



## water & sanitation

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

### REQUEST FOR BID

WP11405

### GREATER MANGAUNG WATER AUGMENTATION PROJECT – XHARIEP PIPELINE FEASIBILITY STUDY

#### ISSUE DATE

07 JULY 2022

#### CLOSING DATE AND TIME

11 AUGUST 2022 at 11H00

#### SUBMIT TENDER DOCUMENT

**POSTAL ADDRESS:**

DIRECTOR-GENERAL: WATER AND  
SANITATION  
PRIVATE BAG X 313 PRETORIA, 0001

OR

**TO BE DEPOSITED IN:**

THE TENDER BOX AT THE  
ENTRANCE OF ZWAMADAKA  
BUILDING 157 FRANCIS BAARD STREET  
(FORMERLY SCHOEMAN STREET)  
PRETORIA

**TENDERER:** (Company address and stamp)



**DIRECTIVE TO BIDDERS ON COMPLETION OF SBD FORMS AND PACKAGING OF BID PROPOSAL**

The purpose of this document is to guide bidders on the completion of SBD forms and packaging of a Bid Proposals with each document being placed under the correct Annexure.

The last column of the table below (this column must be ticked as an indication that each document and its requirements have been complied with by the bidder

The dates on this all SBD forms must be a date which is within the bid advert period

**TABLE OF CONTENTS FOR BID PROPSALS**

DOCUMENT	ANNEXURE	DIRECTIVE	COMPLIED/NOT COMPLIED
SDB 1	A	Bidders are required to complete this document in full and be signed off. The date on this form must be a date which is within the bid advert period	
SBD 3.1/3.3	B	Bidders are required to complete the applicable form in full and ensure that the amounts in the document are properly calculated. The total amount (inclusive of VAT) as reflected herein will be regarded as the Total Bid Price. <b>Bidders who are not VAT Vendors are not allowed to charge VAT</b> Bidders are required to constantly verify their TAX Status on CSD to ensure that their task matters are in order	
SBD 4	C	This document must be completed in full. <b>Bidders attention is drawn particularly to paragraph 2.3 which requires the bidder to disclose if the company or any of its directors have interest in other companies whether they have bid or not. Bidders are required to provide all information. Should a bidder have more companies to declare, such information can be provided on a separate sheet in the format prescribed in the form and be attached to the SBD 4. Information captured must be inline with what is captured in the CSD report</b>	
SBD 6.1	D	This document must be completed in full. Bidders are advised to ensure that information captured in this this form is aligned to information contained in the CSD Reports. Eg. Under subcontracting (par 7.1.1) information on whether a company is QSE or EME must be inline with information in the CSD	
BBBEE Certificate/Sworn affidavit	E	Bidders are required to submit a valid BBBEE Certificate or sworn affidavit.	
CSD Report	F	Bidders are requested to provide copies of reg CSD Report.	
Bid Proposal	G	A detailed bid proposal inline with the Specifications must be attached	

## PART A INVITATION TO BID

<b>YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF DEPARTMENT/ PUBLIC ENTITY)</b>					
BID NUMBER:	<b>WP11405</b>	CLOSING DATE:	<b>11 AUGUST 2022</b>	CLOSING TIME:	<b>11H00</b>
DESCRIPTION	GREATER MANGAUNG WATER AUGMENTATION PROJECT – XHARIEP PIPELINE FEASIBILITY STUDY				
<b>BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)</b>					
<b>TENDER BOX SITUATED AT ZWAMADAKA BUILDING, 157 FRANCIS BAARD STREET, PRETORIA, 0002</b>					
CONTACT PERSON	<b>ZELDA PHIRI</b>		CONTACT PERSON	<b>SANET VAN JAARVELD</b>	
TELEPHONE NUMBER	<b>(012) 336 7954</b>		TELEPHONE NUMBER	<b>(012) 336 7284</b>	
CELL PHONE			CELL PHONE	<b>079 510 8523</b>	
E-MAIL ADDRESS	<b>phiriz@dws.gov.za</b>		E-MAIL ADDRESS	<b>vanjaarsvelds@dws.gov.za</b>	
<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:		<b>OR</b>	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>					

**PART B  
TERMS AND CONDITIONS FOR BIDDING**

<b>1. BID SUBMISSION:</b>
<p>1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.</p> <p>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></p> <p>1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.</p> <p>1.4. <b>THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).</b></p>
<b>2. TAX COMPLIANCE REQUIREMENTS</b>
<p>2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.</p> <p>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.</p> <p>2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE <a href="http://WWW.SARS.GOV.ZA">WWW.SARS.GOV.ZA</a>.</p> <p>2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.</p> <p>2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.</p> <p>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.</p> <p>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.”</p>

**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: .....

**PRICING SCHEDULE**  
 (Professional Services)  
**GREATER MANGAUNG WATER AUGMENTATION PROJECT –  
 XHARIEP PIPELINE FEASIBILITY STUDY**

NAME OF BIDDER: .....	PROJECT NO: <b>WP11405</b>
CLOSING TIME: <b>11:00 AM</b>	CLOSING DATE: <b>11 AUGUST 2022</b>

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

ITEM DESCRIPTION BID PRICE IN RSA CURRENCY (ALL APPLICABLE TAXES INCLUDED)

1. The accompanying information must be used for the formulation of proposals.
2. Bidders are required to indicate a ceiling price based on the total Estimated time for completion of all phases and including all Expenses inclusive of all applicable taxes for the project.

R.....

3. PHASE ACCORDING TO WHICH THE PROJECT WILL BE COMPLETED, COST PER PHASE AND MAN-DAYS TO BE SPENT

..... R..... Days

..... R..... Days

..... R..... Days

- 3.1. Travel expense (specify, for example rate/km and total km, class Of air travel, etc.). Only actual costs are recoverable. Proof of the Expenses incurred must accompany certified invoices.

DESCRIPTION OF EXPENSE TO BE INCURRED AMOUNT	RATE	QUANTITY
.....	R.....	R.....
.....	R.....	R.....
.....	R.....	R.....

TOTAL: R.....

“all applicable taxes” includes value-added tax, pay as you earn, income tax, unemployment insurance fund

contributions and skills development levies.

- 3.2. Other expenses, for examples accommodation (specify, e.g. Three Star hotel, bed and breakfast, telephone cost, reproduction cost, etc.). On basis of these particulars, certified invoices will be checked for correctness. Proof of the expenses must accompany invoices.

DESCRIPTION OF EXPENSE TO BE INCURED	RATE	QUANTITY
.....	R.....	.....
.....	R.....	.....
.....	R.....	.....

TOTAL: R.....

4. Period required for commencement with project after Acceptance of bid

.....

5. Estimated man-days for completion of project

.....

6. Are the rates quoted firm for the full period of contract?  
\*YES/NO

7. If not firm price period, provide details of the basis on which Adjustments will be applied for, for example consumer price index.

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

**Any enquiries regarding bidding procedures may be directed to:**

Department: Department of Water and Sanitation

Contact Person: Ms Zelda Phiri

Tel: 012 336 7954

E-mail address: [phiriz@dws.gov.za](mailto:phiriz@dws.gov.za)

**Any enquiries regarding technical information may be directed to:**

Contact Person: Ms Sanet van Jaarsveld

Tel: 012 336 7284

Cell:079 510 8523

E-mail address: [vanjaarsvelds@dws.gov.za](mailto:vanjaarsvelds@dws.gov.za)

## BIDDER'S DISCLOSURE

**1. PURPOSE OF THE FORM**

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

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

**2. Bidder's declaration**

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling 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 particulars:  
 .....

---

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

.....

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

2.3.1 If so, furnish particulars:

.....

.....

**3 DECLARATION**

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

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or 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.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting

<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.



## PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

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

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

### 1. GENERAL CONDITIONS

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

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included)
  - a) The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable.

1.2 Points for this bid shall be awarded for:

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

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

	POINTS
<b>PRICE</b>	80
<b>B-BBEE STATUS LEVEL OF CONTRIBUTOR</b>	20
<b>Total points for Price and B-BBEE must not exceed</b>	<b>100</b>

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

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

### 2. DEFINITIONS

- (a) “**B-BBEE**” means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) “**B-BBEE status level of contributor**” means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) “**bid**” means a written offer in a prescribed or stipulated form in response to an

invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;

- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“Functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
  - 1) B-BBEE Status level certificate issued by an authorized body or person;
  - 2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
  - 3) Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

### 3. POINTS AWARDED FOR PRICE

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

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

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ P_s = 80 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right) & \text{or} & P_s = 90 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \end{array}$$

Where

- P<sub>s</sub> = Points scored for price of bid under consideration
- P<sub>t</sub> = Price of bid under consideration
- P<sub>min</sub> = Price of lowest acceptable bid

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

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

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

**5. BID DECLARATION**

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

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

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

**7. SUB-CONTRACTING**

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

**(Tick applicable box)**

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....
- iv) Whether the sub-contractor is an EME or QSE

**(Tick applicable box)**

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2017:

Designated Group: An EME or QSE which is at least 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

**8. DECLARATION WITH REGARD TO COMPANY/FIRM**

8.1 Name \_\_\_\_\_ of  
company/firm:.....

8.2 VAT \_\_\_\_\_ registration  
number:.....

8.3 Company \_\_\_\_\_ registration  
number:.....

**8.4 TYPE OF COMPANY/ FIRM**

- Partnership/Joint Venture / Consortium
  - One person business/sole propriety
  - Close corporation
  - Company
  - (Pty) Limited
- [TICK APPLICABLE BOX]

**8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES**

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

**8.6 COMPANY CLASSIFICATION**

- Manufacturer

- Supplier
  - Professional service provider
  - Other service providers, e.g. transporter, etc.
- [TICK APPLICABLE BOX]

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

8.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
  - (a) disqualify the person from the bidding process;
  - (b) recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;
  - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
  - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audialterampartem* (hear the other side) rule has been applied; and
  - (e) forward the matter for criminal prosecution.

<p>WITNESSES</p> <p>1. ....</p> <p>2. ....</p>
--

<p>.....</p> <p>SIGNATURE(S) OF BIDDERS(S)</p>
<p>DATE: .....</p> <p>ADDRESS .....</p> <p>.....</p> <p>.....</p>

# **GOVERNMENT PROCUREMENT GENERAL CONDITIONS OF CONTRACT**

## **NOTES**

**The purpose of this document is to:**

- (i) Draw special attention to certain general conditions applicable to government bids, contracts and orders; and**
- (ii) To ensure that clients be familiar with regard to the rights and obligations of all parties involved in doing business with government.**

**In this document words in the singular also mean in the plural and vice versa and words in the masculine also mean in the feminine and neuter.**

- The General Conditions of Contract will form part of all bid documents and may not be amended.**
- Special Conditions of Contract (SCC) relevant to a specific bid, should be compile separately for every bid (if (applicable) and will supplement the General Conditions of Contract. Whenever there is a conflict, the provisions in the SCC shall prevail.**

## **TABLE OF CLAUSES**

- 1. Definitions**
- 2. Application**
- 3. General**
- 4. Standards**
- 5. Use of contract documents and information; inspection**
- 6. Patent rights**
- 7. Performance security**
- 8. Inspections, tests and analysis**
- 9. Packing**
- 10. Delivery and documents**
- 11. Insurance**
- 12. Transportation**
- 13. Incidental services**
- 14. Spare parts**
- 15. Warranty**
- 16. Payment**
- 17. Prices**
- 18. Contract amendments**
- 19. Assignment**
- 20. Subcontracts**
- 21. Delays in the supplier's performance**
- 22. Penalties**
- 23. Termination for default**
- 24. Dumping and countervailing duties**
- 25. Force Majeure**
- 26. Termination for insolvency**
- 27. Settlement of disputes**
- 28. Limitation of liability**
- 29. Governing language**
- 30. Applicable law**
- 31. Notices**
- 32. Taxes and duties**
- 33. National Industrial Participation Programme (NIPP)**
- 34. Prohibition of restrictive practices**

## General Conditions of Contract

1. **Definitions** 1. The following terms shall be interpreted as indicated:
  - 1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.
  - 1.2 "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
  - 1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
  - 1.4 "Corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.
  - 1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
  - 1.6 "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
  - 1.7 "Day" means calendar day.
  - 1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.
  - 1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.
  - 1.10 "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.
  - 1.11 "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.
  - 1.12 "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
  - 1.13 "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.
  - 1.14 "GCC" means the General Conditions of Contract.

- 1.15 “Goods” means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.16 “Imported content” means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.
- 1.17 “Local content” means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.
- 1.18 “Manufacture” means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.19 “Order” means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.20 “Project site,” where applicable, means the place indicated in bidding documents.
- 1.21 “Purchaser” means the organization purchasing the goods.
- 1.22 “Republic” means the Republic of South Africa.
- 1.23 “SCC” means the Special Conditions of Contract.
- 1.24 “Services” means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.
- 1.25 “Written” or “in writing” means handwritten in ink or any form of electronic or mechanical writing.

## **2. Application.**

- 2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.
- 2.2 Where applicable, special conditions of contract are also laid down to cover specific supplies, services or works.
- 2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

## **3. General**

- 3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.

- 3.2 With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from [www.treasury.gov.za](http://www.treasury.gov.za)

#### **4. Standards**

- 4.1 The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

#### **5. Use of contract documents and information; inspection.**

- 5.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.
- 5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.
- 5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.
- 5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

#### **6. Patent rights.**

- 6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

#### **7. Performance security**

- 7.1 Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.
- 7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.
- 7.3 The performance security shall be denominated in the currency of the contract or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:

- (a) A bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or
- (b) A cashier's or certified cheque

7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.

## **8. Inspections, tests and analyses**

8.1 All pre-bidding testing will be for the account of the bidder 8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or organization acting on behalf of the Department.

8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or an organization acting on behalf of the Department

8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.

8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.

8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.

8.7 Any contract supplies may on or after delivery be inspected, tested or 8 analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract .Failing such removal the rejected supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.

8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

## **9. Packing**

- 9.1 The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

## **10. Delivery and documents**

- 10.1 Delivery of the goods shall be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.
- 10.2 Documents to be submitted by the supplier are specified in SCC.

## **11. Insurance**

- 11.1 The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.

## **12. Transportation**

- 12.1 Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.

## **13. Incidental services**

- 13.1 The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:
- (a) Performance or supervision of on-site assembly and/or commissioning of the supplied goods;
  - (b) Furnishing of tools required for assembly and/or maintenance of the supplied goods;
  - (c) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
  - (d) Performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
  - (e) Training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.
- 13.2 Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

## **14. Spare parts**

14.1 As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:

- (a) Such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and
- (b) In the event of termination of production of the spare parts:
  - (i) Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
  - (ii) Following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

## **15. Warranty**

15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

15.3 The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5 If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

## **16. Payment**

16.1 The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.

16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.

16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.

16.4 Payment will be made in Rand unless otherwise stipulated in SCC.

## **17. Prices**

- 17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be.

## **18. Contract amendments**

- 18.1 No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.

## **19. Assignment**

- 19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

## **20. Subcontracts**

- 20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contracts if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

## **21. Delays in the supplier's performance**

- 21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.
- 21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.
- 21.3 No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.
- 21.4 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.
- 21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.
- 21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's

expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

## **22. Penalties**

22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

## **23. Termination for default**

23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

- (a) If the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
- (b) If the Supplier fails to perform any other obligation(s) under the contract; or
- (c) If the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

23.4 If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.

23.5 Any restriction imposed on any person by the Accounting Officer / Authority will, at the discretion of the Accounting Officer / Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the Accounting Officer / Authority actively associated.

23.6 If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:

- (i) The name and address of the supplier and / or person restricted by the purchaser;
- (ii) The date of commencement of the restriction

- (iii) The period of restriction; and
- (iv) The reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

- 23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

## **24. Anti-dumping and countervailing duties and rights**

- 24.1 When, after the date of bid, provisional payments are required, or antidumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.

## **25. Force Majeure**

- 25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.
- 25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

## **26. Termination for insolvency**

- 26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

## **27. Settlement of Disputes**

- 27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 27.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.
- 27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.
- 27.4 Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.
- 27.5 Notwithstanding any reference to mediation and/or court proceedings herein,
- (a) The parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
  - (b) The purchaser shall pay the supplier any monies due the supplier.

## **28. Limitation of liability**

- 28.1 Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6;
- (a) The supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and
  - (b) The aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

## **29. Governing language**

- 29.1 The contract shall be written in English. All correspondence and other documents pertaining to the contract that exchanged by the parties shall also be written in English.

## **30. Applicable law**

- 30.1 The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.

## **31. Notices**

- 31.1 Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice.
- 31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

### **32. Taxes and duties**

- 32.1 A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.
- 32.2 A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.
- 32.3 No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.

### **33. National Industrial Participation (NIP) Programme**

- 33.1 The NIP Programme administered by the Department of Trade and Industry shall be applicable to all contracts that are subject to the NIP obligation

### **34. Prohibition of Restrictive practices**

- 34.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder (s) is / are or a contractor(s) was / were involved in collusive bidding (or bid rigging).
- 34.2 If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act No. 89 of 1998.
- 34.3 If a bidder(s) or contractor(s), has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

Js GCC (revised July 2010)



**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF WATER AND SANITATION**

# **TERMS OF REFERENCE**

**FOR THE**

**GREATER MANGAUNG WATER  
AUGMENTATION PROJECT –  
XHARIEP PIPELINE FEASIBILITY STUDY**

**June 2022**

## Table of Contents

1	INTRODUCTION .....	1
2	BACKGROUND INFORMATION .....	3
2.1	EXISTING WATER RESOURCES AND BULK WATER INFRASTRUCTURE IN THE GBWSS .....	3
2.1.1	SURFACE WATER RESOURCES .....	3
2.1.2	GROUNDWATER SUPPLY .....	4
2.1.3	BULK WATER SUPPLY INFRASTRUCTURE .....	5
2.2	CURRENT WATER SHORTAGES .....	7
2.3	RELEVANT PREVIOUS STUDIES, REPORTS AND INFORMATION .....	7
2.3.1	STUDIES DIRECTLY RELATED TO THE PLANNING OF THE XHARIEP PIPELINE PROJECT .....	8
2.3.2	OTHER RELATED PLANNING STUDIES IN THE ORANGE RIVER SYSTEM .....	9
2.4	THE GREATER BLOEMFONTEIN RECONCILIATION STRATEGY STUDY RECOMMENDATIONS .....	9
2.5	STUDIES INTO OPTIONS TO AUGMENT BLOEMFONTEIN WATER SUPPLY SYSTEM FROM THE GARIEP DAM .....	10
3	OUTLINE OF SALIENT STUDY CHARACTERISTICS .....	12
3.1	OUTLINE OF PURPOSE AND SCOPE OF STUDY .....	12
3.2	OUTLINE OF PHASES OF STUDY .....	13
3.3	OUTLINE OF IMPORTANT TERMS OF ENGAGEMENT .....	13
4	DETAILED DESCRIPTION OF SCOPE OF WORK .....	14
4.1	PHASE 1: INCEPTION STAGE .....	14
4.2	PHASE 2: PRE-FEASIBILITY STAGE .....	16
4.2.1	WATER REQUIREMENTS .....	16
4.2.2	IDENTIFICATION AND ANALYSES OF ROUTE CONFIGURATION OPTIONS .....	16
4.2.3	MEETINGS WITH KEY STAKEHOLDERS AND INTERESTED AND AFFECTED PARTIES .....	20
4.2.4	DELIVERABLES: PRE-FEASIBILITY STUDY REPORTS .....	20
4.3	PHASE 3: FEASIBILITY STAGE .....	20
4.3.1	FEASIBILITY LEVEL OPTIMISATION AND DESIGN OF SELECTED OPTION .....	21
4.3.2	GEOTECHNICAL INVESTIGATIONS .....	24

---

4.3.3	TOPOGRAPHICAL SURVEY AND SERVITUDE ASSESSMENTS .....	25
4.3.4	POWER SUPPLY .....	26
4.3.5	CONSTRUCTION AND SITE ACCESS .....	27
4.3.6	OPERATION AND MAINTENANCE.....	28
4.3.7	COST ESTIMATES AND ECONOMIC ANALYSIS.....	28
4.3.8	SOCIO-ECONOMIC IMPACT ASSESSMENT .....	29
4.3.9	LEGAL, INSTITUTIONAL AND FINANCING ARRANGEMENTS.....	30
4.3.10	RECORD OF IMPLEMENTATION DECISIONS (RID) .....	30
4.3.11	STAKEHOLDER PARTICIPATION .....	31
4.4	PHASE 4: ENVIRONMENTAL IMPACT ASSESSMENT, AUTHORISATION, WATER USE LICENSE AND OTHER APPROVALS.....	31
4.4.1	APPLICABLE LEGISLATION .....	31
4.4.2	ENVIRONMENTAL SCREENING.....	31
4.4.3	ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT.....	32
4.4.4	Assist with Appeals .....	33
4.4.5	WATER USE LICENCES .....	33
4.4.6	OTHER APPROVALS.....	33
4.4.7	PROVISION OF INFORMATION FOR THE DWS WEBSITE .....	34
4.5	SKILLS TRANSFER, CAPACITY BUILDING AND TRAINING.....	35
4.5.1	PURPOSE .....	35
4.5.2	METHODOLOGY.....	35
4.5.3	DELIVERABLES.....	36
4.6	LEVEL AND ACCURACY OF INVESTIGATIONS AND STUDIES.....	36
4.7	KEY DELIVERABLES FROM THE STUDY .....	36
4.8	CAPABILITIES OF BIDDING COMPANY AND KEY EXPERTS TEAM .....	38
4.9	STUDY PROGRAMME .....	38
5	STUDY MANAGEMENT .....	38
5.1	STUDY MANAGEMENT, ADMINISTRATION AND COORDINATION.....	38
5.1.1	LIAISON WITH ROLE PLAYERS.....	40
5.1.2	QUALITY CONTROL AND QUALITY ASSURANCE OF DELIVERABLES.....	40
5.1.3	EXTERNAL SPECIALIST REVIEWERS .....	40
5.1.4	FINANCIAL MANAGEMENT .....	41
5.2	CLIENT - CONSULTANT RELATIONSHIP AND VARIATIONS .....	41

6	CONTENT OF BIDDING DOCUMENTATION .....	41
6.1	STANDARD BIDDING DOCUMENTS.....	42
6.2	TECHNICAL PROPOSAL.....	42
6.3	FINANCIAL PROPOSAL.....	43
6.3.1	COST OF DELIVERABLES .....	43
6.3.2	PROVISIONAL SUMS .....	44
6.4	EVALUATION OF TECHNICAL AND FINANCIAL PROPOSALS.....	44
6.4.1	STAGE 1: PRE-QUALIFICATION CRITERIA.....	45
6.4.2	STAGE 2: MANDATORY AND ADMINISTRATIVE COMPLIANCE.....	45
6.4.3	STAGE 3: FUNCTIONALITY/TECHNICAL EVALUATION .....	45
6.4.4	STAGE 4: PRICE AND BBBEE STATUS LEVEL CONTRIBUTOR.....	46
7	GENERAL INFORMATION .....	47
7.1	CLIENT AND STUDY NAME .....	47
7.2	BRIEFING SESSION.....	47
7.3	SUBMISSION OF PROPOSALS .....	48
7.4	INTELLECTUAL PROPERTY RIGHTS.....	49
7.5	RETENTION ON PSP INVOICES.....	49
7.6	INVOICES .....	49
7.7	CONTACT PERSONS .....	50

## Annexures

Annexure A: Guidelines for Preparation of the Technical Proposal

Annexure B: Criteria for Evaluation of the Technical Proposal

Annexures C: Various Annexures C.1a to C.6b containing samples of schedules related to manpower, disbursements and provisional sums time and costs, which should be compiled by the PSP and should be appended only to the Financial Proposal.

