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**CONSULTANCY SERVICES FOR uMWP-1: SMITHFIELD DAM AND
ASSOCIATED INFRASTRUCTURE FOR 95 MONTHS**

Bid Number:	012/2023/PMID/INFRASTRUCTURE/RFB
Briefing Session:	Compulsory
Briefing Session Date and Time:	27 October 2023 at 10:00 AM
Briefing Session Venue:	<p>The hybrid meeting arranged as follows:</p> <p>A. Online: Microsoft Teams meeting details: Meeting ID: 391 807 955 861 Passcode: irzmrK</p> <p>B. Physical meeting at the following venue: Byls Bridge Office Park Cnr Olievenhoutbosch Road and Jean Avenue Doringkloof Centurion 0157</p>
Clarifications Deadline:	8 December 2023 at 4:00 PM
Closing Date and Time: <i>Bidders must submit their bids during office hours between 08:00am and 4:30pm, received by a TCTA representative.</i>	15 December 2023 at 2:00 PM
Bid Validity Period:	120 Calendar Days
Bid Submission Physical Address:	<p><i>Bid Submissions must be sent to:</i> Byls Bridge Office Park Cnr Olievenhoutbosch Road and Jean Avenue Doringkloof Centurion 0157</p> <p><i>Bid submission must be addressed to the Receiving Officer and marked RFB No. 012/2023/PMID/INFRASTRUCTURE/RFB</i></p>

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ANNEXURES	SBD	DESCRIPTION
<i>A</i>	<i>N/A</i>	<i>COMPANY EXPERIENCE</i>
<i>B</i>	<i>N/A</i>	<i>PERSONNEL EXPERIENCE: CVS OF KEY PERSONNEL</i>
<i>C</i>	<i>N/A</i>	<i>SANAS VERIFIED B-BBEE CERTIFICATE(S) OR SWORN AFFIDAVIT(S)</i>
<i>D</i>	<i>N/A</i>	<i>JOINT VENTURE AGREEMENT OR MEMORANDUM OF UNDERSTANDING AND DECLARATION OF JOINT AND SEVERAL LIABILITY</i>
<i>E</i>	<i>N/A</i>	<i>POWER OF ATTORNEY AND AUTHORITY FOR SIGNATORY</i>
<i>F</i>	<i>N/A</i>	<i>LETTER OF OFFER BY THE BIDDER</i>
<i>G</i>	<i>N/A</i>	<i>SUMMARY OF COST ESTIMATE</i>
<i>H</i>	<i>N/A</i>	<i>PERSONNEL COSTS</i>
<i>I</i>	<i>N/A</i>	<i>PERSONNEL BILLING RATES</i>
<i>J</i>	<i>N/A</i>	<i>PERSONNEL MARK-UP FACTORS</i>
<i>K</i>	<i>N/A</i>	<i>DIRECT REIMBURSABLE COSTS</i>
<i>L</i>	<i>N/A</i>	<i>CASH FLOW</i>
<i>M</i>	<i>N/A</i>	<i>MANPOWER SCHEDULE</i>
<i>N</i>	<i>N/A</i>	<i>PROGRAMME AND CHARTS</i>

<i>O</i>	<i>1</i>	<i>REQUEST FOR BID</i>
<i>P</i>	<i>4</i>	<i>BIDDERS DISCLOSURE</i>
<i>Q</i>	<i>6.1</i>	<i>IN TERMS OF PPR 2022</i>
<i>R</i>	<i>N/A</i>	<i>PROOF OF REGISTRATION WITH NATIONAL TREASURY CENTRAL SUPPLIER DATABASE (CSD)</i>
<i>S</i>	<i>N/A</i>	<i>AGREEMENT FORM AND APPENDICES AND THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT</i>

1. DEFINITIONS, ACRONYMS AND ABBREVIATIONS

B-BBEE	Broad Based Black Economic Empowerment in terms of the Broad Based Black Economic Empowerment Act 53 of 2003 (B-BBEE Act).
B-BBEE STATUS OF LEVEL OF CONTRIBUTOR	The B-BBEE status received by a measured entity issued in terms of section 9(1) of the B-BBEE Act.
BID SUBMISSION	A bidder's written proposal in response to an Invitation for Bids (Request for Bids/Quotations/ Information etc.).
BLACK PEOPLE	Africans, Coloureds and Indians as defined in the Broad Based Black Economic Empowerment Act 53 of 2003
CONSORTIUM OR JOINT VENTURE	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.
CONSULTANT	A professional person appointed to provide technical and specialist advice or to assist with the design and implementation of projects. The legal status of this person can be an individual, a partnership, a corporation or a company.
CONTRACT	A legal agreement or National Treasury issued Standard Bid Document Number 7 signed by TCTA and a successful bidder. This term does not refer to the actual bid process.
CONTRACT MANAGER	A representative from the Requesting Department that will be responsible for monitoring the day-to-day activities related to the contract.
DESIGNATED SECTORS	Sectors, sub-sectors or industries that have been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content.
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.
FIRM PRICES	Means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the bidder and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract.
HISTORICALLY DISADVANTAGED ENTITIES	Means entities that are at least: <ul style="list-style-type: none"> • 51% black owned; • 51% owned by black youth; • 51% owned by black women; • 51% owned by black people with disabilities; • 51% owned by black people in rural areas, underdeveloped areas or townships; • a co-operative that is 51% owned by black people; • 51% owned by black people who are military veterans.
LOWEST ACCEPTABLE TENDER	Means a tender that complies with all specifications and conditions of tender and that has the lowest price compared to other tenders.
PROCUREMENT SPECIALIST	Any person in the TCTA's Procurement Unit who is responsible for managing a bid process from start to finish.
PO	A Purchase Order generated by the TCTA's Procurement Unit after the conclusion of a successful bid process authorizing the expenditure against an awarded contract.
PRICE	Means an amount of money for goods or services, and includes all applicable taxes less all unconditional discounts.
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.
RD	A Requesting Department within TCTA or its representative.
SUPPLIER	A juristic person or legal entity that provides goods or services to TCTA.
SPECIFIC GOALS	Means specific goals as contemplated in section 2(1)(d) of the Preferential Procurement Policy Framework Act which may include contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender and disability including the implementation of programmes of the Reconstruction and Development Programme as published in Government Gazette No. 16085 dated 23 November 1994.

2. PREPARATION OF BID SUBMISSIONS

- 2.1. Bidders are required to comply fully with this Request for Bid including annexures during submission to TCTA.
- 2.2. Bid Submissions must:
 - 2.2.1. Not be late and it must be delivered to the address stated on the front page. TCTA shall not accept nor be obliged to accept Bid Submissions submitted after the stipulated closing date and time even if such late submission is as a result of circumstances beyond the Bidder's control;
 - 2.2.2. Clearly reflect the Bid description and bid number on the outer packaging; and
 - 2.2.3. Contain a Firm Price.
- 2.3. TCTA reserves the right to reject bids that are not prepared in terms of section 2.2 and to not evaluate them. This section is subject to the provisions in the Conditions of Bid.
- 2.4. Bidders must provide 2 (two) copies of the Bid submission and one electronic copy on an unencrypted USB hard drive subject to the following:
 - 2.4.1. USB hard drives must not be password protected and must be free of any and all corruption and/or viruses.
 - 2.4.2. TCTA will not be liable to accept or evaluate any file that is not readable and accessible to the relevant bid committee. Bidders will not be allowed to remedy/fix/assess such USB or file after the bid closing date and the information will be deemed as not received.
 - 2.4.3. Only pdf documents and electronic copy (Microsoft Excel) of the price schedules will be accepted and not word, images or any other format not specified in this bid document.
 - 2.4.4. These provisions will be applied on a case by cases basis within the sole discretion of the bid evaluation committee.

- 2.5. The bid submissions shall be duly completed and signed, and shall be submitted as follows:
- 2.5.1. One original bid submission shall be sealed in an envelope endorsed: "ORIGINAL BID SUBMISSION RFB No. 012/2023/PMID/INFRASTRUCTURE/RFB CONSULTANCY SERVICES FOR uMWP-1: SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE FOR 95 MONTHS".
 - 2.5.2. One copy bid submission shall be sealed in an envelope endorsed: "COPY BID SUBMISSION RFB No. 012/2023/PMID/INFRASTRUCTURE/RFB CONSULTANCY SERVICES FOR uMWP-1: SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE FOR 95 MONTHS".
 - 2.5.3. Electronic copy (Microsoft Excel) of the price schedules.
- 2.6. This Bid has 6 stages of evaluation summarised in the document below. Each stage reflects the process of evaluation. Bid submissions must be neat and legible and prepared in the same order as the stages of evaluation. Each stage must be clearly marked.
- 2.7. The bidder must complete and submit all the SBD forms in the annexures, and provide their Tax Compliance Status Pin or the Central Supplier Database Master Registration Number for TCTA to verify the bidder's tax compliance.

3. BACKGROUND

The Mgeni Water Supply System (MWSS) serves the municipalities of eThekweni, uMgungundlovu, Msunduzi and the surrounding areas in KwaZulu-Natal (KZN). It consists of four major dams (Nagle, Midmar, Albert Falls and Inanda) and phases 1 and 2 of the Mooi Mgeni Transfer Scheme.

