational Health Committee

## **ANNEXURE DD: ACCESS FORM**

### **ACCESS FORM**

I hereby request for a pin code to access TCTA premises for the submission of the abovementioned bid.

<b>BID NUMBER</b>	
<b>BID DESCRIPTION:</b>	
<b>BID CLOSING DATE</b>	
<b>BID CLOSING TIME:</b>	
<b>NAME OF BIDDER</b>	
<b>FULL NAME &amp; SURNAME OF BIDDER'S REPRESENTATIVE</b>	
<b>ID NUMBER OF BIDDER'S REPRESENTATIVE:</b>	

\_\_\_\_\_  
**SIGNATURE OF BIDDER'S AUTHORISED REPRESENTATIVE**  
**DATE:**