Annexure D: Water Balance GBWSS 2021

Annexure E: Schedule of other relevant Study Reports produced by MMM

## List of Figures

Figure 1-1: GBWSS Primary Study Area.....	2
Figure 1-2: GMWAP - Xhariep Pipeline: Previously Identified Key Conveyance Routes .....	3
Figure 2-1: Existing Major Dams in the GBWSS .....	5
Figure 2-2: The existing bulk water supply system serving the GBWSS Area .....	7

## List of Tables

Table 4.1: Proposed Preliminary Study Programme .....	38
Table 5.1: Formal Study Management Meetings to be priced by PSP .....	39

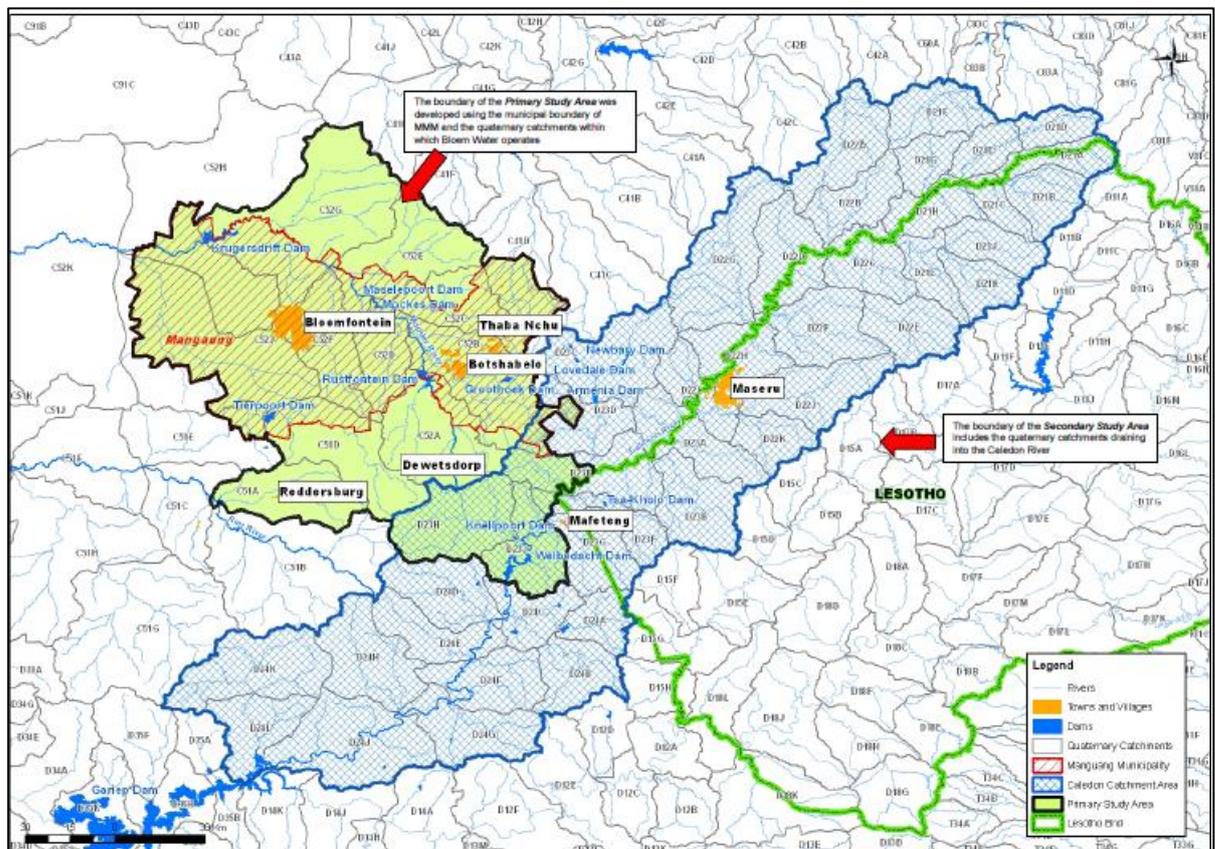
## LIST OF ACRONYMS AND ABBREVIATIONS

AOA	Annual Operating Analysis
AADD	Average Annual Daily Demand
BBBEE	Broad Based Black Economic Empowerment
BFS	Bankable Feasibility Study
BFT	Bloemfontein
BW	Bloem Water
CBR	California Bearing Ratio
CPD	Continuing Professional Development
DCP	Dynamic Cone Penetrometer
DWA	Department of Water Affairs
DWS	Department of Water and Sanitation
DFFE	Department of Forestry Fisheries and the Environment
EASBP	Estimated Allowable Safe Bearing Pressure
ECO	Environmental Control Officer
EAPI	Environmental Action Plan
EAPr	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GBWSS	Greater Bloemfontein Water Supply System
GDP	Gross Domestic Product
GGP	Gross Geographic Product
GMWAP	Greater Mangaung Water Augmentation Project
HDI	Historically Disadvantaged Individual
I&APs	Interested and Affected Parties
M&PRDA	Minerals and Petroleum Resources Development Act (No. 28 of 2002)
m <sup>3</sup> /s	Cubic metres per second
MMM	Mangaung Metropolitan Municipality
MI/d	Mega litre per day
MCDA	Multiple-Criteria Decision Analysis
MGWAP	Mangaung Gariep Water Augmentation Project
ND	Nominal Diameter
NEMA	National Environmental Management Act (No. 107 of 1998)

NHRA	National Heritage Resources Act (No. 25 of 1999)
NPV	Net Present Value
NWA	National Water Act (No. 36 of 1998)
ORS	Orange River System
PDF	Portable Document Format
PPPFA	Preferential Procurement Policy Framework Act (No. 5 of 2000)
PSC	Project Steering Committee
PSP	Professional Service Provider
PWWD	Peak Week Water Demand
QMS	Quality Management System
RID	Record of Implementation Decision
SARS	South African Revenue Services
SBD	Standard Bidding Document
SPT	Standard Penetration Test
SMC	Study Management Committee
ToR	Terms of Reference
URV	Unit Reference Value
VAT	Value Added Tax
WC/WDM	Water Conservation/Water Demand Management
WRC	Water Research Commission
WRYM	Water Resources Yield Model
WTP	Water Treatment Plant
WTW	Water Treatment Works
WUL	Water Use License

# 1 INTRODUCTION

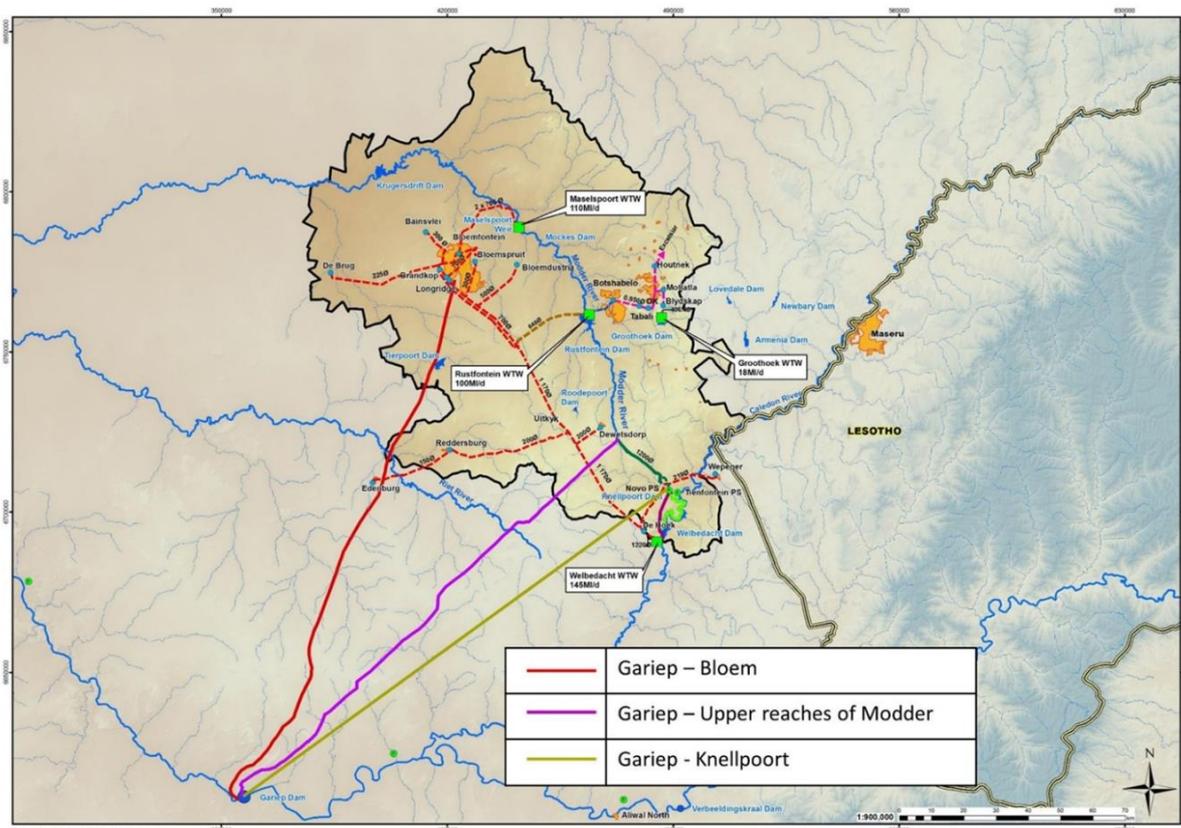
A Water Reconciliation Strategy for the Greater Bloemfontein Water Supply System (GBWSS) was developed in 2012 by the then Department of Water Affairs (“the Strategy”, DWA, 2012), in cooperation with Bloem Water (BW), Mangaung Metropolitan Municipality (MMM) and other stakeholders. The Strategy aimed to identify the optimal sequence of future water resource and infrastructure development interventions (schemes) needed to secure a sustainable future water supply for MMM and the other Water Service Authorities (WSA) within the GBWSS area (**Figure 1-1: GBWSS Primary Study Area**) until 2035 and beyond. The strategy highlighted the water supply constraints and developed scenarios for future water augmentation schemes to ensure the ongoing reconciliation of water supplies and requirements. The GBWSS supplies potable water to the larger centres of Bloemfontein, ThabaNchu and Botshabelo, as well as to the smaller towns of Wepener, Dewetsdorp, Reddersburg, Edenburg, and Excelsior. About two thirds of the treated water requirements for the area are supplied by BW, primarily through the Welbedacht and Rustfontein Water Treatment Plants (WTP) and the balance through the MMM’s Maselspoort WTP and local water reuse schemes.



**Figure 1-1: GBWSS Primary Study Area**

One of the long-term priority interventions recommended by the Strategy was the development of a major surface water augmentation scheme, abstracting water from the Gariep Dam together with a bulk water pipeline (and/or other conveyance system) delivering it to an optimal location within GBWSS. In view of the droughts experienced in the area in recent years and resultant water shortages, it was decided to accelerate the timing for implementation of the scheme. This scheme, now known as the Greater Mangaung Water Augmentation Project – Xhariep Pipeline, is the subject of this tender.

In 2015 BW and MMM independently of each other, at their own initiatives and without the involvement of the Department of Water and Sanitation (DWS), undertook their own reconnaissance studies, which investigated and compared various conveyance route options for the development of the Xhariep Pipeline Project. The three most competitive routes identified during these studies are roughly shown in **Figure 1-2**. Each study arrived at different cost estimates, economic parameters and conclusions regarding the preferred route for the scheme. The MMM study favoured a direct new treated water pipeline route from the Gariep Dam to a point near Bloemfontein, while the BW study favoured a new raw water transfer pipeline route to areas near Knellpoort Dam, and the onward maximised utilisation of existing BW infrastructure.



**Figure 1-2: GMWAP - Xhariep Pipeline: Previously Identified Key Conveyance Routes**

In September 2015, DWS undertook a reconnaissance study to consolidate the results from the above studies but more detailed pre-feasibility level studies are required to confirm the best development option from a national perspective, in consideration of other critical criteria needed for an informed executive decision.

During recent years, at its own initiative, cost and without involvement from DWS, MMM undertook substantial further work towards the development of a detailed bankable feasibility study (BFS) for the direct Xhariep pipeline route option and obtained environmental authorisation for the implementation. The environmental authorization has since expired and a water use licence could not be issued due to this outstanding planning work which is critical to inform a national water resource perspective.

The purpose of this study is to appraise, at a pre-feasibility level of detail, the most promising previously identified development options (routes) for the Xhariep Pipeline Project and to recommend the optimal system size (including phasing) and the best water conveyance route from a national perspective that should be taken forward to the feasibility stage of studies.

Thereafter, depending on the outcome of the pre-feasibility stage, this study will proceed to a detail feasibility level of investigation. Upon completion of the pre-feasibility stage, the Client will approve, at its sole discretion, the detail feasibility planning to be exercised based on the outcome of the pre-feasibility technical evaluation.

## 2 BACKGROUND INFORMATION

### 2.1 EXISTING WATER RESOURCES AND BULK WATER INFRASTRUCTURE IN THE GBWSS

The location of the dams described below is shown in **Figure 2-1**. The location of the existing bulk water infrastructure forming part of the GBWSS is shown in **Figure 2-2**.

#### 2.1.1 SURFACE WATER RESOURCES

About 70% of the total surface runoff, which would flow under natural conditions in the Upper Orange River, originates from Lesotho and about 30% from the incremental catchment within South Africa. The surface water resources, both in the Upper Orange and Senqu Rivers, are highly developed and utilised.

The two largest dams in the Upper Orange River are the Gariep and Vanderkloof Dams. Other major relevant dams are Welbedacht and Knellpoort in the Caledon River catchment and the Krugersdrift, Rustfontein, and Kalkfontein dams in the Modder-Riet River catchment. The following is a description of the major dams per

sub-catchment which may be relevant for the study.

### **Caledon River Sub-catchment**

The **Welbedacht Dam** is situated on the Caledon River and supplies water to urban users in Bloemfontein, Botshabelo, Dewetsdorp, and various smaller users, as well as irrigators downstream of Welbedacht Dam along the Caledon River. The Welbedacht WTW at Welbedacht Dam supplies water via the Caledon-Bloemfontein pipeline (Welbedacht pipeline) to Bloemfontein, Botshabelo, and some other minor users. There is currently a challenge of siltation at the dam that in turn reduces the dam yield as well as the operational capacity of the pumping system.

The **Knellpoort Dam** (off-channel storage) was constructed to mitigate the impact of the reducing yield of the Welbedacht Dam as a result of siltation and the increasing demand on the Caledon-Bloemfontein Regional Water Supply Scheme. The Knellpoort Dam is supplied with water from the Caledon River by the Tienfontein Pump Station. Water diverted via pumping from the Caledon River into the Knellpoort Dam is then released back into the Caledon River under gravity to allow abstraction at the Welbedacht Dam by BW all year round.

### **Modder River Sub-catchment**

The **Mockes Dam** on the Modder River supplies water to Bloemfontein via the Maselspoort WTW. The **Groothoek Dam** is located on the Kgabanyane River, a tributary of the Modder River, and supplies water to Thaba-Nchu.

The **Rustfontein Dam** is a major storage reservoir on the Modder River. Water is released from Rustfontein Dam to supplement the abstraction from the Mockes Dam and currently provides the major portion of water supplied to Bloemfontein at Maselspoort.

### **Upper Orange River**

The **Gariiep Dam** and the **Vanderkloof Dam** are the two largest reservoirs in South Africa and are both situated on the Upper Orange River. These two reservoirs form the main elements of the Orange River Project and are utilised to supply water to urban and irrigation users. They are also used for hydropower generation and flood control.

## **2.1.2 GROUNDWATER SUPPLY**

Small towns and communities in the vicinity of Bloemfontein, such as Dewetsdorp, Reddersburg, Edenburg, Wepener and Excelsior are partially dependent on groundwater for domestic use. Groundwater is therefore considered an essential resource, specifically for the smaller towns. Groundwater supply to augment the Greater Bloemfontein Area was considered as part of the Greater Bloemfontein Reconciliation Strategy Study (DWS, 2012) but was not found to be feasible for large augmentation schemes.

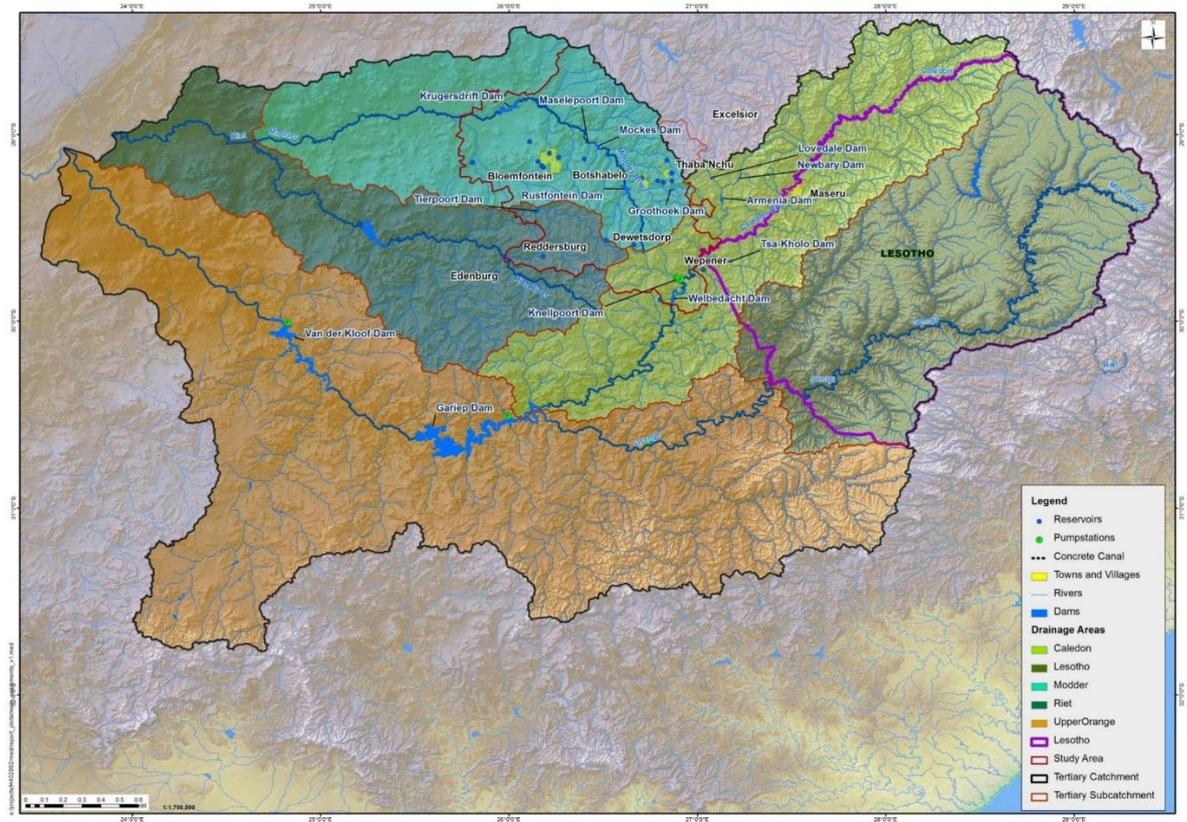


Figure 2-1: Existing Major Dams in the GBWSS

### 2.1.3 BULK WATER SUPPLY INFRASTRUCTURE

Bloem Water, a Water Service Provider (WSP) for several Water Service Authorities (WSA), is the main supplier of bulk potable water to urban centres in the Modder / Riet sub-catchment. The MMM is the other large provider of water, which supplies about 25% of Bloemfontein’s water requirements via the Maselspoort Scheme. The primary sources of water are the Caledon and Orange Rivers. Since both these river systems are located far away from the water demand centres, several water transfer schemes have been developed, such as: (a) the Caledon – Bloemfontein transfer which supplies Bloemfontein, Dewetsdorp, and small users from Welbedacht Dam, (b) the Maselspoort Scheme, and (c) the Caledon – Modder (also known as the Novo Transfer Scheme) which supplies water via the Rustfontein Treatment Works to Bloemfontein, Botshabelo, and ThabaNchu. A brief description of these transfer schemes is provided below.