In 2015, the Department of Water and Sanitation (DWS) completed a technical feasibility study to determine long-term future water requirements in KZN. The study investigated the uMkhomazi Water Project – Phase One (uMWP-1), which will augment the MWSS with water from the uMkhomazi River – the river with the third-largest mean annual runoff in KZN. The system's yield is 398 million m³/a (2013), while the estimated water requirements are 480 million m³/a and 612 million m³/a in 2023 and 2040, respectively. The water requirements projection indicates that MWSS has been in deficit since 2016. Therefore, the system is under stress and will be augmented by uMWP-1.

The implementation of uMWP-1 involves the storage and transfer of about 220 million m³/a of raw water as follows:

- Smithfield Dam and Associated Infrastructure (this RFB):
 - 81 m high Smithfield Dam with a spillway and the outlet Works in the uMkhomazi River near the town of Bulwer.
 - 26 m high saddle dam with a spillway.
 - Smithfield Dam reservoir boat ramp.
 - Three flow gauging weirs in the uMkhomazi River – one upstream and two downstream of Smithfield Dam.
 - Temporary and permanent access roads and security fences.
 - Borrow pits, quarries and waste disposal sites.
 - River diversion works.
 - Operator facilities – permanent houses, offices/control room, guard house; storage and workshop.
 - Realignment or diversion of major and minor roads and Eskom transmission lines.
 - Acquisition of land and rights to land.

- Potential hydropower plant.
- Rehabilitation, and biodiversity offsets and compensation.
- Catchment Management and Ecological Infrastructure Plan.
- Resettlement houses for the affected families/households.
- Water Conveyance Infrastructure:
 - 32km long at 3.5m diameter transfer tunnel from Smithfield Dam reservoir to the uMlaza River valley.
 - 5km long at 2.6m diameter raw water pipeline from the outlet portal of the transfer tunnel above to the proposed Umgeni Water's Water Treatment Works in the uMlaza River valley.
 - Access roads, maintenance/service roads and security fences – permanent and temporary.
 - Borrow pits, quarries and waste disposal sites.
 - Acquisition of land and rights to land.
 - Potential hydropower plant.
 - Rehabilitation, biodiversity offsets and compensation.

Please note that a separate bid document will be issued for the Water Conveyance Infrastructure.

3.1. **Company Experience**

The bidders should have company experience in the design and construction of dams (category 3) projects completed. Please refer to the requirements and instructions on how to complete the form in Annexure A. TCTA will evaluate the bidder's company experience per **Stage 3: Functionality**.

3.2. **Personnel Experience: CVs of Key Personnel**

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

3.3. **SANAS Verified B-BBEE Certificate(s) or Sworn Affidavit(s)**

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

3.4. **Joint Venture Agreement or Memorandum of Understanding and Declaration of Joint and Several Liability**

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

3.5. **Power of Attorney and Authority for Signatory**

The bidder should provide the relevant documents per Annexure E.

3.6. **Letter of Offer by the Bidder**

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

3.7. Summary of Cost Estimate

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

3.8. Personnel Costs

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

3.9. Personnel Billing Rates

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

3.10. Personnel Mark-up Factors

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

3.11. Direct Reimbursable Costs

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

3.12. Cash Flow

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

3.13. Manpower Schedule

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

3.14. Programme and Charts

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

3.15. Proof of Registration with National Treasury Central Supplier Database (CSD)

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

3.16. AGREEMENT FORM AND APPENDICES AND THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT

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

4. SCOPE OF WORK

4.1. Detailed Description of Goods/Services

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

- Task 1: Tender Design and Documentation
- Task 2: Detailed Design
- Task 3: Construction Supervision
- Task 4: Post-Construction Monitoring
- Task 5: Project Management
- Task 6: Black South Africans, Enterprise and Supplier Development Requirements

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

4.2. Deliverables

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

- Develop the EMPs and other plans.
- Undertake tender design and documentation, detailed design, construction supervision and post-construction monitoring.
- Development of black South Africans, enterprises, and suppliers.
- Assess and close the above.
- Perform project management on all the above.

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

5. STAGE 1: ATTENDANCE OF COMPULSORY BRIEFING SESSION

TCTA will refer to the attendance register of the Briefing Session to confirm if a bidder attended the compulsory briefing session.

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

6. STAGE 2: RETURNABLES

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

No.	Document Type	Description	Status
1	Functionality	Company Experience	Non-Mandatory
2	Functionality	Personnel Experience: CVs of Key Personnel	Non-Mandatory
3	Compliance	SANAS verified B-BBEE certificate(s) or Sworn Affidavit(s)	Non-Mandatory
4	Agreement	Joint Venture Agreement or Memorandum of Understanding and Declaration of Joint and Several Liability	Non-Mandatory
5	Agreement	Power of Attorney and Authority for Signatory	Non-Mandatory
6	Price	Letter of Offer by the Bidder	Mandatory
7	Price	Summary of Cost Estimate	Mandatory
8	Price	Personnel Costs	Non-Mandatory
9	Price	Personnel Billing Rate	Non-Mandatory
10	Price	Personnel Mark-Up Factors	Non-Mandatory
11	Price	Direct Reimbursable Costs	Non-Mandatory
12	Price	Cash Flow	Non-Mandatory
13	Price	Manpower Schedule	Non-Mandatory
14	Compliance	Programme and Charts	Non-Mandatory
15	SBD1	Request for Bid (SBD 1)	Non-Mandatory
16	SBD4	Bidder's Disclosure (SBD 4)	Mandatory
17	SBD6.1	In Terms of PPR 2022 (SBD 6.1)	Mandatory
18	Compliance	Proof of Registration with National Treasury Central Supplier Database (CSD)	Non-Mandatory

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

7. STAGE 3: FUNCTIONALITY

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

No.	Functionality	Maximum score
1	<p>Company Experience (Refer to Annexure A)</p> <p>Design AND construction supervision/monitoring of new large dam (category 3** with vertical height ≥ 25 m) projects completed*.</p> <p>*The construction contract for each project must be completed and the completion/taking over or performance certificate for the whole works issued to the main contractor for points allocation below.</p> <ul style="list-style-type: none"> • Five points for each large dam (category 3** with vertical height ≥ 25 m) project completed (maximum: 20 points). • Five additional points per large rockfill dam (category 3** with vertical height ≥ 25 m) project completed (maximum: 10 points). • The above are not mutually exclusive. 	30
	Subtotal	30
2	Personnel Experience: CVs of Key Personnel (Refer to Annexure B)	
2.1	<p>Project Manager:</p> <p>The incumbent must be a Professional Engineer (Pr. Eng.) (or internationally equivalent) and have at least ten years of professional project management experience in similar/comparable civil engineering infrastructure projects with capital cost (i.e. total project value and not just consultant's cost) of $\geq R350$ million (excluding VAT).</p> <ul style="list-style-type: none"> • Nil points for the first nine years. • 1 point for every additional year of experience (maximum: 10 points). • Additional 2.5 points for using FIDIC contracts for a project (maximum: 2.5 points). • Additional 2.5 points for a large dam (category 3** with vertical height ≥ 25 m) project (maximum: 2.5 points). 	15
2.2	<p>Dam Design Engineer:</p> <p>The incumbent must be a Professional Engineer (Pr. Eng.) (or internationally equivalent) and have at least ten years of professional experience in the design and construction of new large dams (category 3** with vertical height ≥ 25 m).</p> <ul style="list-style-type: none"> • Nil points for the first nine years. • 2 points for every additional year of experience (maximum 16 points). • Additional 2 points for each large rockfill dam (category 3** with vertical height ≥ 25 m) project (maximum: 4 points). 	20
2.3	<p>Stakeholder Engagement Specialist:</p> <p>The incumbent must have a degree in culture, communications and media, social</p>	10

No.	Functionality	Maximum score
	<p>science or environmental-related (NQF level 7) and have at least eight years experience in social facilitation/ community engagement relating to resettlement of people and relocation of graves due to construction of large civil or mining infrastructure projects. The incumbent should be knowledgeable in the local cultural practices.</p> <ul style="list-style-type: none"> • Nil points for the first seven years • 2 points for every additional year of experience (maximum: 8 points). • 2 additional points for experience in projects within the uMgungundlovu District Municipality (maximum 2 points). 	
2.4	<p>Chief Resident Engineer:</p> <p>The incumbent should be a Professional Engineer (Pr. Eng) (or internationally equivalent) and have at least ten years of experience in the construction supervision/monitoring of large dams (category 3** with vertical height ≥ 25 m).</p> <ul style="list-style-type: none"> • Nil points for the first nine years. • 1 point for every additional year of experience (maximum: 10 points). • Additional 2.5 points for using FIDIC contracts for a project (maximum: 2.5 points). • Additional 2.5 points for a large dam (category 3** with vertical height ≥ 25m) project (maximum: 2.5 points). 	15
2.5	<p>Senior Geological and Geotechnical Engineer:</p> <p>The incumbent must have BSc (geology), be a Professional Natural Scientist (Pr. Sci. Nat.) OR be a Professional Engineer (Pr. Eng) (or internationally equivalent) and have at least ten years of experience in geological, geohydrological and geotechnical investigations, geophysical surveys, mapping, testing and assessments of large dams (category 3** with vertical height ≥ 25m) and related infrastructure.</p> <ul style="list-style-type: none"> • Nil points for the first nine years. • 2 points for every additional year of experience (maximum: 20 points). 	20
2.6	<p>Environmental Assessment Practitioner:</p> <p>The incumbent must have environmental-related degree in biological, physical or earth sciences (NQF level 7) and have at least eight years of experience in managing and monitoring environmental and social management in similar/comparable bulk water or civil engineering infrastructure projects, i.e. Environmental Impact Assessments and preparation of Environmental Management Programmes.</p> <ul style="list-style-type: none"> • Nil points for the first seven years. • 2 points for every additional year of experience (maximum: 8 points). • Additional 1 point for valid registration with the Environmental Assessment Practitioners Association of South Africa. (maximum: 1 point). • Additional 1 point for valid registration with the South African Council for Natural Scientific Professions (SACNASP) (maximum: 1 points). 	10

No.	Functionality	Maximum score
	Subtotal	90
	TOTAL	120

Notes:

1. **Category 3 is a dam with a safety risk and a storage capacity of >50 000 m³, and a vertical height >5 m.
2. The vertical height of a dam is measured from the lowest natural bed level at the downstream toe of the dam wall to the non-overspill crest.
3. If the CV and table is not submitted in the prescribed template and format as outlined in Annexure B, the zero points will be awarded for the relevant human resource (personnel). This applies to each personnel listed above, i.e. no. 2.1 to 2.6.