#### **The Caledon – Bloemfontein transfer**

The Caledon-Bloemfontein pipeline (also known as the Welbedacht pipeline) was commissioned in 1974 to supply potable water from the Welbedacht Dam on the Caledon River to Bloemfontein, Botshabelo, ThabaNchu, Dewetsdorp, Reddersburg, and Edenburg. It is owned and operated by Bloem Water. Due to the decreasing yield of the Welbedacht Dam as a result of siltation and the increasing demand on the Caledon-Bloemfontein Regional Water Supply Scheme, the DWS supplemented the

yield of the Welbedacht Dam through the construction of the Knellpoort off-channel storage dam on the Rietspruit, a tributary of the Caledon River. The Knellpoort Dam is supplied with water from the Caledon River by the Tienfontein Pump Station. Water diverted via pumping from the Caledon River into the Knellpoort Dam is then released back into the Caledon River to allow abstraction at the Welbedacht Dam by Bloem Water. The Novo Transfer Pump Station is located at the Knellpoort Dam and is able to transfer water into the Modder River, which supplies the Rustfontein and Mockes Dams.

Situated just downstream of the Welbedacht Dam is the Welbedacht Water Treatment Works (WTW) with a capacity of 145 MI/day. Due to the high sediment concentration of the raw water abstracted, especially during times of flooding, the output capacity of the Welbedacht Water Treatment Plant is reduced and at times, in summer, the output capacity reduces to 100 MI/d. After purification the clear water is pumped via a 6.5 km pressure pipeline and a 106 km gravity pipeline to Bloemfontein. The average capacity of the pipeline is 1,7 m<sup>3</sup>/s and the maximum capacity is 1,85 m<sup>3</sup>/s. The existing Welbedacht – Bloemfontein pipeline is a pre-stressed concrete pipeline and has been subject to frequent bursts in the past. Concerns have been raised about the long-term structural integrity of the pipeline. If this pipeline were to fail, the MMM could potentially experience severe water shortages, since there is no surplus reservoir capacity to support outages of a long duration.

### **The Maselspoort Scheme**

The Maselspoort Scheme includes the Maselspoort WTW (110 MI/day) and the Maselspoort Weir, which are located on the Modder River downstream of the Mockes Dam (which is downstream of the Rustfontein Dam). The Maselspoort WTW supplies approximately 25% of Bloemfontein's water requirements and is owned and operated by the MMM.

### **The Novo Transfer Scheme**

The Novo Transfer Scheme, which became operational in 1998, includes the Tienfontein Pump Station, a pipeline and canal from the Tienfontein Pump Station to the Knellpoort Dam, the Knellpoort Dam and the Novo Pump Station and pipeline. The Novo Pump Station (current capacity of approximately 1,5 m<sup>3</sup>/s), which is situated on the northern side of the Knellpoort Dam, transfers water from the Knellpoort Dam to the Modder River, via a 20 km pipeline. From the outfall of the Novo pipeline, water flows down the Modder River to the Rustfontein Dam for a distance of approximately 50 km. Water stored in the Rustfontein Dam is treated at the Rustfontein WTW and then pumped to Botshabelo/ThabaNchu or Bloemfontein. As an alternative, water can be released from the Rustfontein Dam to flow downstream into the Mockes Dam, from where it can be abstracted at the Maselspoort Weir, treated at the Maselspoort WTW, and then pumped to Bloemfontein. The above infrastructure is owned by DWS and operated by Bloem Water.

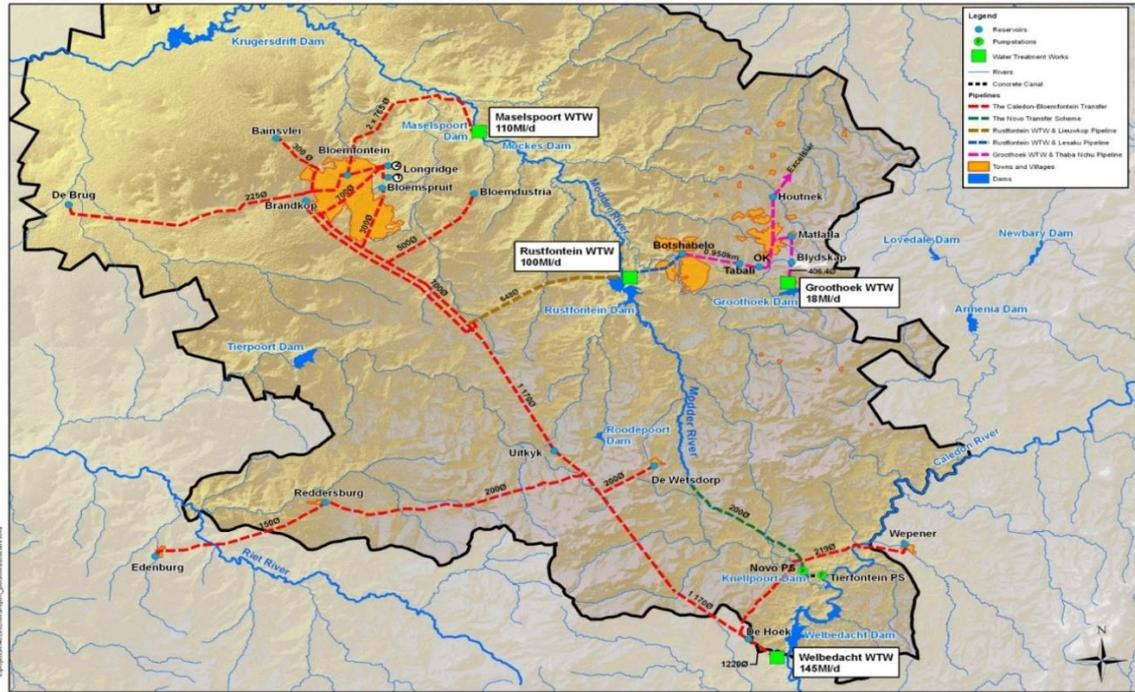


Figure 2-2: The existing bulk water supply system serving the GBWSS Area

## 2.2 CURRENT WATER SHORTAGES

The greater Bloemfontein area is currently experiencing water shortages as a result of (a) water requirements exceeding the system yield, (b) operational problems pertaining to infrastructure and (c) the continuing extreme weather conditions. The current water balance scenario is depicted in **Annexure D**, as determined during the 2021 Annual Operating Analysis (AOA).

The current water shortages and associated water restrictions were projected to be a permanent annual feature for the system in the medium to long term according to the 2021/2022 AOA. This has prompted the consideration of bringing forward the implementation of what had previously been considered to be medium to long term bulk water supply augmentation interventions, such as this Xhariep Pipeline project.

## 2.3 RELEVANT PREVIOUS STUDIES, REPORTS AND INFORMATION

Several studies which are directly related to the planning of the proposed Xhariep Pipeline Project have been undertaken in the past. The reports from most of these studies will be provided to the successful PSP.

In addition, various other planning studies into the overall system configuration and other water resources developments in the entire Orange River System (ORS) have also been undertaken in the past, some of them very recently. Such studies will need to be considered when analysing the impact of the proposed Xhariep Pipeline Project to the existing systems including the Orange River Project. Such studies and other relevant information are also listed below under a separate header. Most of these

reports are readily available and will be provided to the successful PSP.

These lists are not exhaustive. The appointed PSP shall source any other relevant information or study reports from all sources and shall undertake a thorough literature review.

### **2.3.1 STUDIES DIRECTLY RELATED TO THE PLANNING OF THE XHARIEP PIPELINE PROJECT**

- Department of Water Affairs, June 2012. Water Reconciliation Strategy Study for the Large Bulk Water Supply Systems: Greater Bloemfontein Area, Final report. Prepared by Aurecon South Africa.
- Department of Water and Sanitation, May 2014. Reconciliation Strategy for the Greater Bloemfontein Water Supply System, Review of Options to Augment Bloemfontein's Water Supply, Draft report. Prepared by Aurecon South Africa.
- Department of Water and Sanitation, August 2014. Accelerated Action Plan to Augment Bloemfontein's Water Supply, draft report. Prepared by Aurecon South Africa.
- Bloem Water, February 2015. New Pipeline from Gariep Dam to Knellpoort Dam Feasibility Final Study Report. Prepared by Babereki Consulting Engineers.
- Mangaung Metropolitan Municipality, March 2015. Water Supply Augmentation to the Greater Bloemfontein Area from the Orange River, Assessment of Potential Bulk Water Supply Schemes, Draft Report. Prepared by Bigen Africa.
- Mangaung Metropolitan Municipality, May 2015. Water Supply Augmentation to the Greater Bloemfontein Area from the Orange River, Technical Feasibility Study Report, Draft Report. Prepared by Bigen Africa.
- Department of Water and Sanitation, September 2015. The Greater Bloemfontein Reconciliation Strategy Support Study: The Greater Bloemfontein Bulk Water Supply Augmentation Options, Draft Report. Prepared by Aurecon South Africa.
- Mangaung Metropolitan Municipality, May 2017, Mangaung Gariep Water Augmentation Project (MGWAP): BFS: High Level Transfer Option Analyses. Prepared by Bigen Africa.
- Mangaung Metropolitan Municipality, various from June 2015 to October 2017, MGWAP: Various reports related to Environmental Scoping, Environmental Impact Assessment (EIA) and Water Use License Applications (WULA). Prepared by GladAfrica.
- Free State Department of Environmental Affairs, March 2018, MGWAP: Environmental Authorisation.
- Mangaung Metropolitan Municipality, August 2018, MGWAP: Scenario Analyses for the Greater Bloemfontein Water Supply System (Hydrological System Analyses). Prepared by WRP under leadership of Bigen Africa.
- Mangaung Metropolitan Municipality, until 2019, MGWAP various further study reports prepared by Bigen Africa .
- Various ongoing reviews and updates of the GBWSS state and operational condition as routinely conducted by BW, MMM and DWS.

### 2.3.2 OTHER RELATED PLANNING STUDIES IN THE ORANGE RIVER SYSTEM

- Department of Water and Sanitation, 2014. Development of Reconciliation Strategies for Large Bulk Water Supply Systems: Orange River (report Numbers: P RSA D000/00/18312/1 to 14) (ORECONS).
- ORASECOM, 2014, The Orange-Senqu River Integrated Water Resources Management Plan (ORIWRMP).
- Department of Water and Sanitation, July 2017. Determination of Ecological Water Requirements for Surface Water and Groundwater in the Lower Orange WMA. Prepared by Rivers for Africa e-Flows Consulting (Pty) Ltd.
- Department of Water and Sanitation, April 2021, Continuation of the Integrated Vaal River System Reconciliation Strategy Phase 2. Report P RSA C000/00/4406, authored by Batatise/UWP/WRP JV.
- Permanent Water Commission, March 2020, Noordoewer/Vioolsdrift Dam Feasibility Study – a suite of study reports. Authored by Aecom-WCE JV.
- Department of Environmental Affairs, 2019. National Climate Change Adaptation Strategy
- Department of Water and Sanitation, 2021, Continuation of the Orange River System Reconciliation Strategy. Study in progress and likely to run in parallel with this study.
- ORASECOM, from 2018 to date, Preparation of Climate Resilient Water Resource Investment Strategy and Plan, and the Lesotho-Botswana Water Transfer Multipurpose Transboundary Project: A suite of study reports containing latest information for the Orange River System, including updated water requirements, core development scenarios, operating rules, system and yield analyses models, etc. Study still in progress, but certain specialised reports are already available.
- Department of Water and Sanitation, current 2021, Determination of Ecological Water Requirements for Surface water (river, estuaries and wetlands) and Groundwater in the Upper Orange WMA. Study in progress and likely to run in parallel with this study.

## 2.4 THE GREATER BLOEMFONTEIN RECONCILIATION STRATEGY STUDY RECOMMENDATIONS

The Reconciliation Strategy for the Greater Bloemfontein Area was completed in 2012. This strategy highlighted the current water supply constraints and developed scenarios for future water augmentation schemes to ensure the ongoing reconciliation of supplies and requirements. The following specific actions were recommended:

- Investigate the most appropriate means to scour the Welbedacht Dam.
- Install two additional (1 m<sup>3</sup>/s) pump sets at the Tienfontein Pump Station. The first pump set should be utilised to increase the design capacity of the pump station to 4 m<sup>3</sup>/s and the second pump set to provide additional standby capacity.
- Initiate a feasibility study to investigate the most appropriate means to augment the yield from the Knellpoort Dam.

- Investigate the treatment process to deal with high turbidity levels which currently limit the production capacity of the water treatment plant.
- Increase the capacity of the Novo Pump Station to 2,4 m<sup>3</sup>/s.
- Initiate a feasibility study into an augmentation scheme from the Orange River.

Other scenarios were considered during the study ‘Accelerated Action Plan to Augment Bloemfontein’s Water Supply’ (DWS, 2014), which investigated at reconnaissance level several bulk water augmentation schemes from various water sources, including that from the Gariep Dam.

Some of the above-mentioned recommendations have been implemented, including the DWS and Bloem Water intervention in increasing the capacity of the Tienfontein and Novo Pump Stations. Other interventions have been partially addressed or are in the process of being implemented.

According to recent information (which the PSP should confirm), the current pumping capacity of the Tienfontein Pump Station is 3,71 m<sup>3</sup>/s. It has a total of 6 pumps with some not in good working condition. The Novo Pump Station currently has a pumping capacity of 2,2 m<sup>3</sup>/s and this should still be increased to 2,4 m<sup>3</sup>/s as recommended.

The appointed PSP shall validate the progress with and the remaining timeline for the implementation of all of the above interventions and shall take such validated information into account for the purposes of this feasibility study, especially with respect to confirming the critical timeline to implement this project.

The appointed PSP shall consider the implications of all interventions currently underway to address the siltation problem at the Welbedacht Dam in order to prolong its useful life. Interventions spearheaded by amongst others BW, DWS (national and regional) and the Water Research Commission (WRC) are currently underway. The PSP shall align this study to the plans and progress on scouring the Welbedacht Dam based on available information and in line with the provisions of the National Siltation Management Strategy.

## 2.5 STUDIES INTO OPTIONS TO AUGMENT BLOEMFONTEIN WATER SUPPLY SYSTEM FROM THE GARIEP DAM

One of the long-term priority interventions recommended by the GBWSS Reconciliation Strategy Study (DWA 2012) was the development of a major surface water augmentation scheme. In 2014, owing to severe droughts in the area and the resultant water shortages, it was decided to accelerate the timing for implementation of such a scheme.

Consequently, in 2014 DWS commissioned the study Accelerated Action Plan to Augment Bloemfontein’s Water Supply, which investigated at reconnaissance level several bulk water augmentation schemes from various water sources, including that from the Gariep Dam. The study concluded that there were several technically and

economically viable options to integrate additional water from the Gariep Dam into the existing GBWSS. However, at that stage there was no conclusive conveyance route option that clearly stood out based on technical and economic evaluations alone. A number of other criteria needed to be considered before the optimal and preferred option from an overall national perspective could be selected for the Xhariep Pipeline Project.

In 2014/15 BW and MMM independently of each other, at their own initiatives and without the involvement of DWS, undertook and completed their own reconnaissance studies, which investigated and compared various conveyance route options for the development of the Xhariep Pipeline Project. Each study arrived at different cost estimates, economic parameters and conclusions regarding the preferred route for the scheme. The MMM's study favoured a direct new pipeline route from the Gariep Dam to a point near Bloemfontein, while the BW study favoured new pipeline routes to several points in the vicinity of the Knellpoort Dam and the onward conveyance system aiming at maximised utilisation of existing BW infrastructure.

The three most competitive routes identified during these studies are roughly shown in **Figure 1-2** above. Most options were sized for an average annual abstraction capacity of 60 million m<sup>3</sup>/a with a peak conveyance capacity of 90 million m<sup>3</sup>/a.

BW (BW 2015) investigated the option of a dedicated 192 km long, 600 mm nominal diameter (ND) pumping main from an existing outlet pipe at the Gariep Dam wall directly to the Knellpoort Dam via a raw water pump station approximately 2 km downstream of the dam. Several variations to this option were also studied and optimised in view of system risks. BW's preferred augmentation option intends to maximise the use of the existing BW infrastructure.

MMM (MMM 2015) investigated a direct water conveyance system between the Gariep Dam and the Knellpoort Dam, 182 km long mostly along road R701. MMM also investigated a direct new pipeline route option from the Gariep Dam to a point near Bloemfontein.

Thereafter DWS, undertook its own reconnaissance study (DWS 2015) and reviewed the above reports to consolidate and compare the results on a common base. The study concluded that more detailed pre-feasibility level studies are required to confirm the best development route option from a national perspective, in consideration of other important assessment criteria needed for an informed executive decision.

Thereafter, at its own initiative, cost and without the involvement of DWS, MMM undertook several further studies, as listed in **Section 2.3.1**, related to the development of the Xhariep Pipeline Project which still remain to be completed.

In 2017 MMM completed studies (undertaken by GladAfrica) related to the environmental scoping, EIA and WUL application, which culminated in the March 2018 environmental authorisation for the implementation of the direct route for the

Xhariep Pipeline Project. The environmental authorisation has since expired.

MMM also commissioned studies and partially implemented several interventions related to improved Water Conservation and Water Demand Management (WC/WDM) and developed certain water re-use projects (Annexure E). These projects would result in reduced water requirements from external sources and should be considered in the water balance.

### 3 OUTLINE OF SALIENT STUDY CHARACTERISTICS

#### 3.1 OUTLINE OF PURPOSE AND SCOPE OF STUDY

Considering the history of developments contained in the above sub-section, the purpose of this study at a pre-feasibility stage is to conduct a fresh and independent evaluation for the most promising previously identified development options/routes for the Xhariep Pipeline Project, to undertake the necessary further pre-feasibility level investigations and to select from a national perspective, the optimal system size (including phasing), the configuration of the best water conveyance route, and the composition, location and size of the key infrastructure elements of the scheme that should be taken forward to the feasibility stage of the study, which forms part of the scope of this bid.

Thereafter, depending on the outcome of the pre-feasibility stage and upon approval by the client, this study will proceed to further detailed feasibility level investigations.

In addition to the usual assessment of the technical viability, financial and economic feasibility, environmental acceptability, the study shall also consider other important criteria, including but not limited to the assessment of risks and redundancy built into the options, the impact of the proposed Xhariep Pipeline on the existing systems including the Orange River Project, the optimisation of the Orange River system yield together with the proposed scheme abstractions, the optimal integration and utilisation of available capacities in the existing infrastructure together with consideration of its physical condition and remaining useful life, institutional arrangements for ownership and operation, financing options, affordability and bankability, attractiveness for private investors and off-balance sheet financing, opportunities for phased implementation and fast tracked development, stakeholder preference, etc. The scheme capacity shall be optimised through detailed system analyses, stakeholder engagement and infrastructure condition assessments.

Unless otherwise reasonably motivated and approved during the study, the maximum average annual abstraction rates from the Gariiep Dam shall be limited to 60 million m<sup>3</sup>/a. The sizing horizon for the proposed Xhariep Pipeline Project shall be at least 30 years (2050 or beyond).

Substantially more detailed description of the scope of work is provided further below.

### 3.2 OUTLINE OF PHASES OF STUDY

The study shall be undertaken in the following sequential phases:

**Phase 1: Inception Stage:** Conduct a thorough review of all existing information, consultation with the Client and other knowledgeable parties, site visits, etc. Ensure that all the available information from all studies undertaken in the past is fully utilised to avoid repetition of work. *Deliverables:* Inception Report including an update of the proposed scope of work, methodology, budget, study program and cashflow.

**Phase 2: Pre-feasibility Stage:** Undertake the necessary pre-feasibility level investigations and comparative analyses including a due diligence assessment for **all** possible water conveyance development options or hybrids thereof, including but not limited to those previously investigated by BW, MMM and others. Select and recommend **from a national perspective** the best water conveyance route option to be carried forward to detailed feasibility level studies during Phase 3. Specify the optimal system size (including phasing), the configuration, composition, location and size of the key infrastructure elements of the recommended scheme. *Deliverables:* Pre-Feasibility Study Main Report together with all applicable and agreed supporting reports.

Note: **The Client shall select at its sole discretion the Route Option to be exercised. Allowance of 4 weeks must be made for Client review and approval at the end of Phase 2.**

**Phase 3: Detailed Feasibility Stage:** Depending on the outcome of the pre-feasibility stage and when **DWS has selected** the best route **from a national perspective**, the study will proceed with the full scope of feasibility studies and investigations for that scheme. *Deliverables:* Feasibility Study Main Report together with all applicable supporting reports.

**Phase 4: Environmental Impact Assessment (EIA) and Authorisation:** This phase will be undertaken in parallel with Phase 2 (screening studies) and Phase 3. Undertake a detailed EIA for the preferred conveyance system option and obtain all requisite authorisations from all relevant authorities, including Water Use Licenses (WUL). *Deliverables:* EIA Report together with all applicable supporting and specialist reports and authorisations.

### 3.3 OUTLINE OF IMPORTANT TERMS OF ENGAGEMENT

The attention of the bidders is drawn to the following selected terms of engagement related solely to the technical scope of work. These are not exhaustive. Other terms are provided elsewhere.

<p>The <b>task descriptions and methodologies</b> specified in this document shall be construed as minimum requirements or as a guide. These are neither intended to be exhaustive nor prescriptive.</p>
--

\*\*\*

Upon completion of each **Study Phase**, the Client shall be entitled to decide at its sole discretion to either proceed with further Phases or to terminate the study at this stage.

\*\*\*

The bidders' **tender pricing of all Phases should be fairly balanced** and aligned to the scope of work specified for each Phase. Bidders who do not comply with this requirement will lose marks in the final moderation of scores.

\*\*\*

DWS may appoint a **separate PSP to assist in reviewing the study work** and reports and/or to manage the study. The successful PSP for the Feasibility Study shall liaise and co-operate with the Project Management PSP and shall promptly provide all reasonably required information.

\*\*\*

Remuneration for any work undertaken will be **based on approved Contract task budget of actual deliverables** as approved by the Client, and **not on time**.

\*\*\*

Ten percent (10%) of the total contract amount will be **retained** and will be paid after the delivery and approval of all reports in the specified format.

\*\*\*

If in the opinion of the PSP there is a need to undertake additional work not covered in the Contract, the PSP shall immediately inform the Client. Such work **shall not commence until a variation proposal is approved in writing** and signed by the Client.

## 4 DETAILED DESCRIPTION OF SCOPE OF WORK

### 4.1 PHASE 1: INCEPTION STAGE

The appointed PSP will be required to undertake a thorough research and review of all the relevant previous study reports, as well as all other available information, and to become familiar with the GBWSS. The key completed and current studies and other information relevant to this study are as listed and described in the previous sections. It will be necessary to update and maintain a list of such studies and their relevance to this assignment. The PSP will be required to liaise and engage with all relevant stakeholders and key role players in preparation and execution of the study.

After the review, the PSP shall compile a draft Inception Report that will consist of

an updated and refined scope of work, methodology, study budget, study programme, human resource schedule and cashflow projections. This will be discussed with the Client and all aspects and uncertainties will be clarified. Once approved by the Client, the final Inception Report will form part of the contract and will constitute the agreed final Terms of Reference (ToR) for the study.

The purpose of the Inception Report is to capture and refine all important work that would be necessary for the successful completion of the study, which may have been overlooked, for any reason, in the compilation of the original ToR or in the proposal submitted by the PSP during tendering. Such omissions can only be detected once work on the study has started and the team has had the opportunity to familiarize itself with all available information on the study, which is often bulky.

The Inception Report is a formal document that will cover all aspects of the original proposal as well as any updates that may be required for the scope of work, contract amount and contract period. The Inception Report will list all tasks required, all team members for each task and their time allocation as well as their hourly rates per task, anticipated disbursements, revised study programme, etc. **The appointment of new team members to the study or any changes made to the team and their rates must be approved by the Client before they can be engaged.** The Inception Report can therefore be considered a revised Technical and Financial Proposal.

After signing of the Contract by both parties the PSP will commence with the study based on the approved Inception Report. A site visit to the study area shall be arranged by the PSP (with support where required from DWS) and undertaken together with DWS and other stakeholders early in the Inception Phase.

The conveyance system options investigated to date shall be thoroughly reviewed, specifically the study reports for the Xhariep Pipeline Project undertaken independently by MMM and BW as detailed in the previous sections of this document. Thereafter, the PSP shall establish whether or not a decision on the preferred (from a national perspective) conveyance route option can reasonably and conclusively be taken at this stage.

The PSP shall also compile a consolidated budget schedule and study programme as well as cashflow containing all scope activities; develop a full list and description of all study reports to be produced and indicate when these are to be delivered; and undertake stakeholder analysis and develop an outline Stakeholder Management Plan, propose a draft composition of the study steering committee and assist with its establishment. The roles and responsibilities of key stakeholders should be articulated.

#### **Deliverables:**

The Inception Report shall be produced and finalised within 3 months from the commencement date. It shall address all aspects described above and shall also serve as the first deliverable for the study.

## 4.2 PHASE 2: PRE-FEASIBILITY STAGE

The main purpose of this phase is to undertake the necessary pre-feasibility level investigations and comparative analyses of **all** possible water conveyance development options, or hybrids thereof, for the Xhariep Pipeline Project including but not limited to those previously investigated by BW, MMM and others; to select and recommend **from a national perspective** the best water conveyance route option to be carried forward to detailed feasibility level studies during Phase 3; and to specify the optimal system size (including phasing), the configuration, composition, location and size of the key infrastructure elements of the recommended scheme.

The study shall establish and confirm the optimal size/capacity of the new scheme based on the latest water requirement projections, other planned augmentation projects, and consultations with stakeholders to meet the water requirements for the supply area until at least 2050. The total abstraction capacity of the scheme (including all its proposed phases) from the Gariep Dam should not exceed an annual average rate of about 60 million m<sup>3</sup>/a.

The appointed PSP will also be required at this stage to commence with certain aspects of the EIA process and undertake environmental screening of the options in order to ensure that any “red flags” or potential fatal flaws are identified as early as possible. The scope of work for the EIA is described under Phase 4 below.

### 4.2.1 WATER REQUIREMENTS

Water requirements are dependent on population growth and economic growth (including improvements in service delivery). An analysis shall be undertaken of the current and future water requirements and their projected growth for the Greater Bloemfontein System beyond 2050. The analysis must include a determination of the potential growth in average annual daily demand (AADD) and peak week water demand (PWWD). This shall include the review of the latest long term water requirement projections developed by BW, MMM or others. Updated information should also be obtained on the water requirements for the surrounding smaller towns, as these towns should also benefit, where feasible, from the proposed new scheme.

The study must also consider all WC/WDM and water re-use interventions recently/currently being implemented in the study area and their impact on the water balance.

The spatial distribution of the water requirements is of particular importance and the PSP is to determine the water requirements for the Bloemfontein supply zone as well as that for the Botshabelo and Thaba-Nchu supply zones. The spatial distribution of the water requirements may influence the infrastructure capacities and may also impact on the preferred location of the pipeline route and water treatment plants.

### 4.2.2 IDENTIFICATION AND ANALYSES OF ROUTE CONFIGURATION OPTIONS

The following key proposed Xhariep Pipeline Project route configurations have been

identified, investigated and selected as viable development options during previous studies undertaken by BW, MMM and DWS (see **Sections 2.3.1, 2.5** and **Figure 1-2**):

- **Route Option 1:** A direct pipeline from the Gariep Dam to Bloemfontein, with a new water treatment plant located near the dam.
- **Route Option 2:** A pipeline from Gariep Dam to the upper reaches of the Modder River (new water treatment works / upgrades could be situated at the Rustfontein Dam or at the Maselspoort Weir or at both); and
- **Route Option 3:** A pipeline from the Gariep Dam to the Knellpoort Dam (new water treatment works / upgrades could be situated at Rustfontein Dam or at Maselspoort Weir or at both). Please note that under this option, additional transfer capacity (possibly expansion of the Novo transfer scheme) will be required to convey the water from the Knellpoort Dam to the upper reaches of the Modder River.

The PSP shall ensure that all possible information on previous related feasibility studies is assessed / used and that work shall not be repeated.

The above three scheme route options, together with their associated infrastructure elements (inter alia abstraction works, pipelines, pump stations, water treatment plants and reservoirs) will be subjected to assessment during this Study. Cognisance should be taken of the least possible social and environmental impacts.

In addition to the usual assessment criteria of technical viability, financial and economic feasibility, environmental acceptability, the study shall also consider other important criteria, including but not limited to: risks and redundancy built into the options, minimising the impacts of the proposed scheme abstractions on the Orange River system yield, the optimal integration and utilisation of available capacities in the existing infrastructure together with consideration of its physical condition and remaining useful life, institutional arrangements for ownership and operation, financing options, affordability and bankability, attractiveness for private investors and off-balance sheet funding, opportunities for phased implementation and fast tracked development, stakeholder preference, etc. The scheme capacity shall be optimised through system analyses, stakeholder engagement and infrastructure condition assessments.

Without limiting the generality of the above specification, the following particular requirements are offered as a guide, but not listed in compelling order. These should be considered and investigated as part of the Pre-Feasibility Phase:

- Review and consolidate the information and individual analyses undertaken in the past by DWS, MMM and BW, or others, during the studies outlined in the previous sections. Determine conceptual layouts for each of the identified schemes. This would include all elements of the proposed infrastructure, such as: abstraction works from Gariep Dam, a weir (if required), raw and potable water pump stations, pipelines, water treatment plants, access roads, river and road crossings, power supply infrastructure, etc. Where

necessary, liaise with the entities who commissioned the original studies (and/or their respective consultants) to clarify background and uncertainties.

- In view of the information about the previously identified competitive options being available from investigations at vastly varying levels of detail (from full feasibility to reconnaissance levels), the PSP should carefully consider how best to use this information in this comparative study, without unduly advantaging or disadvantaging any of the competitive options. For instance, detailed topographical surveys, geotechnical and material investigations, detailed engineering studies and costing, environmental studies etc. are already available for the direct route option, while such information is not available for the other competitive options.
- The scheme configuration, layouts and routes will be delineated based on the available topographic and cadastral information. Preliminary consultations should be held with the relevant authorities, to establish their wayleave requirements and whether or not installation of infrastructure within or along road reserves will be allowed. This is necessary to establish if the proposed routes are viable.
- The infrastructure must be sized to meet the AADD and PWWD until at least 2050. This is to be confirmed with the Client and relevant stakeholders. Note that depending on the configuration of the identified competitive route options, their respective optimal sizes may be different.
- For each route option select the optimal size, material and wall thickness for the conveyance pipelines. The PSP shall consider both internal pressures and external loads for the sizing. Conduct a pre-feasibility level pump type selection and hydraulic system optimisation. Where necessary, the PSP shall carry out preliminary surge analyses to optimise the pipe size, material and wall thickness. The PSP shall also analyse alternative booster pump station locations along the pipeline route in order to minimize the scheme total NPV cost. It is imperative that this work be undertaken during the pre-feasibility phase as it may influence the costing and ultimately the selection of the best option.
- Undertake water quality analysis and characterisation of possible water quality blends based on available data, supplemented by limited water quality testing undertaken. A Provisional Sum has been allowed for water quality testing, as specified in **Section 6.3.2** and shall be included in the Financial Proposal by all bidders to cover the cost thereof.
- The scheme capacity and abstraction rates shall be optimised through system analyses taking cognisance of the impacts on the yield of the Orange River System. The study will not involve a determination of available yield of Gariep Dam itself. The point of departure will be that there is sufficient yield (up to 60 million m<sup>3</sup>/a) to supply the new scheme. Nevertheless, the study shall consider the latest system yield data available from other reports.
- Determine the capacity and incremental system yield of each of the identified options using the Water Resources Yield Model (WRYM). Take into consideration and analyse (with the WRYM) the river losses associated with each route option, where portions of the conveyance system include river channels.
- The geotechnical conditions and material properties along the pipeline routes should be established by means of a desktop study and available information.

- Evaluate the system risks for each option. This includes potential Eskom outages, risk of failure of old infrastructure integrated in options where applicable, droughts, etc.
- Similarly, consider the operational flexibility, redundancy and safety advantages associated with certain options. The scheme shall be integrated into the existing bulk water supply system, and some configurations may lend themselves more to creating operational flexibility and redundancy in the existing system.
- Undertake a pre-feasibility level assessment of the physical condition and the remaining expected useful life of the existing infrastructure proposed to form part of the new scheme (where applicable) and take this into account in the cost estimates and economic evaluation by properly accounting for the residual values of competitive options. The assessment could be based on some or all of the following: analyses of existing service and fault records, enhanced with direct physical infrastructure inspections by specialists at representative areas, radiological examination, camera surveys of pipelines, sampling and testing, etc. The bidders shall propose the approach to this task in line with best practice.
- For each of the competitive options, consider the opportunities offered for the optimal utilisation of existing and planned infrastructure owned by both BW and MMM and for the seamless integration of the new scheme into the existing GBWSS, including considerations of institutional arrangements for the operation of the new scheme. Consultations should be held in this regard with BW, MMM and DWS to achieve this. Also consider the convenience and ease of operation and maintenance for each option. This task should form a stand-alone chapter in the Pre-feasibility Report.
- Each competitive route option should undergo a high-level environmental and social screening to identify potential fatal flaws or significant environmental impacts/constraints which could affect the viability of the scheme. A high-level socio-economic assessment should be undertaken for each route option and considered in the evaluation criteria.
- Identify at conceptual level opportunities for hydropower generation, provide high level costing, and account for this advantage when comparing the options.
- Consider the costs and time for development of the requisite power supply infrastructure required for all pump stations and water treatment plants and other infrastructure.
- Consider the opportunities for phased development and fast-tracked implementation of competitive options. Compile a preliminary implementation programme for each option.
- Produce calculation sheets, conceptual drawings and schedules of quantities at appropriate levels of detail. Determine comparative capital and operational costs of the various options based on cost models (such as VAPS) using updated construction rates from recent similar projects. Determine the Net Present Value (NPV) and Unit Reference Value (URV) for water supplied by each option using the VAPS economic models. Appropriate allowance for refurbishment costs and residual values should be made in the calculation of the URV's.
- The competitive options shall be compared using the Multiple-Criteria Decision Analysis (MCDA) methodology, which assists in evaluating multiple and sometimes conflicting criteria. Based on this, the PSP shall make an independent well motivated and reasoned

recommendation as to which scheme is the best and optimal **from a national perspective** and should be brought forward to detailed investigation during the feasibility study stage.

**Note: When conceptualising competitive options, the existing and planned infrastructure owned by both BW and MMM (e.g. water re-use plant currently being planned by MMM) should be considered. The schemes should be conceptualised in an integrated manner, optimally making use of planned and future water resource infrastructure developments, where feasible. The conceptualised schemes must augment the supply to the Greater Bloemfontein Region. It is not the intention for the new scheme to replace any existing scheme (e.g. the Welbedacht WTP or Welbedacht pipeline), but rather to supplement it.**

**It is critical that each of the identified competitive options be conceptualised, priced and compared on a common base to allow meaningful evaluation and conclusive recommendation.**

#### **4.2.3 MEETINGS WITH KEY STAKEHOLDERS AND INTERESTED AND AFFECTED PARTIES**

The PSP will identify interested and affected parties and stakeholders that will either be affected by the implementation and operation of the possible schemes, or where an early involvement will benefit the planning and implementation process. The PSP will be required to maintain regular liaison between all parties involved in the implementation process and facilitate interaction between the parties and the stakeholders.

#### **4.2.4 DELIVERABLES: PRE-FEASIBILITY STUDY REPORTS**

A Pre-feasibility Study Report (including all agreed supporting reports) shall be compiled in a manner that explicitly defines and motivates the selection of the preferred route option, together with its associated infrastructure, that will be carried forward to detailed feasibility study stage. The criteria for selection of the preferred option shall be based on the best interest from a national perspective that is inferred from existing guidelines and legislation in infrastructure development, drawing on integrated and robust optimization and best international practice. **The outcomes of the pre-feasibility study must be approved by DWS prior to commencement with the detailed feasibility study and preliminary design.** The pre-feasibility report shall cover and document all aspects specified in this section, including water requirements and “integration” chapters. It is important to note that the outcome of the pre-feasibility study will inform the scope of work during the feasibility study stage.

### **4.3 PHASE 3: FEASIBILITY STAGE**

Depending on the outcome of the Pre-feasibility Stage and upon approval by the

Client, the Feasibility Stage of the study will proceed. This will include the usual detailed optimisation of the selected best scheme based on further technical analyses, geotechnical investigations, topographical surveys, environmental studies, the feasibility level designs, detailed bills of quantities and costing, finalisation of the institutional arrangements, financial and bankability assessment, record of implementation decision, etc.

The level of output from the feasibility study shall be such as to allow immediate commencement of the detailed design and ultimately construction of the preferred route option once the environmental authorisation and requisite licenses are issued.

#### **4.3.1 FEASIBILITY LEVEL OPTIMISATION AND DESIGN OF SELECTED OPTION**

A full feasibility study and technical evaluation shall be undertaken for the selected preferred route option. The scheme shall be optimised in order to determine the fine-tuned best solution at lowest cost. The outcome of this stage of the study should be such as to allow the seamless transition towards the future detailed design, without the need to reconsider the key elements, such as conveyance routes and position of major infrastructure. To achieve this, sufficiently detailed work on confirmation of the location of the proposed major infrastructure should be undertaken. Without limiting the generality of the aforesaid, at least the following will be required to fulfil this task (not listed in a particular order):

- Confirm the size and type of all main infrastructure components.
- Determine the optimal conveyance pipeline routes and tie-in points to existing, or proposed supply networks. The conveyance pipeline route should preferably be located within existing road reserves or follow such reserves. Where possible, routes within private land should be minimised. Advanced consultations should be held with the relevant authorities and owners of reserves and land to establish wayleave requirements and whether or not installation of infrastructure within or along road reserves will be allowed, and on what conditions. The methods and conditions for road and river crossings and registration of servitudes should also be confirmed with the relevant authorities. Consultations with a sample of affected landowners should also be held. Provision for meeting servitude conditions should be made in costing.
- Where the new scheme involves the utilisation of existing infrastructure, a more detailed assessment (beyond what was specified for the pre-feasibility stage) should be undertaken of the physical condition and the remaining expected useful life of the existing infrastructure. This should be considered in the cost estimates.
- Optimise the pipeline material and wall thickness, considering both internal pressures and external loads, and optimising the pipe/backfill system based on the actual soil material characteristics. The PSP shall also analyse alternative booster pump station locations along the pipeline route in order to minimize the total URV.
- Selection of pipe material based on soil resistivity results and electrical conductivity.

- Determination of applicable corrosion protection measures, including coating, lining and cathodic protection, if required.
- Undertake all necessary hydraulic and transient analyses on the pump/pipeline system and make provision for surge protection. Optimise the pipeline/pump station system in view of optimal balance between pipeline pressure and the number of booster pump stations. Consider the effects of the new system on the pressure rating of existing incorporated infrastructure. Undertake a preliminary optimisation of air, scour, isolation and control valve positions and sizing.
- Undertake preliminary optimisation analyses to determine pump type selection, motor start-up and power supply requirements as well as the control mechanism of the entire system.
- Consider operational and maintenance requirements, flexibility or risks related to replacement, upgrading or refurbishment needs and practical operational considerations.
- Assess the potential for hydropower schemes along the pipeline route and provide conceptual designs.
- Assess all civil, electrical and mechanical infrastructure components.
- Assess and report on how the proposed scheme, where applicable, will be integrated into and operated within the existing bulk water supply system serving the Greater Bloemfontein Area.
- Assess and optimise opportunities for phased implementation of the infrastructure (including water treatment plant capacity, pump stations and reservoirs).
- Determine the impacts of all proposed infrastructure on existing and proposed infrastructure and services in the area, such as roads, telecommunications, electricity. Consider and allow in costing for the necessary mitigating measures, such as alternative construction methods, pipe jacking, tunnelling, directional drilling, etc.
- Evaluate the water quality from the source and determine the optimal type of treatment required to meet potable water standards (the costs for water quality testing to be included as a Provisional Sum). Also consider integration with existing water treatment plants, where applicable.
- Make provision, size and provide cost estimates for all supporting infrastructure and temporary works, such as access roads, fencing, preliminary works, water supply for construction, temporary accommodation, power supply, roads, railway and river crossings, land acquisition, relocation of infrastructure and households, environmental mitigation measures, etc.
- Produce preliminary design drawings for the bulk pipeline, which as a minimum should include:
  - A layout plan for the entire proposed route to an appropriate scale, showing cadastral boundaries, all known existing infrastructure in the vicinity, contours, rivers, offtakes and connection points, etc.
  - A longitudinal section for the entire proposed route to an appropriate scale, showing hydraulic profile, design flow rates, pipe specifications, pressure rating, position of valves, crossings, etc.

- Typical cross sections at critical positions, showing excavation and backfill specifications, cadastral boundaries, servitude boundaries, access roads, etc.
- Typical details for all types of manholes, pipe specials, cathodic protection, etc.
- Typical details for railway, road and river crossings and for main offtakes and connections to existing infrastructure
- Produce preliminary design drawings for the water treatment plant(s), which as a minimum should include:
  - A block flow diagram and process flow diagram (with mass balance)
  - A conceptual layout plan for process units, buildings, interconnecting pipework, electrical switchgear, power supply, transformers, roadworks, etc.
  - Typical cross sections and typical details;
  - General piping arrangements;
  - A preliminary equipment list and sizing;
  - A high-level control narrative;
  - A preliminary selection of the chemical dosing regime; and
  - A quantification of chemical dosing and storage requirements.
- Produce preliminary design drawings for the abstraction works at the Gariep Dam, which as a minimum should include:
  - A conceptual layout plan for all structures, sediment exclusion works, weirs (where applicable), layout of equipment, major inter-connecting pipework, electrical switchgear, power supply, transformers, access roadworks, etc.;
  - Typical cross sections and details;
  - General piping arrangements and details of connections to existing outlet (where applicable), flow measurement or gauging stations, etc.;
  - A high-level control narrative; and
- Produce preliminary design drawings for the pump stations, which as a minimum should include:
  - A conceptual layout plan for pump station building, layout of equipment, major inter-connecting pipework, electrical switchgear, power supply, transformers, roadworks;
  - Typical cross sections and details;
  - A preliminary pump, motor (including variable speed drives where applicable), electrical switchgear and surge protection equipment sizing;
  - General piping arrangements;
  - A high-level control narrative; and
- Produce preliminary design drawings for reservoirs, which as a minimum should include:
  - A site plan and layout plan of the structure to appropriate scale, showing cadastral boundaries, all known existing infrastructure in the vicinity, contours, pipeline connection points, etc.;
  - General piping arrangements;
  - Typical cross sections and details of main elements; and
  - Typical reinforcement details.