Bidders who do not meet the threshold of 15 points out of the 30 points under Company Experience will be disqualified at the end of this stage and not evaluated further.

Furthermore, bidders who do not meet the threshold of 45 points out of the 90 points under Personnel Experience will be disqualified at the end of this stage and not evaluated further.

8. STAGE 4: SPECIFIC GOALS

The specific goals for this bid are as follows:

8.1. B-BBEE

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

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

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

9. STAGE 5: PRICE

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

9.6. Preferential Points Calculation

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

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

Where-

P_s = Points scored for price of bid under consideration;

P_t = Price of bid under consideration; and

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

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

Specific Goals	= 10
Price	= 90

Bidder's Score

10. STAGE 6: SUPPLIER VETTING

TCTA may disqualify a bidder who/whose:

- 10.1.1. Submits fraudulent information or information that they do not have to authority to submit;
- 10.1.2. Is listed on National Treasury's list of Blacklisted Suppliers or Defaulters or similar;
- 10.1.3. Poses a risk in terms of any vetting process conducted either by TCTA internally or the National Intelligence Agency;
- 10.1.4. Has a director and/or shareholder who is employed by any organ of state. This does not apply to any organ of state acting as a bidder. If a bidder has a director and/or shareholder who is employed by an organ of state, they must submit a letter from the relevant organ of state

stating that they are allowed to do remunerative work outside of their employment contract and that they are not prohibited from doing business with other organs of state; and

- 10.1.5. Tax affairs are not in order at the time of award after being requested to resolve the non-compliance status with SARS within the prescribed period.

11. CONDITIONS OF BID

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

11.1. Costs of Bidding

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

11.2. Clarifications

- 11.2.1. All questions or queries regarding the Request for Bid must be directed to the person stated on the front page of this document, stating the relevant Bid number in the subject field, before the stipulated closing date and time of the Request for Bid. No e-mails, faxes and/or telephone calls should be directed to any other employees of TCTA.
- 11.2.2. TCTA shall not be liable nor assume liability for any failure to respond to any questions and/or queries raised by potential Bidders.
- 11.2.3. Should a Bidder fail to complete the annexures TCTA may call upon the Bidder to complete and submit such annexures except where such annexures are indicated as mandatory or are required for purposes of functional and preferential points evaluation. TCTA reserves the right to request clarity and to clarify any ambiguities in the documents that have already been submitted. If a Bidder fails to submit any of the requested documents and / or annexures duly completed within 5 (five) working days of being called upon to do so, then the TCTA may disqualify the Bidder.

11.3. Amendments

- 11.3.1. TCTA reserves the right, in its sole and absolute discretion, to amend any terms and conditions of the Request for Bid and/or to stipulate additional requirements, provided that such amended terms and conditions and/or additional requirements are placed on TCTA's website at least 10 (ten) business days prior to the stipulated closing date and time.
- 11.3.2. Any amended terms and conditions and/or stipulation of additional requirements by TCTA shall be deemed to form part of this Request for Bid.

- 11.3.3. TCTA shall not be liable, nor assume liability of any nature whatsoever, for the failure of a Bidder to receive information if sent to the e-mail, fax or postal address supplied.
- 11.3.4. TCTA reserves the right to stipulate additional Bid requirements as it deems appropriate in its sole and absolute discretion.
- 11.3.5. TCTA shall not be liable nor assume liability to any potential Bidder/s for any failure by such Bidder/s to receive any request for additional information.
- 11.3.6. In the event that TCTA amends its Bid requirements or requests additional information, any Bidder shall be entitled to withdraw its Bid Submission submitted by it prior to the stipulated closing date and time and re-submit a replacement Bid Submission by not later than the stipulated closing date and time.

11.4. Modification, Alteration or Substitution and/or Withdrawal of a Bid Submission

- 11.4.1. Any Bidder shall be entitled to withdraw or modify its Bid Submission at any time prior to the stipulated closing date and time.
- 11.4.2. Any amendment or alteration to the Bid documents must be received before the closing date and time of the Bid as stipulated in the conditions of Bid. The words "Amendment to Bid" and the description of the Bid must be clearly reflected on the envelope containing the documents or courier packaging as referred to above.
- 11.4.3. No modification, alteration or substitution of Bid Submissions will be permitted after the stipulated closing date and time.
- 11.4.4. TCTA reserves the right to request Bids for clarification needed to evaluate their Bids, however, such request for clarification shall not allow or entitle Bidders to change the substance or price of their Bids after Bid opening. Any request for clarification and the Bidder's responses will be made in writing.

11.5. Validity Period

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

11.6. Disclaimer - Protection of Personal Information Act

- 11.6.1. By participating in this bid process, you hereby acknowledge that you have read and accept the following Protection of Personal Information (POPI) disclaimer.
- 11.6.2. You (the Bidder, herein after referred to in the first person for purposes of this disclaimer) understand and agree that all information provided, whether personal or otherwise, may be used and processed by TCTA and such use may include placing such information in the public domain.
- 11.6.3. Further by partaking in this process you specifically agree that the TCTA will use such information provided by you, irrespective of the nature of such information.
- 11.6.4. TCTA shall take all reasonable measures to protect the personal information of users and for the purpose of this disclaimer "personal information" shall be defined as detailed in the Promotion of Access to Information Act, Act 2 of 2000 ("PAIA") and the Protection of Personal Information Act, Act 4 of 2013 ("POPI").
- 11.6.5. As per the POPI Act personal information refers to information that identifies or relates specifically to you as a person or data subject, for example, your name, age, gender, identity number and your email address.
- 11.6.6. We may collect the following information about you:
 - 11.6.6.1. Your name, address, contact details, date of birth, place of birth, identity number, passport number, bank details, details about your employment, tax number and financial information;
 - 11.6.6.2. Information about your beneficial owner if we are required to do so in terms of POPIA.
 - 11.6.6.3. Records of correspondence or enquiries from you or anyone acting on your behalf.
 - 11.6.6.4. Details of transactions you carry out with us.
 - 11.6.6.5. Details of contracts you carry out with us; and
 - 11.6.6.6. Sensitive or special categories of personal information, including biometric information, such as images, fingerprints, and voiceprints.
- 11.6.7. If you are under 18 years old, please do not provide us with any personal information unless you have the permission of your parent or legal guardian to do so.
- 11.6.8. Why we collect Personal Information
- 11.6.9. Employee and Contractor Information
 - 11.6.9.1. To Remunerate the person.
 - 11.6.9.2. To comply with laws authorising or requiring such processing, including (but not limited to) the Basic Conditions of Employment Act 75 of 1997; the Labour

Relations Act 66 of 1995 as amended; the Employment Equity Act 55 of 1998; the Occupational Health and Safety Act 85 of 1993, the Income Tax Act 58 of 1962 and the VAT Act 89 of 1991.

- 11.6.9.3. To Admit the person to the Pension Fund and/or Medical Aid providers, if applicable.
- 11.6.9.4. To conduct criminal, credit, employment reference and other related reference checks.
- 11.6.9.5. To provide value added services such as human resource administration, training, performance reviews, talent management and other reasons related to the management of employees and/or contractors.

11.6.10. Client Information

- 11.6.10.1. To render client related services and administration of client accounts.
- 11.6.10.2. To conduct criminal, credit, reference, and other related reference checks.
- 11.6.10.3. To authenticate the client.
- 11.6.10.4. To provide the client with information which TCTA believes may be of interest to the client, such as information relating to public awareness campaigns and matters of public interest in which TCTA is involved or has decided to lend its support to.

11.6.11. Supplier and Third-Party Contractor/Service Provider Information

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

11.6.12. Sources of Personal Information

- 11.6.12.1. Personal information may be collected from the following sources:
- 11.6.12.2. Directly from the person when he/she applies for any TCTA related employment, provide services to TCTA, submit forms requests or transactions, use our websites, or make use of any of the TCTA services.

- 11.6.12.3. From public registers, credit bureaus and law enforcement agencies and any other organisation from which TCTA may acquire your information.
- 11.6.12.4. From people and entities employed by TCTA to provide services to TCTA which may be legally entitled to provide TCTA with personal information.