**All sub-tasks, as proposed by the PSP (based on the ToR), must be clearly defined in the methodology of the Technical Proposal and their individual prices provided in the Financial Proposal (including man-hours/days).**

#### 4.3.2 GEOTECHNICAL INVESTIGATIONS

This task entails obtaining detailed information on the foundation conditions at sites of civil infrastructure works (pipelines, pump stations, reservoirs, water treatment plants, road and river crossings, quarries, borrow pits, etc.) to facilitate feasibility level investigation of the preferred option. This shall be achieved by focussing initially on shallow excavations such as trial pits and Dynamic Cone Penetration (DCP) tests. Rotary core drilling is likely to be required at river crossings, deep foundations (such as pump stations, water treatment plants, reservoirs, etc.), and possible pipe-jacking or directional drilling applications. Materials testing at an approved laboratory will also be required for the investigations described below. Soil resistivity tests are also required.

**The PSP shall price only for the professional time** of the professional team members who will be responsible for the procurement of a reputable geotechnical contractor (preparation of specifications and bid documentation, follow due process to obtain offers, adjudicate offers and prepare recommendations for approval by DWS, etc.), for the management of the contractor and supervision of the investigations, reporting on the findings of these investigations and integration into the feasibility planning process and for management of payments to contractor. Wayleaves for trial pits must be obtained before any excavation can commence. Provision for an **Environmental Control Officer (ECO)** must be made by the contractor as part of the Provisional Sums.

A Provisional Sum has been allowed for a sub-contractor, as specified in **Section 6.3.2** and shall be included in the Financial Proposal by all bidders to cover the cost of physical geotechnical investigations by the sub-contractor.

Shallow trial pit investigations will be required to assess the nature and condition of the sub-soils with a view to:

- Establish the elasticity modulus based on grading and Atterberg limits determined for the materials.
- Determine the founding conditions for the construction of the pipelines and structures.
- Determine the suitability of sub-soils for use as bedding and backfill materials for the pipelines, access roads, and general fill.
- Assess the ease of excavation including the presence of boulders or rock.

Based on the above, the trial pit investigation would include:

- Mechanical excavation of trial pits to the invert level of pipelines and shallow foundations (or to refusal).
- Profiling (including recording of water levels) and photographing of trial pits.
- Obtaining representative, disturbed bulk samples of the different soil types for laboratory testing.
- Laboratory testing at an approved laboratory comprising foundation indicators for structures and pipelines, in accordance with ASTM 422 (grading and Atterberg limits).

The location of trial pits shall be jointly agreed on site to reduce impact on environmentally sensitive areas and make optimum use of existing servitudes. Trial pit profiling shall be done in accordance with: Jennings, J.E., Brink, A.B.A. & Williams, A.A.B. “Revised Guide to Soil Profiling for Civil Engineering Purposes in Southern Africa”, die Siviele Ingenieur in Suid Africa, SAICE, Johannesburg, 1973, pp 3-12.

The assessment of in-situ densities through conducting DCP tests adjacent to trial pit positions will be conducted to potential depths of pipeline inverts, or to refusal, whichever comes first. The conducting of **Super Heavy DCP** tests should be allowed for to supplement the rotary core drilling, and minimize the extent of drilling required. The DCP results shall be reported showing penetration rates with depth, equivalent SPT “N” values, approximate CBRs and estimated allowable safe bearing pressures (EASBPs).

A report on the geotechnical investigations shall be produced by a registered geotechnical engineer or engineering geologist. The exact scope of the geotechnical investigation will be developed by the PSP. A minimum of three quotations for the appointment of a geotechnical contractor will be obtained by the PSP.

#### **4.3.3 TOPOGRAPHICAL SURVEY AND SERVITUDE ASSESSMENTS**

The extent of available survey information shall be established by the PSP. The existing and new information to be acquired, shall be of an accuracy suitable to support the future detailed design of the scheme.

**The PSP shall price only for the professional time** of the professional team members who will be responsible for the procurement of a reputable survey contractor (preparation of specifications and bid documentation, follow due process to obtain offers, adjudicate offers and prepare recommendations for approval by DWS, etc.), for the management of the contractor and supervision of the investigations, for reporting on the results and integration into the feasibility planning process and for the management of payments to the contractor.

A Provisional Sum has been allowed for a survey sub-contractor, as specified in **Section 6.3.2** and shall be included in the Financial Proposal by all bidders to cover the cost of topographical surveys and the servitude assessment.

The required supplementary survey would broadly entail undertaking detailed

topographical surveys for the supply pipeline routes and areas where the associated infrastructure is to be located. The survey should allow for a 50 m corridor on either side of the pipeline centreline. The topographical survey shall capture specific site features and existing infrastructure within the proposed corridor at a suitable scale. This task will include:

- Preparation of aerial photography and detailed topographical mapping (0.5 m contours) from airborne LiDAR surveys for the entire pipeline route, infrastructure sites, quarries and borrow pits.
- Ground proofing.
- Topographical surveys of the existing infrastructure that intersect new infrastructure including existing roads, overhead power lines, underground pipelines, power lines, telecommunication cables, etc.
- Capture pertinent topographical survey information where new infrastructure connects to existing infrastructure.
- Include cadastral boundaries on layout plans.

This task shall also allow for **land and servitude assessment requirements** to be determined for the feasibility level investigation of the preferred scheme. This would *inter-alia* include:

- Pipeline and access road servitudes;
- Intake works;
- Storage reservoirs;
- Pump stations;
- Water treatment plants;
- Power supply infrastructure servitudes; and
- Other structures required for the scheme.

The ownership of the land required for each option, including servitudes, needs to be determined, namely:

- Private land, which is to be acquired at market value, including betterments and financial losses due to the acquisition; and
- State-owned land, which is to be managed or utilised by government departments, municipalities, traditional leaders or other authority. Compensation is applicable for the relocation of infrastructure and people on this land.

A cost estimate for land acquisition and servitude registration shall be determined for the recommended options based on land ownership, betterments, relocation of affected communities and infrastructure, and land utilisation. The estimated cost for the relocation of roads and power lines shall also be determined and reported under a separate item.

#### **4.3.4 POWER SUPPLY**

Options for the provision of sustainable electricity supply shall be determined

(including bulk supply lines, routes and sub stations). These options should be based on a total power requirement including the abstraction, conveyance and treatment. As part of this analysis the PSP must, amongst others:

- Investigate supply from existing electrical networks;
- Investigate the possibility of supply from alternative energy sources;
- Determine the acceptability and sufficiency of the power resource;
- Determine capital cost of power transmission to the site and the expected schedule of supply; and
- Establish the requirements for electrical servitudes and undertake a full economic analysis of all viable options such that a recommendation can be made to the Client.

#### **4.3.5 CONSTRUCTION AND SITE ACCESS**

The site establishment and site access requirements shall be considered and shall include:

- Requirement for the construction of temporary and permanent access roads;
- The preferred access for light and heavy-duty construction traffic and equipment; and
- Location of potential construction site camps, workshops and materials holding yards, temporary water supply for construction, etc.

The recommended footprint for construction and access roads must be considered in the EIA.

#### **4.3.6 OPERATION AND MAINTENANCE**

Operation and maintenance (O&M) requirements for the pipeline and associated infrastructure shall be investigated and the recommended optimal arrangement should be priced for inclusion in the economic models. This should include:

- Details of the operational staff requirement;
- Determination of the optimal operating philosophy of the water supply systems to ensure complete integration into the existing potable water supply system;
- Electrical quantities and costs for abstraction, conveyance and treatment;
- Costs for chemicals;
- Operational requirements for the abstraction works, taking into account the current Gariep Dam operating rules;
- Requirement for maintenance of civil, mechanical and electrical components of the abstraction, pipeline, supply infrastructure, treatment works and power supply infrastructure, as well as the associated cost for the same.
- Reasonable estimates should be made to allow for periodic refurbishment of electrical and mechanical works, depending on the state of existing and proposed infrastructure for the entire economic evaluation horizon.
- Estimate all running costs, including costs for chemicals and power.

#### **4.3.7 COST ESTIMATES AND ECONOMIC ANALYSIS**

The objective of this task is to estimate accurately all costs for the selected development option and to determine an investment cashflow and implementation programme for the scheme. The costs should include, but shall not be limited to the following:

- Capital costs for implementation, including all phases in the case of phased development, and including the costs to replace existing infrastructure for the case where remaining useful life expires during project economic life.
- The above costs should include all and every cost for the implementation of the project, including but not limited to: site establishment, all supporting infrastructure and temporary works, such as access roads, fencing, preliminary works, water supply for construction, temporary accommodation, power supply, roads, railway and river crossings, land acquisition, relocation of infrastructure and households, environmental mitigation measures, finance costs, engineering fees for design and construction supervision, contingency and miscellaneous items, etc.
- Costs for implementation of Environmental Management Plans.
- Operation and maintenance costs and refurbishment costs for all proposed phases.
- Residual value of infrastructure at the end of project economic life, considering the current state of existing infrastructure, its remaining useful life, and refurbishment as applicable.
- All costs shall include VAT, where applicable.

The following minimum requirements for the costing methodology should be applied. If necessary, the methodology may be refined in consultation with the Client during the study:

- Costing for all major elements will be developed from first principles, including direct and indirect costs.
- Detailed schedules of the main quantities shall be compiled from preliminary design drawings for the pipeline and associated works as described in previous sections.
- Approved schedules and cost models (such as the VAPS models) may be used for minor associated infrastructure.
- Reasonable allowance for contingencies and miscellaneous items can be made as practical and in terms of acceptable industry norms.
- The approved schedules and models should then be priced using recent, and where necessary escalated actual construction rates for similar projects in the region or in the country (with the necessary adjustments for the region).
- All costs and benefits should be at present day value for the year of assessment.

The PSP should develop an implementation programme for the project. This should include all major activities including time for decisions, procurement of design consultants and contractors, design, land acquisition (including mining rights) and construction, including provision for phased development. The program will be used for timing of the present-day costs, needed for the economic models.

The economic analysis undertaken includes cost-benefit analysis - determination of cost effectiveness ratios such as unit reference values (URVs), net present value (NPV), and internal rate of return (IRR), among others. The appropriate economic evaluation indices for this particular project will be confirmed with the Department of Water and Sanitation, National Treasury and other stakeholders during the inception phase. The National Treasury economic evaluation guidelines for infrastructure projects must be consulted and applied. An options analysis is critical for the comparative analysis of the different project options investigated.

#### **4.3.8 SOCIO-ECONOMIC IMPACT ASSESSMENT**

The impacts and benefits of the project development on the regional economics should be evaluated. From an economic perspective, the following should be undertaken as a minimum:

- Assess demographics in the Greater Bloemfontein Water Supply Area including surrounding smaller towns.
- Assess the current economic base and activities including existing unemployment rate.
- Describe the current infrastructure and services.
- Identify and describe the socio-economic impacts associated with the preferred scheme.
- Estimation of water tariffs and affordability assessment.
- Develop quantifiable measures and qualitative indicators to be used to objectively evaluate socio-economic impacts.

- Assess the economic impact of the scheme on the Greater Bloemfontein Water Supply Area including surrounding smaller towns affected by the preferred scheme, during the construction phase as well as the operational phase.
- Assess the contributions to gross domestic product (GDP), gross geographic product (GGP) and other economic performance measures.
- Assessment of employment opportunities, household income and contribution to the primary and secondary economies (direct, indirect and induced impacts).
- Undertake economic cost-benefit analyses.
- Develop a Socio-Economic Impact Assessment Report.

#### **4.3.9 LEGAL, INSTITUTIONAL AND FINANCING ARRANGEMENTS**

The appointed PSP should develop proposals for the necessary legal, institutional and financing arrangements for the project implementation, ownership and operation. The minimum requirements are as follows:

- Describe the relevant legislations which must be observed during the planning, implementation and operational phases and how these were addressed during the planning study;
- Describe the legal processes which will have to be invoked subsequent to project approval to achieve implementation;
- Consider and evaluate all possible options for institutional arrangements for project implementation, ownership and O&M of the new scheme, considering the legal framework, the existing arrangements, available facilities, resources, competences, access to funding, etc. Determine and recommend the optimal institutional arrangements in consultation with key stakeholders. Determine the additional human resources and facilities needed for O&M of the project.
- Consider and evaluate all possible options for funding of the project, including off-balance sheet finance. Assess options for Public Private Partnerships (PPPs) and possible interest of the private sector to raise finance. Describe the relevant financing/funding strategies and make recommendations.
- The opportunities for phasing of infrastructure components shall be identified and the marginal benefit determined for each phase.
- Estimate the financial costs for funding and servicing loans, including interest charges where applicable. Provide a projected cash flow schedule for the entire project life (life cycle costing);
- Develop the Legal, Institutional and Financing Arrangements Report.

#### **4.3.10 RECORD OF IMPLEMENTATION DECISIONS (RID)**

The appointed PSP, in consultation with DWS shall develop a Record of Implementation Decisions (RID) report, which describes at appropriate level of detail needed by the implementing authority, what needs to be done, when and how, so that the project is implemented in the shortest possible time and at least cost. A template for the format of the RID will be provided by DWS to provide the required guidance. The RID report should include the following:

- The scope of the Project;
- A summary of the feasibility investigation and design;
- Specific configuration of the scheme to be implemented, including sizes and technical specifications;
- Expected implementation timelines;
- Recommended institutional arrangements;
- Recommended funding and financial arrangements;
- A summary of the outcome of the Environmental Impact Assessment (EIA) and summary of the Draft Environmental Management Programme, including the Environmental Management Plan for borrow pits and quarry;
- Environmental authorisation and conditions prescribed by the Department of Forestry Fisheries and the Environment.
- Authorisations of the project by the relevant Authorities
- A detailed implementation programme showing key milestones and decisions required for the implementation.
- Draft terms of reference for detailed design, documentation and contract administration, including selected drawings, schedules and programme.

#### **4.3.11 STAKEHOLDER PARTICIPATION**

Many stakeholders at local, provincial and national level have a direct interest in the planning, implementation and operation of the proposed new infrastructure feeding the Greater Bloemfontein Water Supply Area. The project team should liaise closely with key stakeholders throughout and allow opportunities for a broader group of stakeholders to be engaged with respect to the progress and findings of the study. The Technical Proposal must describe the proposed stakeholder engagement during the study.

## **4.4 PHASE 4: ENVIRONMENTAL IMPACT ASSESSMENT, AUTHORISATION, WATER USE LICENSE AND OTHER APPROVALS**

### **4.4.1 APPLICABLE LEGISLATION**

The applicable legislation to the EIA stage for this study includes, but is not limited to the following:

- National Environmental Management Act (No. 107 of 1998, as amended);
- National Environmental Management: Waste Act (No. 59 of 2008, as amended);
- National Environmental Management: Biodiversity Act (No. 10 of 2004, as amended);
- Mineral and Petroleum Resources Development Act (No. 28 of 2002, as amended);
- National Water Act (No. 36 of 1998, as amended);
- National Forests Act (No. 84 of 1998, as amended); and
- National Heritage Resources Act (No. 25 of 1999, as amended) (NHRA).

### **4.4.2 ENVIRONMENTAL SCREENING**

It will be required from the PSP for the purposes of this task to undertake a

comprehensive environmental screening of the proposed development options, conveyance routes, main infrastructure components, advance infrastructure, bulk water distribution infrastructure and any other related elements. The environmental screening will commence during the Pre-Feasibility Stage. It should be noted that an environmental screening, a full EIA report and environmental authorisation are available for the direct pipeline option identified by MMM (2018).

The environmental screening aims at identifying and investigating any fatal flaws and negative impacts at an early stage to guide the choice and scheme configuration for the preferred water conveyance scheme and to pave the way for the more detailed EIA process, which will be initiated later, during the Feasibility Study stage. The environmental screening will also define the scope of work required for the EIA.

The screening output will provide input in the development of the Environmental Action Plan (EAPI) for the EIA process. The environmental screening work undertaken by the appointed PSP will have to ensure that there is a smooth transition of relevant information needed by the Environmental Assessment Practitioner (EAP) for the EIA as well as fast tracking of the EIA process.

**DELIVERABLES:** An Environmental Screening Report that satisfies the requirements of the applicable legislations and all relevant authorities. All requisite applications for applicable licences needed for planning investigations during the pre-feasibility and feasibility stages of the study must be prepared, submitted to the relevant authorities, and approvals obtained.

#### **4.4.3 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT**

In terms of Section 24 of the National Environmental Management Act, 1998 (Act No.107 of 1998 as amended) (NEMA), the proposed infrastructure will require environmental authorisation. Therefore, the environmental process must fulfil the requirements of all relevant legislations quoted above.

The PSP shall be required to undertake all tasks needed for the completion of the EIA report and follow all prescribed processes until authorisation is obtained and all applicable licenses are issued by the relevant authorities. Previous studies that have been undertaken will be made available and the PSP should utilise all available information without repeating work already undertaken in the past. The required tasks shall include, but shall not be limited to the following main activities:

- Site visits during scoping and EIA stages;
- Scoping report and plan of study for EIA;
- EIA Report and Environmental Management Programme (EMP);
- Public participation activities to the extent required by legislation in the circumstances;
- Attend to queries from authorities and the public and follow all due processes until the environmental authorisation and licenses are obtained.

- The additional specialist studies that may be required as part of this EIA process would include, but are not limited to the following: Agriculture, Aquatic, Botanical, Heritage, and Social.

The bidders should study the available information and should indicate in their tenders all specialist studies that will be required.

The need to ensure continuity for Interested and Affected Parties (I&APs) between the Pre-Feasibility Phase, Feasibility Phase and the EIA process should be noted. Therefore, the I&AP database developed in the initial phase of the project will be extended to ensure that all registered parties are informed about the EIA process. An appropriate comprehensive public participation process must be undertaken in accordance with the legislative requirements and should be outlined in the technical proposals submitted by bidders and priced in the financial proposals. The public participation process should include notification of the environmental authorisation.

**DELIVERABLES:** An Environmental and Social Impact Assessment Report produced in a manner that satisfies the requirements of the applicable legislation and all relevant authorities, including all records of the public participation process.

#### 4.4.4 Assist with Appeals

The PSP will remain involved until final project authorization has been obtained from the Department of Forestry Fisheries and the Environment (DFFE). As such, it is required that the PSP provides a support service to DWS in handling all comments received and appeals lodged with DFFE against the project. This implies that the PSP will have to perform all administrative and other tasks, such as setting up meetings with DFFE, meetings with appellant parties and to assist with responses, etc. This task will require close collaboration with DWS at all times on all issues. Allowance for 6 months has been made in the program for this.

To cover the cost of possible appeals, a Provisional Sum has been allowed in Section 6.3.2 and must be included in the bidders' financial proposals.

#### 4.4.5 WATER USE LICENCES

The PSP must compile the information necessary for submitting applications for the Water Use Licences (WUL) that will be required in terms of Section 21 of the National Water Act, Act 36 of 1998 (NWA) before implementation of any development activities can commence. It is expected that Water Use Licence applications will have to be made in terms of Sections 21 (a), (b), (c) and (i) but the PSP must confirm whether applications in terms of the other sub-sections of the NWA are also required.

**DELIVERABLES:** All requisite WUL applications for applicable licences should be prepared, submitted to all relevant authorities and approval obtained (in the name of DWS).

#### 4.4.6 OTHER APPROVALS

Advanced consultations should be held with the relevant authorities and owners of reserves and land, to establish their wayleave requirements and whether or not installation of infrastructure within or along road reserves will be allowed, and on what conditions. The methods and conditions for road and river crossings and registration of servitudes should also be confirmed with the relevant authorities. Consultations with a representative group of affected private landowners should also be held. Provision for meeting the conditions should be made in costing.

Suitable quarries and borrow areas that will be utilised for construction must also be identified during the feasibility phase. In accordance with the requirements of the Minerals and Petroleum Resources Development Act, Act 28 of 2002 (M&PRDA), all mining activities, including the extraction of material from borrow pits and quarries that are greater than 5 ha in size, require authorisation from the Department of Mineral Resources. This permit application process would require the following:

- An application form and fee for the permit application;
- An EMP that must describe the surrounding environment, assess the potential impacts of the proposed prospecting or mining operation on the environment, socio-economic conditions and cultural heritage, as well as proposed suitable mitigation measures for closure and rehabilitation; and
- A survey and site mine plan of suitable quarries and borrow areas.

Depending on the size and location of the quarries and borrow areas, approval may also be required in terms of NEMA and the NHRA. A proposed programme for the required processes and time allowed for decision-making by authorities must be provided in the proposals, including key milestones and deliverables.

At this stage it will not be required to obtain wayleaves for the installation of pipelines and infrastructure and to register servitudes. However, the PSP shall carry out consultations with the relevant authorities and owners of reserves and land, to establish their wayleave requirements in respect to environmental and social matters. Consultations with a representative group of affected private landowners should also be held.

**DELIVERABLES:** All requisite applications for applicable licences should be prepared, submitted to all relevant authorities and approvals obtained.

#### 4.4.7 PROVISION OF INFORMATION FOR THE DWS WEBSITE

It will be necessary to provide information to the DWS web service manager to develop, update and maintain the DWS-Project website that will be used for dissemination of information during the study period. The following information must be published:

- Notices of all public meetings;
- Minutes of all public meetings, including any presentations, etc;
- Scanned versions of newspaper advertisements in terms of GNR 543;

- Scanned versions of notices in the Government Gazette whereby the Minister of Water and Sanitation invites comment on the project in terms of section 110(1)(b) of the National Water Act, 1998 (Act 36 of 1998)
- Approved Scoping Report;
- Approved EMP,
- Approved Environmental Impact Report and presentations, and
- A copy of the Environmental Authorisation (EA) for the project issued by DFFE.

## 4.5 SKILLS TRANSFER, CAPACITY BUILDING AND TRAINING

### 4.5.1 PURPOSE

The basic objective of this task is to impart and transfer skills to the project stakeholders with a goal of increasing the skills base in undertaking similar tasks as covered in this project. The stakeholders shall include but not limited to regional and national employees of DWS as well as other relevant government departments.

The PSP shall ensure maximum possible involvement of Historically Disadvantaged Individuals (HDIs). The PSP shall endeavour to strengthen the institutional capability of DWS through a well-structured and goal-oriented capacity building strategy. This shall be achieved through conducting accredited courses relevant to this study in consultation with the Client.

### 4.5.2 METHODOLOGY

The PSP shall transfer skills to DWS employees and other relevant government departments. Capacity building shall be realized through the following mechanisms, namely:

- Involvement and participation of local specialists, and stakeholders (e.g. Local Authority, Environmental Groups, Gender Groups, Farmer Association etc.). These groups shall also benefit through enhancement of their understanding of the concepts of integrated water resource management and sustainable development;
- Active participation of DWS workforce, regional and national, shall ensure sharing of ideas and contribution to the broadening of the skills base;
- The PSP is required to identify and include HDIs and/or individuals from less experienced companies in their teams in order to train and build capacity by maximizing their involvement in the project;
- The PSP shall develop a capacity building programme as part of the final inception report. This programme should include specific quantifiable measures to ensure capacity building takes place throughout the project; and
- Suitably qualified and experienced HDIs shall be prioritized in the appointment of sub-consultants as well as other service providers for this study, with special emphasis on the HDIs within the project locality.

#### 4.5.3 DELIVERABLES

A detailed Skills Transfer and Capacity Building Report including a detailed description and related figures / matrix demonstrating compliance with the task requirements shall be developed and implemented as part of this study. A performance monitoring matrix for the interventions undertaken shall also be included.

**Bidders shall make provision in their Financial Proposal for two (2) DWS Staff / interns to be seconded for a period of six (6) months each, as well as for the preparation and presentation of two (2) one-day CPD accredited courses/workshops on any key aspects covered under this study. This includes preparation of training material, travelling and presentation in Pretoria, and accreditation of the training workshop(s) for CPD.**

#### 4.6 LEVEL AND ACCURACY OF INVESTIGATIONS AND STUDIES

The Feasibility Study should lead seamlessly and directly to design and implementation activities, without the need to reconsider at a later stage the feasibility of the project and its key elements, such as the conveyance routes and position of major infrastructure. Consequently, the level of detail of investigations and confidence in the results should be appropriate to:

- Identify and resolve, with sufficient confidence, all the technical, social, environmental, legal, institutional, and financing issues likely to affect the viability of implementation.
- Provide an estimate of costs with sufficient accuracy and reliability to ensure that management decisions can be made with confidence.
- Ensure that the selected pipeline route and location of major infrastructure are reasonably acceptable to the relevant owners of land, as to require only minor further adjustments during the design stage and not a complete realignment of the entire route.
- The size of the scheme, including proposed phased implementation is determined with such confidence as to require only minor further adjustment based on detailed optimisation during the design stage.

#### 4.7 KEY DELIVERABLES FROM THE STUDY

During the course of the study, draft reports will be prepared for each of the study elements and will be subjected to review by the Study Management Committee. The Main Report (summary report) will form the final document of the study and will be supported by several supporting reports on specific topics. Reports for review must be comprehensively presented with technical information, drawings, conclusions and recommendations in order to allow the reviewers to effectively assess and comment on any proposals or information.

The following list is a guide for the minimum number of study reports to be produced by the PSP. Not all supporting reports are listed. The proposed list for the suite of reports will be discussed and approved during the Inception Phase of the study.

- Inception Report (Phase 1);
- Pre-Feasibility Study Report together with supporting reports as required on at least water requirements, water resources and system analyses, costing, economic analyses and evaluation of alternative development options (Phase 2);
- Technical Feasibility Study Report for the preferred scheme together with a suite of supporting reports as required (Phase 3);
- Geological and Materials Investigations (Phase 3);
- Topographical Survey and Mapping (Phase 3);
- Feasibility Design Report for the selected option together with book of drawings, priced schedules of quantities and supporting infrastructure report (Phase 3);
- Socio-Economic Impact Assessment Report (Phase 3);
- Legal, Institutional and Financing Arrangements (Phase 3);
- Land Matters (Phase 3);
- Draft notice to construct a Government Water Works required in terms of Section 109 and Section 110 of the NWA (Phase 3);
- Record of Implementation Decisions Report (Phase 3);
- Terms of Reference for design, documentation and contract administration (Phase 3);
- Environmental Scoping Report (Phase 4);
- Public Participation Report (Phase 4);
- EIA Report together with specialist study reports (Phase 4);
- WUL and other licence applications required for construction of infrastructure (Phase 4);
- Feasibility Study Summary Report (covering all the above information at the end of study);
- Various administrative reports (all phases); and
- Study Close-out Report (at the end of study).

The PSP shall submit soft copies and three (3) hard copies of each draft report for review. Draft reports should include all information aimed for inclusion in the final reports.

Upon completion of each phase of the study, or after the finalisation and sign-off of each report as directed by the Client, the PSP shall submit five (5) bound hard copies and one (1) unbound hard copy of each signed-off report together with the complete electronic version of each report. Upon completion of the study the PSP shall submit five (5) copies of the entire suite of reports in electronic format on hard drives. The electronic version of each report shall be provided in two folders. The first folder should contain the entire report (identical to the hard copy) in a single pdf file, including the signed signature page and all attachments. The second folder shall contain the entire content of the report with each attachment in its native electronic format. Each file should be appropriately named and numbered and stored in the order as it is used in the report.

<b>Ten percent (10%) of the total contract amount will be retained and will be</b>
--

**paid after the delivery of all reports in the specified format and after their approval by the Client.**

#### 4.8 CAPABILITIES OF BIDDING COMPANY AND KEY EXPERTS TEAM

The requirements for the competence, capability, qualifications and prior experience of the bidding company and the required key expert team are specified in **Section 6.2** and **Annexures A and B**.

#### 4.9 STUDY PROGRAMME

**Table 4.1: Proposed Preliminary Study Programme**

Study Stage	Duration
Phase 1: Inception Stage	2 Months
Phase 2: Pre-Feasibility Stage	3 Months
Phase 3: Feasibility Stage	12 Months
Phase 4: EIA Stage (in parallel with Phase 2 and 3)	14 Months
Phase 4a: EIA Stage attend to appeals (if required)	2 Months
Total Study Duration	18 Months

The PSP shall build into its programme allowance for Client review and approval at each stage at a minimum of 2 weeks, but 4 weeks at the end of Phase 2.

### 5 STUDY MANAGEMENT

#### 5.1 STUDY MANAGEMENT, ADMINISTRATION AND COORDINATION

The Client for the study is DWS, Chief Directorate: National Water Resources Planning, Directorate: Water Resources Development Planning. DWS will be represented on the study by a nominated project manager.

DWS will set up a Study Management Committee (SMC), which will be responsible for the management of the study, issuing of instructions, approvals and provision of information on behalf of the Client. The SMC will comprise the PSP study leader, DWS Project Manager and other nominated members to be decided during the Inception Phase. From time to time, the SMC will be extended to include other PSP specialists and a broader range of stakeholders with interest and knowledge on the

topic at a particular meeting. This could include local municipalities, other government departments, agricultural body representatives, etc. The SMC will meet monthly either at the DWS or the PSP offices, alternating between Pretoria and Bloemfontein (BFT) or online.

A Project Steering Committee (PSC) will also be established. It will meet biannually in Bloemfontein or online. The PSC will include representatives from:

- DWS National and DWS Regional office (Free State office);
- Mangaung Metropolitan Municipality;
- Bloem Water;
- National Treasury;
- Other regional and national government departments; and
- Other representatives as decided by DWS.

The PSP shall provide secretarial and administrative services during the study in setting up and administering various committee meetings and workshops, as outlined in the table below, under the supervision of the DWS Project Manager. The PSP shall send out invitations for the meetings, prepare agendas, deliver presentations, report on progress, compile and distribute handouts and documents and produce accurate meeting minutes within 4 days after each meeting.

The PSP shall also prepare and deliver presentations to DWS management at key milestones during the study. The PSP shall make provision for setting up, provision of venues and refreshments (where required for selected public meetings with up to 30 participants), facilitating and administering certain public and government liaison meetings if and when required. These are in addition to the public and liaison meetings forming part of the public participation program (Phase 4) or the technical tasks for which the PSP must allow separately in its proposals.

The PSP should make provision for the formal meetings specified in the following table but should also plan for other ad hoc meetings that may be required. All other meetings held in Bloemfontein or online as the case may be, shall be arranged for dates coinciding with the SMC meetings.

**Table 5.1: Formal Study Management Meetings to be priced by the PSP**

Meeting type	No. Estimated	Place
Contract negotiation and inception	2	Pretoria
Study Management Committee (SMC): Monthly	18	50% each Pretoria and BFT or online
Project Steering Committee (PSC) and/or Stakeholder meetings	4	BFT or online
Presentation to DWS management	4	Pretoria or online

Public meetings with stakeholders	4	Study area
Liaison with role players (municipalities, other government departments)	6	Study area

In addition to the administrative requirements set out above, the PSP shall be responsible for the following:

- Submission of brief monthly progress reports in an agreed format.
- Administrative reports: status reports, work plans, regular updates of study program, cash flow projections, etc.
- The PSP shall maintain at all times an accurate Decisions Register and Record of Liaison in a format to be agreed during the Inception Phase.

#### 5.1.1 LIAISON WITH ROLE PLAYERS

The PSP will be responsible for arranging liaison meetings with role players which may or may not be attended by the DWS Project Manager and the Free State Regional Office. Typical third parties would be:

- Local Municipalities;
- District Municipalities;
- Bloem Water;
- Mangaung Metropolitan Municipality; and
- Members of the Bloemfontein Reconciliation Strategy Steering Committee.

#### 5.1.2 QUALITY CONTROL AND QUALITY ASSURANCE OF DELIVERABLES

The PSP Study Leader will be responsible for the comprehensive internal review of all reports (draft and final) before submission to DWS. The Study Leader shall ensure that all reports are produced in the format required by the DWS and conform to the template that will be provided at the start of this Study. The PSP's accredited Quality Management System (QMS) compliant with ISO 9001 shall be used for this purpose and the relevant QMS forms shall be submitted with the reports. Quality control of reports includes ensuring that the language use and grammar are of a high standard, that reports contain accurate, correct, and complete information as required and specified. Any reports that display absence of proper internal review and scrutiny by the Study Leader will be rejected without further consideration.

#### 5.1.3 EXTERNAL SPECIALIST REVIEWERS

Provision has been made for DWS to appoint external specialist reviewers, as required, to review the technical content of selected specialist reports. An independent environmental specialist may be appointed to review the outcomes and recommendations of the EIA process.

The Provisional Sums for the above activities specified in **Section 6.3.2** shall be included in the Financial Proposal by all bidders to cover these costs. The bidders must make provision in their financial proposals for assisting DWS with the

procurement (specifications, evaluation of quotations and recommendations) of the services of the Specialist Reviewers and for management of payments to them through the PSP contract.

#### 5.1.4 FINANCIAL MANAGEMENT

The PSP Study Leader shall ensure that DWS is invoiced as specified and that invoices are supported by all the necessary documentation required by DWS. It is the responsibility of the PSP to ascertain DWS requirements at the onset of the study. It is important that a progress report, including evidence of deliverables invoiced for is submitted with each invoice.

**Remuneration for any invoiced work will be based on actual deliverables as approved by the Client, and not on time and cost.**

## 5.2 CLIENT - CONSULTANT RELATIONSHIP AND VARIATIONS

A close working relationship between DWS and the PSP must be maintained during the execution of the study. The consultant which DWS may appoint to assist with the reviews or management of the study, shall also work closely with the PSP. The PSP Study Leader shall ensure that the work undertaken complies with the scope of work described in the ToR as may be amended by the subsequent Inception Report.

The PSP Study Leader shall ensure that his/her team members regularly report back to him/her on progress made and on any findings. The Study Leader shall convey such information without any delay to the DWS Project Manager. The DWS reserves the right to suspend the work if the above is not adhered to.

**If in the opinion of the PSP there is a need to undertake additional work not covered in the agreement, the PSP shall immediately inform DWS. Such work shall not commence until the proposed variation has been approved in writing and issued by the DWS.**

## 6 CONTENT OF BIDDING DOCUMENTATION

Bidders are required to submit, at their own cost, the bidding documents listed below. More detailed information and a list of returnable documents is available in other parts of this ToR.

- A set of **standard bidding documents** which shall be completed in full and signed by the authorised signatory;
- A **Technical Proposal** showing the ability of the PSP to perform all aspects of the work described in the ToR; and
- A **Financial Proposal** providing the cost offer for performing the work described in the Technical Proposal and the ToR for this study (sealed in a separate envelope).

Bidders should submit comprehensive Technical and Financial Proposals, as this Study will be managed to avoid variation orders as far as possible. Bidders who submit bids that show that they do not understand the scope of work and who do not supply comprehensive proposals will be evaluated accordingly.

## 6.1 STANDARD BIDDING DOCUMENTS

All Standard Bidding Document (SBD) forms contained in this Bid document must be completed in full, signed by the authorised signatory and submitted as the first pages of the Technical Proposal, except SBD 3.3, which must be submitted in the Financial Proposal. The SBD forms include the following documents:

- SBD 1: Invitation to bid;
- SBD 4: Bidder's disclosure;
- SBD 3.3: Pricing schedule: Professional services - **must be included as the first page of the Financial Proposal document;**
- SBD 6.1: Preference Points Claim Form in terms of the Preferential Procurement Regulations 2017.

A contract may not be awarded to a bidder who has failed to submit an **Original / Certified Copy** Tax Clearance Certificate issued by the South African Revenue Service (SARS). Form SBD 2 can be used to apply to SARS for a Tax Clearance certificate.

Submission of all completed SBD forms is a requirement for evaluation of administrative compliance.

## 6.2 TECHNICAL PROPOSAL

The Technical Proposal shall be prepared in accordance with the guidelines specified in relevant sections of **Annexure A** and must address the following main aspects:

- Section 1: Capability of Bidding Company: Minimum requirements and relevant prior experience, which is similar to the scope of work for this study.
- Section 2: Methodology and proposed approach indicating the PSP's understanding of the scope of work and the expected deliverables for this study.
- Section 3: Capabilities of Key Experts: Minimum requirements for relevant qualifications, registration and past experience, which is similar to the particular scope assigned to each expert for this study.
- Section 4: Capacity building and training.

**A detailed Work Programme** in MS Project, broken down into specific tasks with time allocated for each task, must be submitted with the Technical Proposals. The critical path shall be indicated. The work programme must indicate all milestones and target dates for deliverables.

### 6.3 FINANCIAL PROPOSAL

The Financial Proposal is a stand-alone document that should provide comprehensive information on the cost offer to perform the work specified in the Technical Proposal and in the ToR. It should show the cost of deliverables, based on the allocation of resources to the various tasks, sub-tasks and other activities required for the Study. The anticipated cashflow over the contract period is also required.

**Each Task shall be priced separately in the schedules as specified in Annexure C.2.**

**All tasks and costs without exception (including the general tasks, such as meetings, study management, training and capacity building, etc.) should be listed and allocated under the relevant Phase. No separate activities shall be provided beyond a Phase.**

**The summaries for each Task and each Phase shall be carried forward and recorded as specified in Annexures C.**

**The specified Provisional Sums (without change) shall be brought into the Financial Proposals in Annexure C under the relevant Phase.**

A variation order for an increase of the original contract amount shall only be considered in exceptional circumstances, such as additional work that was not reasonably foreseen and cannot be accommodated in the approved study budget through re-allocation of funds. It is therefore expected that the PSP shall make provision in the Financial Proposal for all foreseen costs and expenses to undertake and complete the tasks described in the ToR, and others which in the opinion of the bidder may have been omitted in the ToR. Such additional tasks should be clearly marked in the proposals.

#### 6.3.1 COST OF DELIVERABLES

**The cost of deliverables must be defined in the Financial Proposal because it is the intention to manage this Study and pay for services rendered based on achieved deliverables and not on time and cost basis.** The man-hours, which also need to be provided, must therefore be linked to suitable deliverables that can be achieved on a regular basis to facilitate the required cashflow and payments to the PSP.

The cost of deliverables will form the basis of the **Study Budget** and shall include:

- Professional time-based costs and disbursements for each task;
- Sub-consultants whose costs will be recovered from Contract Amount;
- All Provisional Sums as listed below should be allocated per Task and Phase; and
- Value Added Tax (VAT) at 15% on the total estimated cost.

**This information shall be presented in schedules, in the format per examples provided in Annexures C. Annexure C.6 provides the summary of total study costs that should be carried forward to the Form of Tender.**

In addition, the bidders should provide the following:

- Cashflow and estimated total cost;
- Links to the proposed Work Program; and
- Provision for the usual annual escalation of rates must be added to the study cost.

### 6.3.2 PROVISIONAL SUMS

**NB: A Provisional Sum is money that is under the control of DWS, set aside and ring fenced for a specified task, which cannot be re-allocated by the PSP to other tasks without prior written approval from the DWS.**

Below is a list of Provisional Sums (for tasks that need to be undertaken by specialist sub-contractors) for use in this assignment, all of which should be included by the bidder in its Financial Proposal in the task and phase under which the work will be undertaken (see **Annexure C.6**).

- **R0.2 million** (excluding VAT): Water Quality Testing (use in Phase 3);
- **R1.0 million** (excluding VAT): External Technical Reviewers to review certain tasks/reports (refer to Section 5.1.3 above) (use 50% in Phase 2 and 50% in Phase 3);
- **R0.5 million** (excluding VAT): External EIA Reviewers (Section 5.1.3 above) (use 50% in Phase 2 and 50% in Phase 4);
- **R4.3 million** (excluding VAT): Geotechnical and materials investigations for infrastructure feasibility design (refer to Section 4.3.2 above) (use under Phase 3);
- **R3.0 million** (excluding VAT): Topographical surveys and servitude assessments for feasibility investigations of the identified and recommended option, and its alternatives (refer to Section 4.3.3 above) (use under Phase 3); and
- **R0.5 million** (excluding VAT): Assisting with appeals (refer to Section 4.4.4) (Phase 4).

The PSP shall submit a motivation, for DWS approval, specifying the scope of work envisaged for each specialised task listed above, before obtaining tenders/quotations from reputable sub-contractors and sub-consultants. The quotations, with a recommendation from the PSP, shall then be submitted to DWS for approval before the contractor/consultant is appointed.

The PSP shall only price for the professional time of their own professional team members who will be responsible for the procurement (where applicable) of the above services, arranging payments, supervision of the work of third parties, review of results on the same as well as reporting on the findings of these investigations, as specified under the relevant sections of the Scope of Work.

## 6.4 EVALUATION OF TECHNICAL AND FINANCIAL PROPOSALS

The Department of Water and Sanitation shall evaluate all proposals (bids) in terms of the below criteria. In accordance with the below, submissions are adjudicated on the 80/20 points system and the specified evaluation criteria. A four-stage evaluation system will be followed in evaluating the bids.

**6.4.1 STAGE 1: PRE-QUALIFICATION CRITERIA**

Only bidders that are BBBEE Level 1 or 2 status contributor will be considered for this bid.

NB: Bidders who do not qualify with the prequalification criteria will be disqualified and not considered for Stage 2.

**6.4.2 STAGE 2: MANDATORY AND ADMINISTRATIVE COMPLIANCE**

**PHASE 2A: MANDATORY COMPLIANCE REQUIREMENTS**

The following are the minimum mandatory compliance requirements to be met by the **Lead PSP Company** in order to qualify for further assessment. The documentation in brackets must be attached to the Introductory Section of the Technical Proposal. Failure to meet these requirements or to submit the specified documents will render the bid non-responsive and the bidder will be disqualified.

- ISO 9001 certified QMS for the office undertaking the work (attach certificate by an accredited certification agency).
- CV's for each of the 10 key expert positions specified under Section 3 of Annexure A must be attached to Section 3 of the Technical Proposal, and each key expert must meet the specified minimum requirements.

**PHASE 2B: ADMINISTRATIVE COMPLIANCE**

Bids will be assessed for the submission and completeness of the following documents:

No.	Criteria	Yes	No
1	Bidders must be registered with National Treasury's Central Supplier Database (CSD). Proof in the form of print-out from CSD is required.		
2	Tax compliance with SARS (verified through CSD and SARS).		
3	Bidders must complete, sign and submit forms SBD 1, SBD 3.2, SBD 4, SBD 6.1		
4	General Conditions of Contract (GCC)		

**6.4.3 STAGE 3: FUNCTIONALITY/TECHNICAL EVALUATION**

The technical evaluation of all responsive proposals will be undertaken based on the following criteria and allocated weighting, which are described in more detail in

**Annexure B:**

- Capability of Bidding Company: 20%;
- Methodology and proposed approach: 35%;
- Capability of Key Experts: 35%; and
- Capacity building and training: 10%;

Attaining the required minimum Functionality score qualifies the bidder to enter the last stage of evaluation, but it is not factored into the final score.

Only Proposals scoring at least **70% for functionality** will qualify for the third stage of adjudication. Bids that fall below the minimum threshold of 70% will be regarded as technically unacceptable and will not be considered in the third stage. The Financial Proposal will then not be opened.

**NB: To achieve the required qualifying score for Functionality, bidders must have relevant experience with similar studies and qualified resources to successfully undertake all components of the Study. Bidders can form joint ventures, or other associations, to ensure that they are capable in all aspects of this study.**

**6.4.4 STAGE 4: PRICE AND BBBEE STATUS LEVEL CONTRIBUTOR**

The Financial Proposal of bids that are administratively compliant and have attained 70% or higher for functionality are evaluated for price and BBBEE status. Points will be awarded for price (pro rata basis) and the BBBEE status level of a contributor, in accordance with the table below.