11.6.13. The Storage of Personal Information

- 11.6.13.1. All personal information collected by TCTA will be stored as follows:
- 11.6.13.2. In a secure and safe manner according to strict information security principles with safeguards to ensure its privacy and confidentiality.
- 11.6.13.3. For no longer than is necessary to achieve the purpose for which it was collected unless further retention is:
- 11.6.13.4. Required by law or contractual obligation.
- 11.6.13.5. Otherwise reasonably required by TCTA for lawful purposes related to its functions and activities.
- 11.6.13.6. Retained further with the person's consent:
- 11.6.13.7. After which the information will be de-identified and disposed of as per the TCTA Records policy.

11.6.14. Sharing of Personal Information

- 11.6.14.1. Any information supplied to TCTA will be treated as confidential and TCTA will not disclose information unless legally permitted thereto. No information will be transferred to a Third Party without the explicit consent of the data subject unless legally obliged thereto. By providing the personal information, the data subject agrees that TCTA may transfer the information to the following people and organisations in pursuit of the data processing purposes set out in our Policy on the Protection of Personal Information.
- 11.6.14.2. To the divisions and departments in TCTA, including directors, employees, contractors, agents, auditors, legal and other professional advisors who are authorised to process this information.
- 11.6.14.3. To financial and government organisations who may request information from TCTA, in which case the data subject will be notified in advance; the provision of such information, including banks, governmental, judicial, regulatory and law enforcement bodies including the South African Revenue services and the National Credit Regulator.
- 11.6.14.4. To persons employed by TCTA to provide services on our behalf and that adhere to principles like TCTA regarding the treatment of personal information.

- 11.6.14.5. To any person to whom TCTA cede, delegate, transfer or assign any of our rights or obligations pertaining to products and/or services provided to the person or contracts concluded with the person.
- 11.6.14.6. To any person who acts as legal guardian, executor of an estate, curator or in a similar capacity.
- 11.6.14.7. To any person or persons who may be permitted by applicable law or that you may consent to, including persons or entities who may request such information to evaluate the credit worthiness of the person.

11.6.15. Your Rights regarding your Personal Information

- 11.6.15.1. A data subject (employee, contractor, supplier and/or customer) has the following rights to his/her personal information collected, processed, and stored by TCTA:
- 11.6.15.2. Right of access to and the right to rectify or update the personal information collected.
- 11.6.15.3. The right to object at any time to the processing of the personal information in which event the consequences of the objection will be explained to the data subject.
- 11.6.15.4. The right to request TCTA to no longer process the personal information of the data subject should the information not be required for further processing or by law.

11.6.16. General Conditions pertaining to Personal Information

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

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

11.7. Conflicts of Interest

- 11.7.1. Bidders are required to provide professional, objective and impartial advice/services and at all times and to hold the client's interest's paramount, without any consideration for future work and strictly avoid conflicts with other assignments or their own corporate interests.
- 11.7.2. Bidders may not be appointed for any bid that would be in conflict with their prior or current obligations to other clients, or that may place them in a position of not being able to carry out the scope of work in the best interest of TCTA. The bidders appointment will be in the sole discretion of TCTA having considered the bidders connection to their earlier obligations to TCTA and shall be considered by Procurement on a case by case basis.

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

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

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

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

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

11.8. Right Not to Award

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

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

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

11.8.3. No acceptable Bid is received; or

11.8.4. There are material irregularities in the Bid process

11.9. Subcontracting after award

The successful bidder:

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

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

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

11.10. Notification of Unsuccessful Bidders

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

11.11. Prohibition of Bribery, Fraudulent and Corrupt Practices

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

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

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

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

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

11.12. Fronting

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

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

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

11.13. Joint venture or consortium

11.13.1. The joint venture or consortium agreement:

- 11.13.1.1. Must clearly and comprehensively set out the contributions to be made by each member towards the activities of the joint venture or consortium in securing and executing the contract and should allocate monetary values to such contributions.
- 11.13.1.2. Must record the percentage participation by each member.
- 11.13.1.3. Must provide for meaningful input by all members to the policy making and management activities of the joint venture or consortium;
- 11.13.1.4. Must provide for the establishment of a management body for the joint venture or consortium;
- 11.13.1.5. Must provide measures to limit, as far as possible, losses to the joint venture or consortium by the default of a member;
- 11.13.1.6. Must promote consensus between the members whilst ensuring that the activities of the joint venture or consortium will not be unduly hindered by failure to achieve it;
- 11.13.1.7. Must provide for rapid, affordable and easy interim dispute resolution and for effective final dispute resolution, if required; and
- 11.13.1.8. Must be sufficiently flexible to allow for joint venture or consortiums which differ in nature, objectives, inputs by members, management systems, etc;
- 11.13.1.9. Must submit on annual basis consolidated BBBEE scorecard for the Joint Venture failure which TCTA will implement contractual remedies.

11.13.2. Right to review the joint venture or consortium agreement

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

11.13.3. Amendment of the joint venture or consortium agreement

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

ANNEXURES

The following returnables/schedules must be completed, and documents submitted by the bidder as part of the bid submission. **If the space is inadequate, the bidder must append additional/supplementary tables/sheets to comply with the bid requirements.** Each other/extra sheet must display "Contract No. TCTA 19-042" and be cross-referenced appropriately, firmly appended to the relevant returnable/schedule, or otherwise included. They will not inadvertently be detached from the bid submission. A complete contents list of all sheets, including those that may be attached to the returnables/schedules, must be provided by the bidder. References given are for guidance only and not necessarily exclusive of other pertinent information in this RFB. The bidder must sign each page of each schedule, including any supplementary tables.

Apart from providing data in the Agreement, the information and documents provided in the returnables/schedules are material to the bid evaluation and will assess how well the bidder has complied with this RFB.

ANNEXURE	DOCUMENT TYPE	DESCRIPTION
A	Functionality	COMPANY EXPERIENCE
B	Functionality	PERSONNEL EXPERIENCE: CVS OF KEY PERSONNEL
C	Compliance	SANAS VERIFIED B-BBEE CERTIFICATE(S) OR SWORN AFFIDAVIT(S)
D	Agreement	JOINT VENTURE AGREEMENT OR MEMORANDUM OF UNDERSTANDING AND DECLARATION OF JOINT AND SEVERAL LIABILITY
E	Agreement	POWER OF ATTORNEY AND AUTHORITY FOR SIGNATORY
F	Price	LETTER OF OFFER BY THE BIDDER
G	Price	SUMMARY OF COST ESTIMATE
H	Price	PERSONNEL COSTS
I	Price	PERSONNEL BILLING RATES
J	Price	PERSONNEL MARK-UP FACTORS
K	Price	DIRECT REIMBURSABLE COSTS
L	Price	CASH FLOW
M	Administrative	MANPOWER SCHEDULE
N	Administrative	PROGRAMME AND CHARTS
O	Compliance	REQUEST FOR BID (SBD1)
P	Compliance	BIDDERS DISCLOSURE (SBD 4)
Q	Compliance	IN TERMS OF PPR 2022 (SBD 6.1)
R	Compliance	PROOF OF REGISTRATION WITH NATIONAL TREASURY CENTRAL SUPPLIER DATABASE (CSD)
S	Agreement	AGREEMENT FORM AND APPENDICES AND THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT **

** The Agreement form will be signed with the preferred bidder after evaluation of bids, i.e. contract award.

ANNEXURE A: COMPANY EXPERIENCE: DESIGN AND CONSTRUCTION SUPERVISION/MONITORING OF LARGE DAM INFRASTRUCTURE PROJECTS

- i) The bidder should list the appropriate and relevant company experience per the form below. For each dam project listed, information must be provided: Design AND construction supervision/monitoring (Employer's Representative or Engineer) of new large dam (category 3* with vertical height ≥ 25 m) projects completed.
- ii) **In the case where the services listed above were performed as a sub-consultant(s) or within a consortium or joint venture, this should be clearly stated, with an indication of the proportions (company person-months versus total project person-months) and the nature of the services rendered by each participant.**

No.	Project name and brief description *	Dam details, incl. type	Dam category and vertical height	Completion dates	Details of services rendered and level of participation per ii) above	Name of client/employer and company, and contact person's name, number or email
1						
2						
3						
4						
5						
6						
...						

IMPORTANT NOTES:

* Category 3 is a dam with a safety risk and a storage capacity of $>50\,000\text{ m}^3$, and a vertical height >5 m.

The vertical height of a dam is measured from the lowest natural bed level at the downstream toe of the dam wall to the non-overspill crest.

Only completed large dam projects, where the completion/taking-over or performance certificate for the whole construction works for each project has been issued to the main contractor.