The 80/20 point system will be used in evaluating all proposals.

***Price***

A maximum of 80 points are allocated for price on the following basis:

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

Where:

- $P_s$  = Points scored for comparative price of bid under consideration
- $P_t$  = Comparative price of bid under consideration
- $P_{\min}$  = Comparative price of lowest acceptable bid.

***Preference (B-BBEE Status Level of Contribution)***

In terms of the Preferential Procurement Regulations 2017, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

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

## 7 GENERAL INFORMATION

### 7.1 CLIENT AND STUDY NAME

The Department of Water and Sanitation (DWS) is the Client for this study. The study shall be called **Greater Mangaung Water Augmentation Project - Xhariep Pipeline Feasibility Study**

### 7.2 BRIEFING SESSION

The Department will not be holding any formal briefing session, however, in order to attend to any specific questions to this Terms of Reference, bidders are required to submit formal enquiries directly to the Project Manager and the Supply Chain Management office, via email. Bidders may submit questions and the Department will attend to such questions and also upload all questions and answers on the departmental website [www.dws.gov.za](http://www.dws.gov.za). The contact persons listed in section 7.7 will attend to all questions.

### 7.3 SUBMISSION OF PROPOSALS

Bidders should take note of the following requirements regarding the submission of Technical and Financial Proposals:

- One (1) original plus one (1) copy of the Technical Proposal must be submitted.
- One (1) original plus one (1) copy of the Financial Proposal must be submitted.
- Proposal documents must be placed singly in an envelope that is sealed and marked "ORIGINAL" or "COPY" as the case may be.
- Envelopes must be clearly addressed according to the instructions on the Invitation to Bid (Form SBD 1) and marked with the Bid number, and Bidder's name and address.
- The Technical Proposal and Financial Proposal must be submitted in separate sealed envelopes.

Joint ventures are required to submit with their bid a formal agreement between the parties involved in the joint venture. The percentage involvement of each firm in the joint venture must be clearly stated.

**DWS is under no obligation to accept any bid, for whatever reasons it may consider appropriate, and reserves the right not to proceed with the appointment of any firm that responded to the invitation to tender. If a decision is made not to proceed with this appointment.**

## 7.4 INTELLECTUAL PROPERTY RIGHTS

The ownership of all intellectual property derived from this study shall vest with DWS. This stipulation will be included in the contract between the appointed PSP and DWS.

## 7.5 RETENTION ON PSP INVOICES

It is DWS policy, as dictated by relevant National Treasury Statutory Instruments to impose a retention amount equal to 10% of the total approved contract amount until the final reports are submitted and approved by DWS. The retention clause comes into effect near the end of the study when 90% of the contract amount has been paid, and only if the final reports are still outstanding.

## 7.6 INVOICES

The PSP shall submit invoices as agreed with the Client. Invoices must be linked to study deliverables, therefore the proposals must be structured in such a way that it will be possible to do this. DWS needs to be able to track the study progress by checking deliverables achieved against agreed timelines. Payments will only be made after DWS has received satisfactory proof of deliverables and is satisfied with the quality of the deliverables.

The invoice format shall be agreed with DWS at the commencement of the contract. Only one invoice per month can be submitted, but an invoice does not need to be submitted each month. Prior approval by DWS would be required in special circumstances where more than one invoice need to be submitted in a month.

There shall be no contingency allowance in the Financial Proposal. All cost and time increases will be handled as variations of the contract amount and time schedule. Variation orders shall be approved in writing and issued by DWS before work on the new scope may commence and before contract period may be extended.

## 7.7 CONTACT PERSONS

For technical and contractual enquiries for this study contact the following persons. All questions should be directed to the relevant person, but should also be copied to all others below.

<b>Contact Person</b>	
<b>For Procurement Matters</b>	<b>For Technical Matters</b>
<p>Ms Nokubonga Mkhize</p> <p>Directorate: Supply Chain Management</p> <p>Tell: 012 336 7571</p> <p>Email: <a href="mailto:MkhizeN6@dws.gov.za">MkhizeN6@dws.gov.za</a></p> <p><u>Address:</u></p> <p>Private Bag X 313</p> <p>PRETORIA</p> <p>0001</p>	<p>Ms. Sanet van Jaarsveld,</p> <p>Directorate: Water Resource Development Planning: (Central),</p> <p>Tel: 012 336 7284</p> <p>Cell: 079 510 8523</p> <p>E-mail: <a href="mailto:vanjaarsvelds@dws.gov.za">vanjaarsvelds@dws.gov.za</a></p> <p><u>Address:</u></p> <p>Private Bag X 313</p> <p>PRETORIA</p> <p>0001</p>

## ANNEXURE A

### GUIDELINES FOR PREPARATION OF A TECHNICAL PROPOSAL

The contents of the Technical Proposal must be to the point and limited to the information required. It should reflect a clear understanding of the Study to be undertaken and should concentrate on and stress the expertise and competence of the team.

**The Technical Proposal should be in Arial font size 11 at 1.5-line spacing.**

**No financial information is to be included in the Technical Proposal.**

	<p><b>MISREPRESENTATION</b></p> <p>Bidders found to have misrepresented any of the information provided in this bid will be disqualified and further action may be taken.</p>
<b>1</b>	<b>CAPABILITY OF BIDDING COMPANY</b>
	<b>Mandatory Compliance Requirements</b>
	The minimum mandatory compliance requirements to be met by the <b>Lead PSP Company</b> are provided under Section 6.4.1, Phase 1A above. The bidders who do not meet such requirements will be disqualified. The specified documents must be attached to the Introductory Section of the Technical Proposal.
<b>1.a</b>	<b>Introduction: Adequacy of company, study team composition and resources</b>
	<b>Limited to two (2) A4 pages excluding attachments</b>
	<p>The minimum mandatory compliance requirements stated above should be proven and documents attached to this section.</p> <p>An introductory section should provide a brief overview of the bidding organization with particular emphasis to relevant track record, areas of specialisation, location of offices and available capacity to perform the study.</p> <p>In case of JV's or associations, attach <b>draft JV or association agreement and an organogram</b> showing the relationship and responsibility of the parties in the proposed PSP team (showing the names and roles of all parties). A brief description of the relationships and ability of the associated companies to work together as a consolidated team should also be reflected.</p> <p>Bidders shall provide a concise description of availability of supporting resources within the company(ies), as needed to undertake the work, such as qualified support staff, requisite software, office equipment, location of offices, etc.</p>
<b>1.b</b>	<b>Proposed short-term specialists</b>

	<p><b>This should not be confused with the mandatory key experts specified in Section 3 below.</b></p> <p>In addition to the mandatory key experts specified in Section 3 below, some short-term specialists may be required. A possible list is provided below as an example, but this is not mandatory. The bidders shall specify the short-term specialists which they propose to engage, as deemed necessary and appropriate to accomplish the tasks, based on their professional judgement.</p> <ol style="list-style-type: none"> <li>1. River hydraulics and sedimentation specialist</li> <li>2. Water quality specialist</li> <li>3. Geotechnical specialist</li> <li>4. Land surveying specialist</li> <li>5. Hydropower specialist</li> <li>6. Environmental specialist scientists: agricultural, aquatic, botanical, heritage and social.</li> </ol> <p>For the short-term specialists the bidders should <b>attach a schedule</b> specifying the following:</p> <ul style="list-style-type: none"> <li>• Name of specialist</li> <li>• Current employer</li> <li>• Academic qualifications and registration with statutory professional organisations</li> <li>• Field of expertise</li> <li>• A brief description of specialist expertise in this field and duration of specialist experience</li> </ul> <p><b>CV's for short-term specialists must not be attached.</b> Evaluation will be based on the schedule.</p>
<b>1.c</b>	<b>Relevant prior experience of the bidding company</b>
	<b>Limited to five (5) A4 pages, excluding attachments</b>
	<p><b>Definitions</b></p> <p><b>Scope of this study:</b> means a large water resource planning study at national level (including pre-feasibility and feasibility phases) for a large catchment (Orange River Basin) at a substantial cost, involving water demand projections, system analyses using the Yield and Planning Models, sedimentation, water quality, feasibility assessment for resource and infrastructure development options, sizing, costing, economic evaluation, bankability, institutional, legal and financial arrangements, EIA, authorisations, etc. The study relates to the development of a complex and large infrastructure (capital cost in the order of R5 billion to R10 billion) consisting of the following main elements with approximate capacities: abstraction works (3,5 m<sup>3</sup>/s), water treatment works (300 Ml/d), large bore steel pipelines (ND 1 500 mm, &gt;200 km long), large pump stations (Q=3,5 m<sup>3</sup>/s. H=550 m, P = 35 MW), and substantial supporting infrastructure.</p> <p><b>Relevant</b> means appropriate for this assignment, and therefore, the prior experience must be in <b>undertaking studies, which are similar</b> to the scope of work for this study.</p> <p><b>Similar studies</b> means large <b>water resource planning studies at national level</b> involving <b>pre-feasibility and bankable feasibility studies</b> (fees earned over R15 million) similar to the above, for infrastructure exceeding capital cost R5 billion, including at least large conveyance systems/pipelines (ND &gt;1,000 mm, &gt;50 km long) and some or all of the following: pump stations (P&gt;15 MW), and water treatment works (150 Ml/d), large abstraction works (Q&gt;2 m<sup>3</sup>/s), and large dams.</p>
	<b>Evidence of relevant prior experience with similar studies</b>

	<p><b>This is the main criterion for this category. Points for this criterion will be allocated based on the number of relevant similar projects proven to have been undertaken in the past.</b></p> <p>Information must be provided for each relevant and similar assignment claimed to have been undertaken by the bidding organization(s), including the associated companies. Specific details must be given to indicate the extent to which these studies are similar and relevant to the scope of work for this study, including the Client organization, year started and completed, indicative professional fees earned by the bidding company (and percentage of total), the exact role which the bidding company played on the study (lead or sub-consultant and what scope of work directly involved with), size and type of infrastructure involved, phase of study (pre-feasibility / feasibility), client representative’s name and contact details (email and telephone), etc. Traceable reference details shall be included for verification. Involvement with engineering design and construction supervision projects alone will not qualify.</p> <p>A schedule outlining all afore mentioned would be valuable and of assistance for the evaluators.</p> <p>Attach available and reasonable evidence, such as letters of appointment and/or completion, client references, front and signature pages of completed main reports, etc.</p>
<b>2</b>	<b>PROPOSED METHODOLOGY AND APPROACH</b>
	<b>Limited to twenty (20) A4 pages</b>
<b>2.a</b>	Bidders are required to provide a brief description of their approach and comments on the ToR, illustrating their understanding of the challenges of the study, time frames, and deliverables. This section may also be used to briefly present alternative proposals, innovative approaches or other special features of the Technical Proposal.
<b>2.b</b>	Bidders shall provide a description of the proposed methodology and work packages to be undertaken, placing emphasis on the important or critical aspects of each task. Where the Scope of Services is silent on particular issues, bidders must clearly state what challenges can be expected to arise during the study and which additional tasks may be necessary. <b>These assumptions / additional tasks must then be scheduled and budgeted for in a separate section of the Financial Proposal and must be clearly indicated as additional tasks.</b>
<b>2.c</b>	Bidders must submit a detailed proposed work programme of work, broken down into specific tasks, illustrating their understanding of the best way to organise the study. The programme should show the Phases of the study, Tasks within phases and, where necessary, sub-tasks. The work programme must be presented in a Gantt chart (MS Projects) or similar, illustrating the dates at which critical milestone deliverables will be provided and should also show the critical path.
<b>3</b>	<b>CAPABILITIES OF MANDATORY KEY EXPERTS</b>
<b>3.a</b>	<p><b>Composition of Mandatory Key Experts’ Team</b></p> <p>The PSP shall nominate a suitably qualified Study Leader, who will be responsible for the overall internal management and co-ordination of the study team, and who will also represent the PSP in dealings with DWS. This is the most critical position.</p>

	<p>In addition, <b>the bidders must propose all of the following mandatory key experts</b>. The capabilities of these key experts will form the sole base for evaluation for this criterion.</p> <ol style="list-style-type: none"> <li>1. Study leader and water resources planner/large infrastructure planner</li> <li>2. Water resource hydrological system modeller/planner key expert;</li> <li>3. Pipelines and hydraulic engineering key expert;</li> <li>4. Pump stations key expert;</li> <li>5. Water treatment plant key expert;</li> <li>6. Structural and civil engineering key expert</li> <li>7. Electrical engineering key expert;</li> <li>8. Economist and project finance key expert;</li> <li>9. Institutional arrangements key expert;</li> <li>10. Environmental and social impact assessment management key expert</li> </ol> <p>CVs for each one of the above experts must be attached. Only the key expert positions specified above will be considered and must be offered. Where the bidders wish to propose additional specialists in other fields, these should be listed separately under the short-term specialists in Section 1.b above.</p>
<p><b>3.b</b></p>	<p><b>Definitions</b></p> <p><b>Academic qualification</b> means a recognised tertiary university degree, at a level specified below, which has been obtained in RSA. To be recognised as equivalent, foreign qualifications must be accompanied by a SAQA evaluation certificate.</p> <p><b>Professional Registration</b> means registration with the relevant RSA statutory authority or council (i.e. ECSA) at a professional level (not in training), which is relevant to the particular field of qualifications or specialist practice of the individual. Registrations with voluntary organisations (i.e. SAICE) or any foreign authorities shall not qualify.</p> <p><b>Duration of prior relevant experience as an expert in the field</b> means the number of completed years of experience after registration and in the particular field as required for the position.</p> <p><b>Number of prior relevant similar studies completed in this capacity</b> means the number of similar studies, for which the person acted in the same /similar capacity as the one now nominated for.</p> <p><b>Prior relevant experience</b> means <b>proven track record</b> of prior relevant hands-on experience in the field and responsibility level assigned to the particular expert, which is similar in nature and magnitude as these for this study.</p> <p>The definitions of <b>relevant and similar studies</b> are provided under Section 1.c above. The emphasis in all the above is on the person’s own hands-on involvement and experience with similar work.</p>
<p><b>3.c</b></p>	<p><b>Minimum requirements for Mandatory Key Experts</b></p> <p><b>The minimum requirements</b> for the qualifications and experience for each mandatory key expert are set out below and will be strictly applied during the evaluation. All key experts must be fluent in English and must possess excellent communication and report writing skills.</p> <ol style="list-style-type: none"> <li>1. <b>Study Leader and water resource planner/large infrastructure planner</b></li> </ol>

	<ul style="list-style-type: none"> <li>• <b>Responsibility:</b> The Study Leader will be responsible for the overall planning and implementation of the consultancy services including study team management and coordination; ensuring the achievement of the study objectives; facilitating stakeholder consultation and liaising on all matters with the Client project manager. She/he will have the ultimate responsibility for the preparation and finalization of all reports and the execution of the study in compliance with the scope of work, time plan, budget and quality control.</li> <li>• <b>Academic qualifications:</b> Master’s Degree in a relevant engineering field</li> <li>• <b>Professional registration</b> with ECSA</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 15 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> study leader for large multi-disciplinary water resource planning studies, involving options analyses for major infrastructure developments at pre-feasibility and feasibility level of detail, of nature and magnitude similar to these for this study.</li> </ul> <p><b>2. Water resource hydrological system modeller/planner</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in a relevant field: engineering or hydrology</li> <li>• <b>Professional registration</b> with the relevant statutory body</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> hydrological system modelling/analyses for water resource planning in large and complex river catchments, ideally the Orange River, and hands-on experience with the key models: Pitman, WRYM and WRPM.</li> </ul> <p><b>3. Pipelines and hydraulic engineering planner/expert</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in civil engineering</li> <li>• <b>Professional registration</b> with ECSA</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 15 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> project planning and feasibility studies, conceptual design, optimisation, pricing and economic evaluation for large bore steel pipelines (ND&gt;1.0 m) and lengths exceeding 100 km.</li> </ul> <p><b>4. Pump stations planner/expert</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in engineering: civil or mechanical</li> <li>• <b>Professional registration</b> with ECSA</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> project planning and feasibility studies, conceptual design, optimisation and pricing for large pump stations (P&gt;15 MW).</li> </ul> <p><b>5. Water treatment plant planner/expert</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in engineering: civil or mechanical or chemical</li> <li>• <b>Professional registration</b> with ECSA</li> </ul>
--	--

	<ul style="list-style-type: none"> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> project planning and feasibility studies, conceptual design, optimisation and pricing for process design, civil and mechanical works for large water treatment plants (&gt;150 Ml/d).</li> </ul> <p><b>6. Structural and civil engineering planner/expert</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in civil engineering</li> <li>• <b>Professional registration</b> with ECSA</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> project planning and feasibility studies, conceptual design, optimisation and pricing for industrial structures in the <b>water field</b> (abstraction works, pump stations, water treatment plants, large reservoirs) with some exposure to roads.</li> </ul> <p><b>7. Electrical engineering planner/expert</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in electrical or electro-mechanical engineering</li> <li>• <b>Professional registration</b> with ECSA</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> project planning and feasibility studies, conceptual design, optimisation for the electrical elements of major <b>water infrastructure</b> (abstraction works, pump stations, water treatment plants) including electrical gear, SCADA and external / internal power supply.</li> </ul> <p><b>8. Economist and project finance planner/expert</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in economics or finance</li> <li>• <b>Professional registration</b> with the relevant statutory body</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> economic evaluation, cost-benefit analyses, socio-economic assessment, tariffs, affordability and project finance arrangements for feasibility studies for large bulk water supply systems.</li> </ul> <p><b>9. Institutional arrangements planner/expert</b></p> <ul style="list-style-type: none"> <li>• <b>Academic qualifications:</b> Bachelor’s degree in engineering, economics, law or other relevant</li> <li>• <b>Professional registration</b> with the relevant statutory body</li> <li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li> <li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li> <li>• <b>Definition of required prior relevant experience:</b> institutional arrangements for implementation, ownership, operation and maintenance for large bulk water supply systems.</li> </ul> <p><b>10. Environmental and social impact assessment manager/expert</b></p>
--	---

	<ul style="list-style-type: none"><li>• <b>Academic qualifications:</b> Bachelor's degree in relevant field of natural science</li><li>• <b>Professional registration</b> with the relevant statutory body and accredited EAP</li><li>• <b>Duration of prior relevant experience as an expert in the field:</b> 10 years</li><li>• <b>Number of prior similar studies completed in this capacity:</b> 4</li><li>• <b>Definition of required prior relevant experience:</b> management of the entire EIA process and follow up until an authorisation is obtained, including WUL and other requisite licenses.</li></ul>
--	---

**3.d Curriculum Vitae for Mandatory Key Experts**

**Limited to a total of two (2) A4 pages each, excluding the attachments**

Only one CV for each of the above key experts must be attached. Alternative proposals for the same position will not be accepted. If more than one CV per key position is attached, only the first attachment will be considered and the rest will be ignored. Only the key expert positions specified above will be considered and must be offered.

Each CV should provide sufficient, accurate and succinct information to allow evaluation of the above minimum requirements without the need to draw inferences. Each CV should include the following information in the order specified below:

- Key expert position applied for (No. and Title same as listed above)
- Name of the person
- Citizenship and date obtained
- Current employer and present position with the current employer
- Academic qualifications: institutions, country and dates obtained (**attach certified qualification certificate/s**). For **foreign qualifications, attach certified evaluation certificate by SAQA.**
- Professional registration: name of body, registration number, registration date, level of registration (professional or in training) (**attach registration certificate/s**).
- Field(s) of professional specialization: relevant to this study and the position applied for
- Duration of prior relevant experience as an expert in this field: number of years
- Number of prior similar studies completed in this capacity: Number
- Prior relevant specialist project experience: For each project briefly specify the following:
  - Name of project
  - Name of client
  - Lead consultant name
  - Brief description of the project nature, scope, stage, fee value, and magnitude
  - The role of the applicant on the project: describe the hands-on activities with which the applicant was **personally involved and personally undertook.**
  - Start date, end date, and duration (years and months) of **personal involvement** with above activities.
  - Indicative size and key parameters of infrastructure elements with which the applicant was **personally involved.**
- Statement confirming that all provided information is true and correct in every respect
- Statement of availability and commitment to participate on this study.
- Signature and date of person whose name is proposed.

Where the required certificates are not attached, the proposed key expert will be disqualified. Projects and experience, which are not relevant to the expert position applied for, or not similar to the definition specified for the position, should not be listed.

All CVs must be bound under this section of the Technical Proposal and must be sorted in the order specified in section 3.a above.