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

SIGNATURE:

DATE:

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

ANNEXURE B: PERSONNEL EXPERIENCE

The bidder should determine and indicate the human resources as follows:

- i) All personnel categories and positions proposed per Manpower Schedule, including South African black professional people and key personnel below and their relationships per Organisational Structure.
 - Parent firm/company in abbreviation and brackets after each personnel.
 - Concise statement of the duties of each personnel, the suitability of their qualification(s) and concise experience record.
- ii) The bidder should submit CVs for key personnel in the format below - Curricula Vitae (CVs) of all key personnel identified by the TCTA for evaluation, i.e. bid. Each CV shall be strictly limited to a maximum of three (3) pages and shall give the following information:
 - Name, age, the parent firm, nationality and position in project organisation;
 - Demographic Status as defined in the Employment Equity Act No.55 of 1998;
 - Educational qualifications;
 - Professional qualifications (societies, honorary, publications, etc.);
 - Valid professional registrations and registration numbers;
 - Relevant experience (actual duties performed, degree of responsibility and management level must be indicated), including locations, dates and durations of assignments, starting with the latest;
 - Summary of other experiences;
 - Proficiency in speaking, reading and writing in English; and
 - Signature of the individual.
- iii) Much importance will be placed on the qualifications and experience of the personnel proposed. The bidder must ensure that, if selected, the nominated persons will be assigned as proposed. If the person is not available, then the bidder may replace the person with an equal or better alternative, subject to approval by the TCTA. Failure to do so may result in the annulment of any acceptance of the bidder's submission/proposal and Agreement/contract entered into by TCTA executing the Services. Attention is drawn to Sub-Clause 3.5.1 of the General Conditions of the FIDIC Client/Consultant Model Services Agreement.
- iv) TCTA may interview the key personnel of the preferred bidder during the negotiations stage.

The TCTA requires that the bidder complete the table below – list all personnel to render Services.

Position/Title	Title and Name (Nationality)	Black person (Y/N)	Youth (Y/N)	Duties, qualifications, and experience, OR refer to Key Personnel CV
Project Manager	Mr Tom Harris (South African) (Parent Firm)	N	N	Key personnel CV
Contracts Engineer				
Dam Design Engineer				
Chief Resident Engineer				
Senior Geological and Geotechnical Engineer				
Environmental Assessment Practitioner				
Senior Structural Engineer				
Construction Health and Safety Specialist or Manager				
Senior Hydraulic Design Engineer				
Environmental Manager (1)				
Stakeholder Engagement Specialist				
...				
...				
...				

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

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

DATE:

CV OF KEY PERSONNEL (1): PROJECT MANAGER

CV is to be submitted in the following format:

Name:

Profession:

Date of Birth:

Parent Firm:

Position in Firm:

Years with Firm:

Nationality:

BI & Male/Female Status:

Tertiary Education (and year obtained):

Professional Registrations (and year obtained):

Languages:

Please indicate your first language. If the first language is not English, please indicate proficiency in English. For other languages, please show speaking, reading and writing ability.

Countries of Work Experience:

PROPOSED POSITION ON TEAM:

KEY QUALIFICATIONS:

Please outline staff members' qualifications and training that are most pertinent to the assigned work on the team.

RELEVANT EXPERIENCE

Describe the degree of responsibility held by the staff member on relevant previous assignments and give dates and locations. For experience in the last ten years, provide types of activities performed and client references where appropriate.

SUMMARY OF OTHER EXPERIENCE

List all positions held by the staff member since graduation, giving dates, names of employing organisations and companies, the title of positions held and locations of assignments.

REFERENCES

Provide details of two contactable references or referees.

FUNCTIONALITY

Notwithstanding the above, complete the table below. The information is required for evaluation, i.e. functionality. Points will not be allocated if the table is not completed.

1. Experience in project management, i.e. similar/comparable bulk water or civil engineering infrastructure projects with capital cost of ≥R350 million (excl VAT) (i.e. total project value and not just consultant's cost) and large dams (category 3** with vertical height ≥25 m).
2. Pr. Eng (Yes or No): _____; Registration No.: _____
Details of internationally equivalent to Pr. Eng (if relevant): _____
3. Attach valid registration certificates/documents.

No.	Role / Duties	Contract Type, e.g. FIDIC Red Book	Large dams (category 3**; vertical height ≥25 m)		Capital project cost of ≥R350 million (excl. VAT)	
			<i>Project name and brief description, and details of the dam (incl category and height)</i>	<i>Duration of work experience in years*</i>	<i>Project name and brief description, and capital cost in Rands (excl. VAT)</i>	<i>Duration of work experience in years*</i>
1						
2						
3						
4						
5						
...						

IMPORTANT NOTES:

1. * The “duration of work experience in years” must be relevant to the project and indicate the start and finish dates in years of professional experience on each project listed. As such, the relevant professional experience must be listed from the first year (e.g. 1997) to the last year (e.g. 2022). Also, the projects must be listed in ascending order, considering the “duration of work experience in years”.
2. ** Category 3 is a dam with a safety risk and a storage capacity of >50 000 m³, and a vertical height >5 m. The vertical height of a dam is measured from the lowest natural bed level at the downstream toe of the dam wall to the non-overspill crest.
3. If the space is inadequate, the bidder must append additional/supplementary tables/sheets OR expand the cells/table. Where requested, and the bidder is unable to convert the table to Microsoft Word, TCTA will provide the annexure in Microsoft Word.
4. **The bidder must not make notes in the table above referencing information that is provided elsewhere in the bid submission. The table must be completed in full to ensure that points will be allocated correctly per the evaluation criteria, i.e. functionality. Bidders who use their own CV format/table will score zero points.**

Declaration:

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the bid for the uMkhomazi Water Project – Phase 1 (uMWP-1): Smithfield Dam and Associated Infrastructure, for the duration and at the locations noted therein.

Signature of Staff Member

Date

CV OF KEY PERSONNEL (2): DAM DESIGN ENGINEER

CV is to be submitted in the following format:

Name:

Profession:

Date of Birth:

Parent Firm:

Position in Firm:

Years with Firm:

Nationality:

BI & Male/Female Status:

Tertiary Education (and year obtained):

Professional Registrations (and year obtained):

Languages:

Please indicate your first language. If the first language is not English, please indicate proficiency in English. For other languages, please show speaking, reading and writing ability.

Countries of Work Experience:

PROPOSED POSITION ON TEAM:

KEY QUALIFICATIONS:

Please outline staff members' qualifications and training that are most pertinent to the assigned work on the team.

RELEVANT EXPERIENCE

Describe the degree of responsibility held by the staff member on relevant previous assignments and give dates and locations. For experience in the last ten years, provide types of activities performed and client references where appropriate.

SUMMARY OF OTHER EXPERIENCE

List all positions held by the staff member since graduation, giving dates, names of employing organisations and companies, the title of positions held and locations of assignments.

REFERENCES

Provide details of two contactable references or referees.

FUNCTIONALITY

Notwithstanding the above, complete the table below. The information is required for evaluation, i.e. functionality. Points will not be allocated if the table is not completed.

1. Experience in the design and construction of new large dams (category 3** with vertical height ≥ 25 m) projects.
2. Pr. Eng (Yes or No): _____; Registration No.: _____
Details of internationally equivalent to Pr.Eng (if relevant): _____
3. Attach valid registration certificates/documents.

No.	Role / Duties	Dam details	Project name and brief description, and details of the dam (incl. category and vertical height)	Duration of work experience on the project in years*
1				
2				
3				
4				
5				
...				

IMPORTANT NOTES:

1. * The “duration of work experience on the project in years” must indicate the start and finish dates in years on each project listed. As such, the relevant professional experience must be listed from the first year (e.g. 1997) to the last year (e.g. 2022). Also, the projects must be listed in ascending order, considering the “duration of work experience on the project in years”.
2. ** Category 3 is a dam with a safety risk and a storage capacity of $>50\,000\text{ m}^3$, and a vertical height $>5\text{ m}$.
3. The vertical height of a dam is measured from the lowest natural bed level at the downstream toe of the dam wall to the non-overspill crest.
4. If the space is inadequate, the bidder must append additional/supplementary tables/sheets OR expand the cells/table. Where requested, and the bidder is unable to convert the table to Microsoft Word, TCTA will provide the annexure in Microsoft Word.
5. **The bidder must not make notes in the table above referencing information that is provided elsewhere in the bid submission. The table must be completed in full to ensure that points will be allocated correctly per the evaluation criteria, i.e. functionality. Bidders who use their own CV format/table will score zero points.**

Declaration:

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the bid for the uMkhomazi Water Project – Phase 1 (uMWP-1): Smithfield Dam and Associated Infrastructure, for the duration and at the locations noted therein.

Signature of Staff Member

Date

CV OF KEY PERSONNEL (3): CHIEF RESIDENT ENGINEER

CV is to be submitted in the following format:

Name:

Profession:

Date of Birth:

Parent Firm:

Position in Firm:

Years with Firm:

Nationality:

BI & Male/Female Status:

Tertiary Education (and year obtained):

Professional Registrations (and year obtained):

Languages:

Please indicate your first language. If the first language is not English, please indicate proficiency in English. For other languages, please show speaking, reading and writing ability.

Countries of Work Experience:

PROPOSED POSITION ON TEAM:

KEY QUALIFICATIONS:

Please outline staff members' qualifications and training that are most pertinent to the assigned work on the team.

RELEVANT EXPERIENCE

Describe the degree of responsibility held by the staff member on relevant previous assignments and give dates and locations. For experience in the last ten years, provide types of activities performed and client references where appropriate.

SUMMARY OF OTHER EXPERIENCE

List all positions held by the staff member since graduation, giving dates, names of employing organisations and companies, the title of positions held and locations of assignments.

REFERENCES

Provide details of two contactable references or referees.

FUNCTIONALITY

Notwithstanding the above, complete the table below. The information is required for evaluation, i.e. functionality. Points will not be allocated if the table is not completed.

1. Experience in the construction supervision/monitoring of large dam (category 3** with vertical height ≥ 25 m) projects.
2. Pr. Eng (Yes or No): _____; Registration No.: _____
Details of internationally equivalent to Pr. Eng (if relevant): _____
3. Attach valid registration certificates/documents.

No.	Role / Duties	Contract Type, e.g. FIDIC Red Book	Project name and brief description, and details of the dam (incl. category and vertical height)	Duration of work experience on the project in years*
1				
2				
3				
4				
5				
...				

IMPORTANT NOTES:

1. * The “duration of work experience on the project in years” must be relevant to the project and indicate the start and finish dates in years of professional experience on each project listed. As such, the relevant professional experience must be listed from the first year (e.g. 1997) to the last year (e.g. 2022). Also, the projects must be listed in ascending order, considering the “duration of work experience in years”
2. ** Category 3 is a dam with a safety risk and a storage capacity of $>50\,000\text{ m}^3$, and a vertical height $>5\text{ m}$.
3. The vertical height of a dam is measured from the lowest natural bed level at the downstream toe of the dam wall to the non-overspill crest.
4. If the space is inadequate, the bidder must append additional/supplementary tables/sheets OR expand the cells/table. Where requested, and the bidder is unable to convert the table to Microsoft Word, TCTA will provide the annexure in Microsoft Word.
5. **The bidder must not make notes in the table above referencing information that is provided elsewhere in the bid submission. The table must be completed in full to ensure that points will be allocated correctly per the evaluation criteria, i.e. functionality. Bidders who use their own CV format/table will score zero points.**

Declaration:

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the bid for the uMkhomazi Water Project – Phase 1 (uMWP-1): Smithfield Dam and Associated Infrastructure, for the duration and at the locations noted therein.

Signature of Staff Member

Date

CV OF KEY PERSONNEL (4): STAKEHOLDER ENGAGEMENT SPECIALIST

CV is to be submitted in the following format:

Name:

Profession:

Date of Birth:

Parent Firm:

Position in Firm:

Years with Firm:

Nationality:

BI & Male/Female Status:

Tertiary Education (and year obtained):

Professional Registrations (and year obtained, if any):

Languages:

Please indicate your first language. If the first language is not English, please indicate proficiency in English. For other languages, please show speaking, reading and writing ability.

Countries of Work Experience:

PROPOSED POSITION ON TEAM:

KEY QUALIFICATIONS:

Please outline staff members' qualifications and training that are most pertinent to the assigned work on the team.

RELEVANT EXPERIENCE

Describe the degree of responsibility held by the staff member on relevant previous assignments and give dates and locations (country, province and municipality). For experience in the last ten years, provide types of activities performed and client references where appropriate.

SUMMARY OF OTHER EXPERIENCE

List all positions held by the staff member since graduation, giving dates, names of employing organisations and companies, the title of positions held and locations of assignments.

REFERENCES

Provide details of two contactable references or referees.

FUNCTIONALITY

Notwithstanding the above, complete the table below. The information is required for evaluation, i.e. functionality. Points will not be allocated if the table is not completed.

1. Experience in social facilitation/community engagement relating to resettlement of people and relocation of graves due to construction of large civil or mining infrastructure projects.
2. Degree in communications or developmental studies (specify): _____
3. Attach qualification certificates/documents.

No.	Role / Duties	Project name, location and brief description	Details of specific project activities, i.e. work/services rendered	Duration of work experience on the project in years*
1				
2				
3				
4				
5				
...				

IMPORTANT NOTES:

1. * The “duration of work experience on the project in years” must indicate the start and finish dates in years on each project listed. As such, the relevant professional experience must be listed from the first year (e.g. 1997) to the last year (e.g. 2022). Also, the projects must be listed in ascending order, considering the “duration of work experience on the project in years”.
2. If the space is inadequate, the bidder must append additional/supplementary tables/sheets OR expand the cells/table. Where requested, and the bidder is unable to convert the table to Microsoft Word, TCTA will provide the annexure in Microsoft Word.
3. **The bidder must not make notes in the table above referencing information that is provided elsewhere in the bid submission. The table must be completed in full to ensure that points will be allocated correctly per the evaluation criteria, i.e. functionality. Bidders who use their own CV format/table will score zero points.**

Declaration:

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the bid for the uMkhomazi Water Project – Phase 1 (uMWP-1): Smithfield Dam and Associated Infrastructure, for the duration and at the locations noted therein.

Signature of Staff Member

Date

CV OF KEY PERSONNEL (5): SENIOR GEOLOGICAL AND GEOTECHNICAL ENGINEER

CV is to be submitted in the following format:

Name:

Profession:

Date of Birth:

Parent Firm:

Position in Firm:

Years with Firm:

Nationality:

BI & Male/Female Status:

Tertiary Education (and year obtained):

Professional Registrations (and year obtained, if any):

Languages:

Please indicate your first language. If the first language is not English, please indicate proficiency in English. For other languages, please show speaking, reading and writing ability.

Countries of Work Experience:

PROPOSED POSITION ON TEAM:

KEY QUALIFICATIONS:

Please outline staff members' qualifications and training that are most pertinent to the assigned work on the team.

RELEVANT EXPERIENCE

Describe the degree of responsibility held by the staff member on relevant previous assignments and give dates and locations. For experience in the last ten years, provide types of activities performed and client references where appropriate.

SUMMARY OF OTHER EXPERIENCE

List all positions held by the staff member since graduation, giving dates, names of employing organisations and companies, the title of positions held and locations of assignments.

REFERENCES

Provide details of two contactable references or referees.

FUNCTIONALITY

Notwithstanding the above, complete the table below. The information is required for evaluation, i.e. functionality. Points will not be allocated if the table is not completed.

1. Experience in geological, geohydrological and geotechnical investigations, surveys, mapping, testing and assessments of large dams (category 3** with vertical height $\geq 25\text{m}$) and related infrastructure.
2. Pr. Eng / Pr. Sci. Nat. (specify): _____; Registration No.: _____
OR
BSc (geology) (Yes or No): _____
Details of internationally equivalent Pr. Eng / Pr. Sci. Nat. / BSc (geology) (if relevant): _____
3. Attach valid registration and qualification certificates/documents.

No.	Role / Duties	Project name and brief description, and details of the dam (incl. category and vertical height)	Details of the project, i.e. work/services rendered	Duration of work experience on the project in years*
1				
2				
3				
4				
5				
...				

IMPORTANT NOTES:

1. * The “duration of work experience on the project in years” must indicate the start and finish dates in years on each project listed. As such, the relevant professional experience must be listed from the first year (e.g. 1997) to the last year (e.g. 2022). Also, the projects must be listed in ascending order, considering the “duration of work experience on the project in years”.
2. ** Category 3 is a dam with a safety risk and a storage capacity of $>50\,000\text{ m}^3$, and a vertical height $>5\text{ m}$.
3. The vertical height of a dam is measured from the lowest natural bed level at the downstream toe of the dam wall to the non-overspill crest.
4. If the space is inadequate, the bidder must append additional/supplementary tables/sheets OR expand the cells/table. Where requested, and the bidder is unable to convert the table to Microsoft Word, TCTA will provide the annexure in Microsoft Word.
5. **The bidder must not make notes in the table above referencing information that is provided elsewhere in the bid submission. The table must be completed in full to ensure that points will be allocated correctly per the evaluation criteria, i.e. functionality. Bidders who use their own CV format/table will score zero points.**

Declaration:

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the bid for the uMkhomazi Water Project – Phase 1 (uMWP-1): Smithfield Dam and Associated Infrastructure, for the duration and at the locations noted therein.

Signature of Staff Member

Date

CV OF KEY PERSONNEL (6): ENVIRONMENTAL ASSESSMENT PRACTITIONER

CV is to be submitted in the following format:

Name:

Profession:

Date of Birth:

Parent Firm:

Position in Firm:

Years with Firm:

Nationality:

BI & Male/Female Status:

Tertiary Education (and year obtained):

Professional Registrations (and year obtained):

Languages:

Please indicate your first language. If the first language is not English, please indicate proficiency in English. For other languages, please show speaking, reading and writing ability.

Countries of Work Experience:

PROPOSED POSITION ON TEAM:

KEY QUALIFICATIONS:

Please outline staff members' qualifications and training that are most pertinent to the assigned work on the team.

RELEVANT EXPERIENCE

Describe the degree of responsibility held by the staff member on relevant previous assignments and give dates and locations. For experience in the last ten years, provide types of activities performed and client references where appropriate.

SUMMARY OF OTHER EXPERIENCE

List all positions held by the staff member since graduation, giving dates, names of employing organisations and companies, the title of positions held and locations of assignments.

REFERENCES

Provide details of two contactable references or referees.

FUNCTIONALITY

Notwithstanding the above, complete the table below. The information is required for evaluation, i.e. functionality. Points will not be allocated if the table is not completed.

1. Environmental and social management experience in similar/comparable bulk water or civil engineering infrastructure projects, i.e. Environmental Impact Assessments (EIAs) and preparation of Environmental Management Programmes.
2. Environmental-related degree in biological, physical or earth sciences (NQF level 7) (specify): _____
3. Pr.Sci.Nat. (Yes or No): _____; Registration No.: _____
Details of internationally equivalent to PrSciNat. (if relevant): _____
4. Environmental Assessment Practitioners Association of South Africa registration:
Yes or No: _____; Registration No.: _____
5. Attach valid registration and qualification certificates/documents.