	<p>The bidders shall provide a <b>schedule showing the time allocated for each key expert</b> for this study. The composition of the team and the time input for each expert will be taken into consideration during evaluation of the bids.</p> <p>The bidders must attach a <b>study organisational organogram</b> showing the responsibilities and interaction between the Project Manager, Study Leader and the various key experts and other short-term specialist forming part of the study team.</p>
<b>4</b>	<b>Capacity Building, Training and Skills Transfer</b>
	<b>Limited to five (5) A4 pages</b>
<b>4.a</b>	The PSP must make provision for capacity building and training of DWS officials in the water resource planning process and/or project management and/or technical aspects undertaken as part of this study. The content of the capacity building programme shall be approved by DWS. Provide clear proposals on capacity building and training as specified in the Scope of Services.
<b>4.b</b>	DWS officials / interns could be seconded to the PSP during the study to gain practical experience. In such cases the cost to the PSP would be the time spent to train and mentor the DWS officials / staff and the provision of office space. The PSP shall also convene CPD accredited training courses/workshops to present certain technical aspects to DWS officials to a total of 100 people each.
<b>4.c</b>	<p><b>The PSP shall make provision in the Financial Proposal for:</b></p> <ul style="list-style-type: none"> <li>• <b>Two (2) DWS officials / interns to be seconded for a period of Six (6) months each; and</b></li> <li>• <b>The presentation of two (2) one-day CPD accredited training courses/workshops.</b></li> </ul>

## ANNEXURE B

### CRITERIA FOR EVALUATION OF A TECHNICAL PROPOSAL

#### Stage 2: Functional/Technical Evaluation

**This Annexure B shall be read in conjunction with Annexure A**

	<b>EVALUATION CRITERIA AND SUB-CRITERIA</b>	<b>Points value</b>	<b>Weight of Sub-Criterion</b>	<b>Weight of Criterion</b>	<b>Bidder Score</b>
<b>1</b>	<b>CAPABILITY OF BIDDING COMPANY</b>				
	See definitions and requirements in Section 1 of Annexure A.				
(i)	<p>Adequacy of company, study team composition and resources:</p> <p>Requirements:</p> <ul style="list-style-type: none"> <li>• brief overview of the bidding organization with particular emphasis to relevant track record,</li> <li>• areas of specialisation,</li> <li>• location of offices,</li> <li>• available capacity to perform the study, and</li> <li>• organogram</li> </ul> <p>More than one requirement not met                      One requirement not met                      Meets all requirements                      Exceeds key requirements                      Exceeds all requirements and expectations</p>	<p>1 2 3 4 5</p>	10%	<b>20%</b>	
(ii)	<p>Adequacy of proposed short-term specialists</p> <p>Requirements:</p> <ul style="list-style-type: none"> <li>• Relevance of the short-term specialists which are proposed</li> <li>• Schedule of specialists is attached</li> </ul> <p>1 relevant specialist                      2 relevant specialists                      3 relevant specialists                      4 relevant specialists</p>	<p>1 2 3</p>	10%		

	<b>EVALUATION CRITERIA AND SUB-CRITERIA</b>	<b>Points value</b>	<b>Weight of Sub-Criterion</b>	<b>Weight of Criterion</b>	<b>Bidder Score</b>
	5 or more relevant specialists	4 5			
(iii)	Number of relevant prior project experience of the bidding company. The definitions and requirements in Section 1.c of Annexure A shall apply.  1 relevant project 2 relevant projects 3 relevant projects 4 relevant projects 5 or more relevant projects	1 2 3 4 5	80%		
<b>2</b>	<b>PROPOSED METHODOLOGY AND APPROACH</b>				
	See definitions and requirements in Section 2 of Annexure A and in the Scope of Work Section of ToR. The evaluation for each of the sub-criteria below will be based on the following points allocation principles:  More than one requirement not met One requirement not met Meets all requirements Exceeds key requirements Exceeds all requirements and expectations	1 2 3 4 5			
(i)	Understanding of assignment and comments on ToR  Requirements: <ul style="list-style-type: none"> <li>a brief description to illustrate understanding of the challenges</li> <li>a brief description that illustrate understanding of the time frames, and deliverables.</li> <li>Briefly present alternative proposals, innovative approaches or other special features</li> </ul> More than one requirement not met One requirement not met Meets all requirements Exceeds key requirements Exceeds all requirements and expectations	1 2 3 4 5	10%	<b>35%</b>	
(ii)	Proposed methodology, approach and work packages		70%		

	<b>EVALUATION CRITERIA AND SUB-CRITERIA</b>	<b>Points value</b>	<b>Weight of Sub-Criterion</b>	<b>Weight of Criterion</b>	<b>Bidder Score</b>
	<p>Requirements:</p> <ul style="list-style-type: none"> <li>Comply with proposed methodology and work packages to be undertaken,</li> <li>Detailed method statement for each task within the study</li> <li>Did bidders clearly state what challenges can be expected to arise during the study, and</li> <li>which additional tasks may be necessary.</li> <li>Innovations to the ToR.</li> </ul> <p>More than one requirement not met                      One requirement not met                      Meets all requirements                      Exceeds key requirements                      Exceeds all requirements and expectations</p>	<p>1 2 3 4 5</p>			
(iii)	<p><b>Organisation of study and work plan</b></p> <p>Requirements:</p> <ul style="list-style-type: none"> <li>A detailed proposed work programme</li> <li>The programme should show the Phases of the study, Tasks within phases and, where necessary, sub-tasks.</li> <li>The work programme must be presented in a Gantt chart (MS Projects) illustrating the dates at which critical milestone deliverables will be provided, and</li> <li>critical path is shown</li> </ul> <p>More than one requirement not met                      One requirement not met                      Meets all requirements                      Exceeds key requirements                      Exceeds all requirements and expectations</p>	<p>1 2 3 4 5</p>	20%		
<b>3</b>	<b>CAPABILITIES OF MANDATORY KEY EXPERTS</b>				
	<p>The definitions and requirements in Section 3 of Annexure A shall apply. The evaluation for each of the key experts below will be based on the following points allocation applied separately for each expert:</p> <p>Acceptable: All minimum requirements met                      Add one point for exceeded minimal level of</p>	<p>1</p>			

	<b>EVALUATION CRITERIA AND SUB-CRITERIA</b>	<b>Points value</b>	<b>Weight of Sub-Criterion</b>	<b>Weight of Criterion</b>	<b>Bidder Score</b>
	qualification Add one point for every additional 5 years of duration of prior relevant experience Add one point for every additional relevant and similar study involved with Maximum points for each expert	2 3 4 5		<b>35%</b>	
(i)	Study leader and water resources planner/large infrastructure planner		14%		
(ii)	Water resource hydrological system modeller expert		10%		
(iii)	Pipelines and hydraulic engineering key expert		10%		
(iv)	Pump stations key expert		10%		
(v)	Water treatment plant key expert		10%		
(vi)	Structural and civil engineering key expert		9%		
(vii)	Electrical engineering key expert		9%		
(viii)	Economist and project finance key expert		9%		
(ix)	Institutional arrangements key expert		9%		
(x)	EIA management key expert		10%		
<b>4</b>	<b>CAPACITY BUILDING, TRAINING AND SKILLS TRANSFER</b>				
	The requirements are specified in Section 4 of Annexure A and in the Capacity Building Section of the ToR. The evaluation for each of the sub-criteria below will be based on the following points allocation principles:  More than one requirement not met One requirement not met Meets all requirements Exceeds key requirements Exceeds all requirements and expectations	1 2 3 4 5		<b>10%</b>	
(i)	General approach to capacity building and training of DWS officials		20%		
(ii)	Proposed program for training of DWS staff seconded to the PSP		40%		
(iii)	Proposed CPD accredited training courses/workshops		40%		
	<b>TOTAL SCORE</b>			<b>100</b>	

## ANNEXURE C.1

**NOTE: ALL SCHEDULES UNDER ANNEXURE C SHOULD BE COMPLETED AND APPENDED ONLY TO THE FINANCIAL PROPOSAL (NOT TO BE INCLUDED IN THE TECHNICAL PROPOSAL)**

**The number values in all schedules in Annexure C are provided only for illustration purposes and are totally unrelated to what is expected for this study (except the Provisional Sums).**

### EXAMPLE: SUMMARY OF MANPOWER, TIME AND COST SCHEDULE FOR ENTIRE STUDY

Team member	Company name	Company position	Study position (Activity)	Applicable experience in activity	Hourly Rate (Excl. VAT)	Time on study	% of time on study	Total cost
				Years	Rand/h	Hours		Rand
Initials & Name	ABC Consult	Director	Key Expert 1: Study Leader	25	520	10	10	10 400
Initials & Name	ABC Consult	Associate	Key Expert 2: Hydrology	15	480	25	25	24 000
Initials & Name	ABC Consult	Engineer	Support Staff: Dam design	13	400	15	15	12 000
Initials & Name	XYZ Consult	Director	Key Expert 3: Dam design	6	500	20	20	20 000
Initials & Name	BBB Consult	Associate	Short-Term Specialist: Hydropower	10	120	7	10	1 800
Initials & Name	AAAA Consult	Technician	Support Staff: Water Quality	2	110	18	20	3 850
<b>Total</b>						<b>5 000</b>		<b>4 000 000</b>

## ANNEXURE C.2: PHASE 1: INCEPTION STAGE

### EXAMPLE: DETAILED TIME, COST AND DISBURSEMENTS SCHEDULE PER TASK

Task No.	Team member name	Company name	Position in Company		Study position/activity	Time schedule	Hourly rate (Excl. VAT)	Total cost (Excl. VAT)
						Man hours	Rand/hour	Rand
<b>PHASE 1: INCEPTION STAGE (split in tasks if necessary for Phase 1)</b>								
<b>1.1</b>	<b>Task 1.1: Review Previous Reports</b>							
1.1.1	Initials and Name	ABC Consult	Director		Study Leader	6	440,00	2 640,00
1.1.2	Initials and Name	XYZ Consult	Associate		Key Expert 3: Dam Design	7	380,00	2 660,00
	<b>Subtotal for professional fees Task 1</b>					<b>13</b>		<b>5 300,00</b>
	<b>Disbursements:</b>							
	- Travel/Accommodation							1 000,00
	- Subsistence							550,00
	- Printing							350,00
	- Prov. Sums: will be recorded under the Summary Annexures C.6							0,00
	<b>Subtotal for disbursements Task 1.1</b>							<b>1 900,00</b>
	<b>Total Cost for Task 1.1</b>							<b>7 200,00</b>
	-----Repeat the same for all other tasks -----							
<b>1.5</b>	<b>Task 1.5: Produce Inception report</b>							
1.5.1	Initials and Name	ABC Consult	Director		Key Expert 2: Hydrology	125	380,00	47 500,00
1.5.2	Initials and Name	XYZ Consult	Snr Eng.		Support Staff: Civil	96	350,00	33 600,00
1.5.3	Initials and Name	ABC Consult	Associate		Key Expert 4: Hydraulics	72	320,00	23 040,00
1.5.4	Initials and Name	BBB Consult	Engineer		Specialist: Flood Hydrol.	80	300,00	24 000,00
1.5.5	Initials and Name	CCC Consult	Associate		Specialist: Seismic	40	300,00	12 000,00
	<b>Subtotal for Professional Fees Task 1.5</b>					<b>413</b>		<b>142 290,00</b>
	<b>Disbursements:</b>							
	- Travel/Accommodation							2 500,00
	- Subsistence							2 500,00
	- Printing							1 000,00
	- Prov. Sums: will be recorded under the Summary Annexures C.6							0.00
	<b>Subtotal for disbursements Task 1.5</b>							<b>6 000,00</b>
	<b>Total Cost for Task 1.5</b>							<b>148 290,00</b>
<b>PHASE 1: INCEPTION STAGE - TOTAL COST (all tasks) (carry forward to Annexure C.6)</b>						<b>500</b>		<b>207 490,00</b>

## ANNEXURE C.3: PHASE 2: PRE-FEASIBILITY STAGE

### EXAMPLE: DETAILED TIME, COST AND DISBURSEMENTS SCHEDULE PER TASK

Task No.	Team member name	Company name	Position in Company		Study position/activity	Time schedule	Hourly rate (Excl. VAT)	Total cost (Excl. VAT)
						Man hours	Rand/hour	Rand
<b>PHASE 2: PRE-FEASIBILITY STUDY STAGE (split in tasks is compulsory for Phase 2)</b>								
<b>2.1</b>	<b>Task 2.1: Name of task</b>							
2.1.1	Initials and Name	ABC Consult	Director		Study Leader	6	440,00	2 640,00
2.1.2	Initials and Name	XYZ Consult	Associate		Key Expert 3: Dam Design	7	380,00	2 660,00
	<b>Subtotal for professional fees Task 2.1</b>					<b>13</b>		<b>5 300,00</b>
	<b>Disbursements:</b>							
	- Travel/Accommodation							3 000,00
	- Subsistence							550,00
	- Printing							350,00
	- Prov. Sums: will be recorded under the Summary Annexures C.6							0,00
	<b>Subtotal for disbursements Task 2.1</b>							<b>3 900,00</b>
	<b>Total Cost for Task 2.1</b>							<b>9 200,00</b>
	-----Repeat the same for all other tasks -----							
<b>2.9</b>	<b>Task 2.9: Name of task</b>							
2.9.1	Initials and Name	ABC Consult	Director		Key Expert 2: Hydrology	125	380,00	47 500,00
2.9.2	Initials and Name	XYZ Consult	Snr Eng.		Support Staff: Civil	96	350,00	33 600,00
2.9.3	Initials and Name	ABC Consult	Associate		Key Expert 4: Hydraulics	72	320,00	23 040,00
2.9.4	Initials and Name	BBB Consult	Engineer		Specialist: Flood Hydrol.	80	300,00	24 000,00
2.9.5	Initials and Name	CCC Consult	Associate		Specialist: Seismic	40	300,00	12 000,00
	<b>Subtotal for Professional Fees Task 2.9</b>					<b>413</b>		<b>142 000,00</b>
	<b>Disbursements:</b>							
	- Travel/Accommodation							52 500,00
	- Subsistence							2 500,00
	- Printing							1 000,00
	- Prov. Sums: will be recorded under the Summary Annexures C.6							0,00
	<b>Subtotal for disbursements Task 2.9</b>							<b>56 000,00</b>
	<b>Total Cost for Task 2.9</b>							<b>198 000,00</b>
<b>PHASE 2: PRE-FEASIBILITY STAGE - TOTAL COST (all tasks) (carry forward to Annexure C.6)</b>						<b>2 000</b>		<b>870 560,00</b>

## ANNEXURE C.4: PHASE 3: FEASIBILITY STUDY STAGE

### EXAMPLE: DETAILED TIME, COST AND DISBURSEMENTS SCHEDULE PER TASK

Task No.	Team member name	Company name	Position in Company	Study position/activity	Time schedule	Hourly rate (Excl. VAT)	Total cost (Excl. VAT)
					Man hours	Rand/hour	Rand
<b>PHASE 3: FEASIBILITY STUDY STAGE (split in tasks is compulsory for Phase 3)</b>							
<b>3.1</b>	<b>Task 3.1: Name of task</b>						
3.1.1	Initials and Name	ABC Consult	Director	Study Leader	6	440,00	2 640,00
3.1.2	Initials and Name	XYZ Consult	Associate	Key Expert 3: Dam Design	7	380,00	2 660,00
	<b>Subtotal for professional fees Task 3.1</b>				<b>13</b>		<b>5 300,00</b>
	<b>Disbursements:</b>						
	- Travel/Accommodation						13 000,00
	- Subsistence						550,00
	- Printing						150,00
	- Prov. Sums: will be recorded under the Summary Annexures C.6						0,00
	<b>Subtotal for disbursements Task 3.1</b>						<b>33 700,00</b>
	<b>Total Cost for Task 3.1</b>						<b>19 000,00</b>
	-----Repeat the same for all other tasks -----						
<b>3.9</b>	<b>Task 3.9: Name of task</b>						
3.9.1	Initials and Name	ABC Consult	Director	Key Expert 2: Hydrology	125	380,00	47 500,00
3.9.2	Initials and Name	XYZ Consult	Snr Eng.	Support Staff: Civil	96	350,00	33 600,00
3.9.3	Initials and Name	ABC Consult	Associate	Key Expert 4: Hydraulics	72	320,00	23 040,00
3.9.4	Initials and Name	BBB Consult	Engineer	Specialist: Flood Hydrol.	80	300,00	24 000,00
3.9.5	Initials and Name	CCC Consult	Associate	Specialist: Seismic	40	300,00	12 000,00
	<b>Subtotal for Professional Fees Task 3.9</b>				<b>413</b>		<b>142 290,00</b>
	<b>Disbursements:</b>						
	- Travel/Accommodation						22 500,00
	- Subsistence						2 500,00
	- Printing						710,00
	- Prov. Sums: will be recorded under the Summary Annexures C.6						0,00
	<b>Subtotal for disbursements Task 9</b>						<b>25 710,00</b>
	<b>Total Cost for Task 3.9</b>						<b>146 000,00</b>
<b>PHASE 3: FEASIBILITY STUDY STAGE - TOTAL COST (all tasks) (carry forward to Annexure C.6)</b>					<b>6 000</b>		<b>4 400 000,00</b>

## ANNEXURE C.5: PHASE 4: EIA & AUTHORISATION

### EXAMPLE: DETAILED TIME, COST AND DISBURSEMENTS SCHEDULE PER TASK

Task No.	Team member name	Company name	Position in Company		Study position/activity	Time schedule	Hourly rate (Excl. VAT)	Total cost (Excl. VAT)
						Man hours	Rand/hour	Rand
<b>PHASE 4: EIA &amp; AUTHORISATION STAGE (Only applicable to Scope Option B) (split in tasks is compulsory for Phase 4)</b>								
<b>4.1</b>	<b>Task 4.1: Name of task</b>							
4.1.1	Initials and Name	ABC Consult	Director		Study Leader	6	440,00	2 640,00
4.1.2	Initials and Name	XYZ Consult	Associate		Key Expert 10: EIA	7	380,00	2 660,00
<b>Subtotal for professional fees Task 4.1</b>						<b>13</b>		<b>5 300,00</b>
<b>Disbursements:</b>								
- Travel/Accommodation								53 000,00
- Subsistence								550,00
- Printing								350,00
- Prov. Sums: will be recorded under the Summary Annexure C.6								0,00
<b>Subtotal for disbursements Task 4.1</b>								<b>53 900,00</b>
<b>Total Cost for Task 4.1</b>								<b>59 200,00</b>
-----Repeat the same for all other tasks -----								
<b>4.9</b>	<b>Task 4.9: Name of task</b>							
4.9.1	Initials and Name	XYZ Consult	Associate		Key Expert 10: EIA	125	380,00	47 500,00
4.9.2	Initials and Name	XYZ Consult	Snr Scientist		Support Staff: Social	96	350,00	33 600,00
4.9.3	Initials and Name	ABC Consult	Associate		Key Expert 2: Hydrology	72	320,00	23 040,00
4.9.4	Initials and Name	BBB Consult	Engineer		Specialist: Heritage	80	300,00	24 000,00
4.9.5	Initials and Name	CCC Consult	Associate		Specialist: Aquatic	40	300,00	12 000,00
<b>Subtotal for Professional Fees Task 4.9</b>						<b>413</b>		<b>142 290,00</b>
<b>Disbursements:</b>								
- Travel/Accommodation								152 500,00
- Subsistence								2 500,00
- Printing								790,00
- Prov. Sums: will be recorded under the Summary Annexure C.6								0,00
<b>Subtotal for disbursements Task 4.9</b>								<b>155 790,00</b>
<b>Total Cost for Task 4.9</b>								<b>298 000,00</b>
<b>PHASE 4: EIA &amp; AUTHORISATION - TOTAL COST (all tasks) (carry forward to Annexure C.6)</b>						<b>1 000</b>		<b>820 000,00</b>

## ANNEXURE C.6: SUMMARY OF TOTAL COSTS OF STUDY

### EXAMPLE: SUMMARY OF TOTAL STUDY COSTS: CARRY FORWARD TO FORM OF TENDER

Task no.	Task description	Total cost of Task per Time and Cost Schedule Rand (Excl. VAT)	15% VAT Rand	Total Cost of Task Rand (Incl. VAT)	Total cost of Phase per Time and Cost Schedule Rand (Excl. VAT)	15% VAT Rand	Total Cost of Phase Rand (Incl. VAT)
<b>1.</b>	<b>Phase 1: Inception Stage (bring forward (f/w) tasks &amp; costs from Annexure C.2)</b>				<b>207 490.00</b>	<b>31 123.50</b>	<b>238 613.50</b>
	Task 1.1: Task Name	7 200.00	1 080.00	8 280.00			
	Bring forward all tasks						
	Task 1.5: Task Name	148 290.00	22 243.50	170 533.50			
<b>2.</b>	<b>Phase 2: Pre-Feasibility Study Stage (bring f/w tasks &amp; costs from Annexure C.3)</b>				<b>1 620 560,00</b>	<b>243 084.00</b>	<b>1 863 644.00</b>
	Task 2.1: Task Name	9 200.00	1 380.00	10 580.00			
	Bring forward all tasks						
	Task 2.9: Task Name	198 000.00	29 700.00	227 700.00			
	Prov. Sum: External Tech. Review	500 000.00	75 000.00	575 000.00			
	Prov. Sum: External EIA Review	250 000.00	37 500.00	287 500.00			
<b>3.</b>	<b>Phase 3: Feasibility Study Stage (bring f/w tasks &amp; costs from Annexure C.4)</b>				<b>12 400 000.00</b>	<b>1 860 000.00</b>	<b>14 260 000.00</b>
	Task 3.1: Task Name	31 000.00	4 650.00	35 650.00			

	Bring forward all tasks					
	Task 3.9: Task Name	210 290.00	31 543.50	241 833.50		
	Prov. Sum: Water Quality Testing	200 000.00	30 000.00	230 000.00		
	Prov. Sum: External Tech. Review	500 000.00	75 000.00	575 000.00		
	Prov. Sum: Geotech and materials	4 300 000.00	750 000.00	5 750 000.00		
	Prov. Sum: Topographical surveys	3 000 000.00	525 000.00	4 025 000.00		
<b>4.</b>	<b>Phase 4: EIA and Authorisation (bring f/w tasks &amp; costs from Annexure C.5)</b>				<b>1 570 000.00</b>	<b>235 500.00</b>
	Task 4.1: Task Name	59 200.00	8 880.00	68 080.00		
	Bring forward all tasks					
	Task 4.9: Task Name	298 000.00	44 700.00	342 700.00		
	Prov. Sum: External EIA Review	250 000.00	37 500.00	287 500.00		
	Prov. Sum: Assistance with Appeals	500 000.00	75 000.00	575 000.00		
<b>TOTAL COST OF STUDY: CARRY FORWARD TO FORM OF TENDER</b>					<b>15 798 050.00</b>	<b>2 134 207.50</b>

## NNEXURE D: Water Balance GBWSS 2021