No.	Role / Duties	Project name and brief description	Details of the project, i.e. work/services rendered, e.g. Environmental Impact Assessment	Duration of work experience on the project in years*
1				
2				
3				
4				
5				
...				

IMPORTANT NOTES:

1. * The “duration of work experience on the project in years” must indicate the start and finish dates in years on each project listed. As such, the relevant professional experience must be listed from the first year (e.g. 1997) to the last year (e.g. 2022). Also, the projects must be listed in ascending order, considering the “duration of work experience on the project in years”.
2. If the space is inadequate, the bidder must append additional/supplementary tables/sheets OR expand the cells/table. Where requested, and the bidder is unable to convert the table to Microsoft Word, TCTA will provide the annexure in Microsoft Word.
3. **The bidder must not make notes in the table above referencing information that is provided elsewhere in the bid submission. The table must be completed in full to ensure that points will be allocated correctly per the evaluation criteria, i.e. functionality. Bidders who use their own CV format/table will score zero points.**

Declaration:

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the bid for the uMkhomazi Water Project – Phase 1 (uMWP-1): Smithfield Dam and Associated Infrastructure, for the duration and at the locations noted therein.

Signature of Staff Member

Date

**ANNEXURE C: SANAS VERIFIED B-BBEE CERTIFICATE(S) OR SWORN
AFFIDAVIT(S)**

IMPORTANT NOTE: A joint venture or consortium must submit a consolidated SANS verified B-BBEE certificate based on the weighted members participation in order to earn B-BBEE points.

ANNEXURE D: JOINT VENTURE AGREEMENT OR MEMORANDUM OF UNDERSTANDING AND DECLARATION OF JOINT AND SEVERAL LIABILITY

It is not a requirement for the bidder to register the joint venture or consortium as a legal entity or to enter into a formal joint venture or consortium agreement between the members to submit a bid. A memorandum of understanding, signed by the duly authorised representatives of all the members, will suffice for the bidding stage showing the following:

- The composition, constitution and structure of the joint venture or consortium (in writing and diagrammatically).
- Percent or degree of participation of each member in the joint venture or consortium.
- Percent or degree participation of South African engineering consultancy companies or professional service providers in the joint venture or consortium (if applicable).
- Level of financial commitment of each member in the joint venture or consortium.
- Duties and responsibilities of each member in the joint venture or consortium.
- Declaration of Joint and Several Liability.
- Conditions of Bid: 11.13 Joint venture or consortium.

The signed joint venture or consortium agreement will be required soon after the award of the contract/Agreement for the Services.

ANNEXURE E: POWER OF ATTORNEY AND AUTHORITY OF SIGNATORY

ANNEXURE F: LETTER OF OFFER BY THE BIDDER

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

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

ANNEXURE G: SUMMARY OF COST ESTIMATE

No	Cost Elements	Total (R)
1	Personnel Costs:	
	1. Tender Design and Documentation 2. Detailed Design 3. Construction Supervision 4. Post-Construction Monitoring 5. Project Management 6. Black South Africans, Enterprise and Supplier Development Requirements	
2	Subtotal Personnel Costs	
3	Consultant's Fixed Fee on 2 at _____ %	
4	Direct Reimbursable Costs:	
	1. Tender Design and Documentation 2. Detailed Design 3. Construction Supervision 4. Post-Construction Monitoring 5. Project Management 6. Black South Africans, Enterprise and Supplier Development Requirements	
5	Subtotal Direct Reimbursable Costs 4	
6	Provisional Items entered by TCTA:	
	1. TCTA Adjudication/Arbitration Costs 2. Assistance to TCTA 3. Hydropower plant complete scope of services 4. Project Vehicles and Accommodation for TCTA 5. Secondment of TCTA Graduates, Engineers and Scientists 6. Exceptional and Unforeseen Circumstances	3 000 000 60 000 000 25 000 000 7 500 000 1 000 000 60 000 000
7	Subtotal of Provisional Items	
8	Consultant's Overall Mark-Up on 7 ESTIMATED at _____ %	
9	Total Costs:	
10	Subtotal Excluding Escalation (2+3+5+7+8)	
11	Escalation (Personnel and Direct Reimbursable Costs) (ESTIMATE)	
12	Subtotal Including Escalation (10+11)	
13	VAT @ 15% (of 12)	
14	TOTAL COST ESTIMATE (12+13)	

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

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

DATE:

ANNEXURE H: PERSONNEL COSTS

- i) The bidder should provide schedules of personnel costs based on the Programme and Charts, Manpower Schedule (person-months carried from this schedule) and Personnel Billing Rates.
- ii) Support personnel such as secretaries, typists, messengers and clerks in home offices shall not be listed separately. Costs of such support shall be deemed to be office billing rates for professional personnel.
- iii) Full details and a breakdown of the composition of all billing rates must be provided.
- iv) Prepare a separate table for each task and subtask in the Services, i.e. "Detailed Personnel Costs".
- v) Carry total amounts for each task to a summary page of personnel costs listed by task, i.e. "Summary of Personnel Costs".
- vi) Extend this schedule to continue the sheets, as required.

SUMMARY OF PERSONNEL COSTS

Ref. No.	Task / Sub-Task No.	Description	Personnel Time and Cost	
			Person months	Amount (R)
1	Tender Design and Documentation			
	1.1	Engineering		
	1.2	Environmental, Social and Land Acquisition		
	1.3	Health and Safety		
	Subtotal 1. (carry to Summary of Cost Estimate):			
2	Detailed Design			
	2.1	Engineering		
	2.2	Environmental, Social and Land Acquisition		
	2.3	Health and Safety		
	Subtotal 2. (carry to Summary of Cost Estimate):			
3	Construction Supervision			
	3.1	Engineering		
	3.2	Environmental, Social and Land Acquisition		
	3.3	Health and Safety		
	Subtotal 3. (carry to Summary of Cost Estimate):			
4	Post-Construction Monitoring			
	4.1	Engineering		
	4.2	Environmental, Social and Land Acquisition		
	.3	Health and Safety		
	Subtotal 4. (carry to Summary of Cost Estimate):			
5	Project Management			
	Subtotal 5. (carry to Summary of Cost Estimate):			
6	Black South Africans, Enterprise and Supplier Development Requirements			
	Sub-Total 6. (carry to Summary of Cost Estimate):			
TOTAL PERSONNEL COST (Sub-Totals 1+2+3+4+5+6) :				

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

SIGNATURE:

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

DATE:

DETAILED PERSONNEL COSTS

Task / Subtask No _____ Task / Sub-task Title _____

Ref. No.	Cost Element			Person-months	Billing Rate	Amount
	Personnel Category	Position or Title	Name			Consultant
e.g., H001	Level 11	Project Manager	Mr Tom Harris	0.675	Value	Value
1.						
2.						
3.						
4.						
5.						
Etc.						
	Task / Subtask Total (carry to Summary of Personnel Costs)					

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

SIGNATURE:

DATE:

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

ANNEXURE I: PERSONNEL BILLING RATES

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

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

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

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

DATE:

ANNEXURE J: PERSONNEL MARK-UP FACTORS

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

Ref No	Personnel Category	Mark-up Factor (Multiplier) %
1	Personnel in Home Office	
1.1	Cost-to-company remuneration	100
1.2	Overtime	
1.3	Company overhead	
1.4	Support Staff	
1.5	Other (to be detailed by the Consultant)	
	TOTAL, as % of remuneration cost	
2	Personnel Resident on Site	
2.1	Cost-to-company remuneration	100
2.2	Overtime	
2.3	Company overhead	
2.4	Support Staff	
2.5	Other (to be detailed by the Consultant)	
	TOTAL, as % of remuneration cost	

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

SIGNATURE:

DATE:

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

ANNEXURE K: DIRECT REIMBURSABLE COSTS

- The bidder should provide an estimate of all their direct reimbursable costs, supported by detailed worksheets on separate pages.
- Each worksheet shall correspond to one item on the “Summary of Direct Reimbursable Costs”.
- The bidder must amend and add other items as s/he deems necessary.
- Reimbursable costs must be estimated at actual costs, with no mark-up.
- Task 3: Construction Supervision: TCTA will provide certain facilities and equipment per Agreement: Appendix 2 – Personnel, Equipment, Facilities and Services of Others to be Provided by the Client. The bidders must not price for such items.

SUMMARY OF DIRECT REIMBURSABLE COSTS

No.	ITEM DESCRIPTION	TASK						TOTAL
		1	2	3	4	5	6	
1	International travel							
2	Local travel							
3	Staff relocations (short-term)							
4	Per diem (nights away from home office) / Monthly allowances for resident staff							
5	Monthly allowance of on-site resident staff							
6	Cost of maintenance of equipment							
7	Consumable Materials / Supplies / Stationery / Paper, etc.							
8	Temporary office/staff accommodation							
9	Insurances							
10	Administrative handling charges							
11	Estimate of dues and charges							
12	Utility charges							
13	Vehicles for resident staff (supply, operation and maintenance)							
14	Office furniture for field office							
15	Office equipment (computers; hard & software & licensing, PABX, printers, copiers etc. for field inspections							
16	Test equipment and consumables							
17	Telecommunication costs							
18	Personal protective equipment							
19	Hand tools, torches and the like							
20	On-site resident staff accommodation							
21	...							
	Total (carry to Summary Cost of Estimate)							

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

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

DATE:

ANNEXURE L: CASH FLOW

- i) Using the programme, person-month schedule and estimate of costs, the bidder must provide here the cash flow by month for the duration of the Services, showing the following information:
- personnel costs
 - Consultant's fee
 - direct reimbursable costs
 - total amounts, by month
 - appropriate allowances for provisional sum items
- ii) The cash flow must, for budgetary and bidding purposes, include escalation of 5% per annum separately. Refer to the Agreement: Appendix 3 - Remuneration and Payment for requirements on escalation.

ANNEXURE M: MANPOWER SCHEDULE

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

The bidder must consider the above and prepare a manpower or staffing schedule considering the Time Schedule for Services (Agreement: Appendix 4) as follows:

- i) The bidder must determine the human resources and level of effort (in person-month(s), based on normal working days) that will be required to fulfil the Services.
- ii) The number and level of effort of management, professional, technical, administration and support personnel required to execute the Services are at the bidder's discretion.
- iii) The proposed manpower must be balanced and adequately allow for inherent uncertainties and changes experienced in similar/comparable projects.
- iv) The proposed MANCO resources refer to the accountable director or manager of the members of the bidding entity to which the project manager reports.
- v) The bidder must provide a detailed table showing the breakdown of person-months based on:
 - Personnel category levels and position/title;
 - Task and sub-tasks;
 - Personnel active in each task and sub-task;
 - Location of activity for each task and sub-tasks; and
 - Totals and estimates must be carried into the bidder's financial proposal.

Name of Personnel	Category	Position / Title	Task 1 – Tender Design and Documentation			Task 2 – Detailed Design			Task 3: Construction Supervision			Task 4: Post-Construction Monitoring			Task 5: Project Management										Task 6: Black South Africans, Enterprise and Supplier Development Requirements				
			1.1 Engineering	1.2 Environment, Social and Land Acquisition	1.3 Health and Safety	2.1 Engineering	2.2 Environment, Social and Land Acquisition	3.3 Health and Safety	3.1 Engineering	3.2 Environment, Social and Land Acquisition	3.3 Health and Safety	4.1 Engineering	4.2 Environment, Social and Land Acquisition	4.3 Health and Safety	5.1 Integration Management	5.2 Scope Management	5.3 Time Management	5.4 Cost Management	5.5 Quality Management	5.6 Human Resource Management	5.7 Communications Management	5.8 Risk Management	5.9 Procurement Management	5.10 Stakeholder Management	6.1 Enterprise and Supplier Development	6.2 Training and Skills Development: South African Black People	6.3 Non-Conformance Penalties	6.4 Monitoring and Reporting	6.5 Measurement and Payment
Manco																													
	H8	Member 1																											
		...																											
Internal Review Panel																													
	H12	Member 1																											
																												
Engineering/Construction/Specialists																													
	R11	Chief Design Engineer																											
		Dam Design Engineer																											
		Contracts Engineer																											
		Senior Geological and Geotechnical Engineer																											
		Engineering Surveyor																											
		...																											
Environment/Social/EAP/Specialists																													
		Environmental Manager (1)																											

Name of Personnel	Category	Position / Title	Task 1 – Tender Design and Documentation			Task 2 – Detailed Design			Task 3: Construction Supervision			Task 4: Post-Construction Monitoring			Task 5: Project Management										Task 6: Black South Africans, Enterprise and Supplier Development Requirements				
			1.1 Engineering	1.2 Environment, Social and Land Acquisition	1.3 Health and Safety	2.1 Engineering	2.2 Environment, Social and Land Acquisition	3.3 Health and Safety	3.1 Engineering	3.2 Environment, Social and Land Acquisition	3.3 Health and Safety	4.1 Engineering	4.2 Environment, Social and Land Acquisition	4.3 Health and Safety	5.1 Integration Management	5.2 Scope Management	5.3 Time Management	5.4 Cost Management	5.5 Quality Management	5.6 Human Resource Management	5.7 Communications Management	5.8 Risk Management	5.9 Procurement Management	5.10 Stakeholder Management	6.1 Enterprise and Supplier Development	6.2 Training and Skills Development: South African Black People	6.3 Non-Conformance Penalties	6.4 Monitoring and Reporting	6.5 Measurement and Payment
		Ecologist																											
		EAP																											
		...																											
Project Management																													
		Project Manager																											
		Project Administer																											
		Programmer																											
		...																											
Health and Safety																													
		Construction H&S Manager																											
		...																											

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

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

DATE:

ANNEXURE N: PROGRAMME AND CHARTS

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

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

The bidder must use Microsoft Project or similar.

ANNEXURE O**PART A: INVITATION TO BID****SBD 1**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF DEPARTMENT/ PUBLIC ENTITY)					
BID NUMBER:	012/2023/PMID/INFRASTRUCTURE/RFB	CLOSING DATE:	15 December 2023	CLOSING TIME:	2:00 PM
DESCRIPTION	CONSULTANCY SERVICES FOR uMWP-1: SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE FOR 95 MONTHS				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
Byls Bridge Office Park Cnr Olievenhoutsbosch Road and Jean Avenue Doringkloof Centurion 0157					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	G Mnisi		CONTACT PERSON		
TELEPHONE NUMBER	012 683 1309		TELEPHONE NUMBER		
FACSIMILE NUMBER	-		FACSIMILE NUMBER		
E-MAIL ADDRESS	Tenders01@tcta.co.za		E-MAIL ADDRESS		
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] <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
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?		<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A BRANCH IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.					

PART B: TERMS AND CONDITIONS FOR BIDDING

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

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

SIGNATURE OF BIDDER:

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

DATE:

ANNEXURE P**SBD 4****BIDDER'S DISCLOSURE****1. PURPOSE OF THE FORM**

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

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

2. Bidder's declaration

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

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

Full Name	Identity Number	Name of State institution

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 consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

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

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

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

.....
Signature Date

.....
Position Name of bidder

ANNEXURE Q**SBD 6.1****PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022**

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

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

1. GENERAL CONDITIONS

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

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

1.2 To be completed by the organ of state

(delete whichever is not applicable for this tender).

- a) The applicable preference point system for this tender is the **90/10** preference point system.
- b) The applicable preference point system for this tender is the **80/20** preference point system.
- c) Either the **90/10 or 80/20 preference point system** will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

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

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

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

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

- 1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.
- 1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

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

80/20 or 90/10

Where

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmin = Price of lowest acceptable tender

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

3.2.1. POINTS AWARDED FOR PRICE

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

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

Where

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

4. POINTS AWARDED FOR SPECIFIC GOALS

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

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

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

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

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

DECLARATION WITH REGARD TO COMPANY/FIRM

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

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

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

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

SURNAME AND NAME:

DATE:

ADDRESS:

.....

.....

.....

**ANNEXURE R: PROOF OF REGISTRATION WITH NATIONAL TREASURY CENTRAL
SUPPLIER DATABASE (CSD)**

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

AGREEMENT FORM

AGREEMENT

This Agreement dated this _____ day of _____ 2023

Between **Trans-Caledon Tunnel Authority (“TCTA”)**

established by Notice No. 2631 published in Government Gazette No. 10545 dated 12 December 1986, as amended by Notice No. 277 published in Government Gazette No. 21017 dated 24 March 2000, and its successors-in-title, a major public entity listed in Schedule 2 of the Public Finance Management Act, No. 1 of 1999, and a water management institution in terms of the National Water Act, No. 36 of 1998, operating in the water sector *inter alia*, in the funding and implementation of bulk raw water infrastructure projects as directed by the Minister from time to time;

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

and

_____ of registration number _____, a company (or joint venture or consortium) in terms of the laws of the Republic of South Africa.

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

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

CONTRACT No. TCTA 019-042: CONSULTANCY SERVICES FOR uMKHOMAZI WATER PROJECT - PHASE ONE (uMWP-1) – SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE

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

The Client and the Consultant agree as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in Clause 1.1 of the General Conditions.
2. The following documents shall be deemed to form and be read and construed as part of the Agreement, namely:
 - (a) the letter of offer by the Consultant;
 - (b) the letter of acceptance by the Client;
 - (c) the Memorandum of Understanding (MOU), entered into between the Client and Consultant on insert date;

- (d) this Client/Consultant Model Services Agreement;
 - (e) the Appendices, namely:
 - Appendix 1: Scope of Services
 - Appendix 2: Personnel, Equipment, Facilities and Services of Others to be Provided by the Client
 - Appendix 3: Remuneration and Payment
 - Appendix 4: Time Schedule for Services
 - Appendix 5: Consultant's Health and Safety Specification
 - Appendix 6: Environmental Authorisations and Pre-construction Management Programme
 - Appendix 7: Record of Implementation Decisions
 - Appendix 8: Technical Guidelines for Development of Water and Sanitation Infrastructure.
3. In consideration of the payments to be made by the Client to the Consultant under this Agreement, the Consultant hereby agrees with the Client to perform the Services in conformity with the provisions of the Agreement.
4. The Client hereby agrees to pay the Consultant in consideration of the performance of the Services such amounts as may become payable under the provisions of the Agreement at times and in the manner prescribed by the Agreement.

In witness whereof, the parties hereto have caused this Agreement to be executed the day and year stated above in accordance with their respective laws.

Authorised signature of the Client

NAME:
POSITION:
DATE:

Authorised signature of the Consultant

NAME:
POSITION:
DATE:

THE CONDITIONS OF THE CLIENT/CONSULTANT MODEL SERVICES AGREEMENT

GENERAL CONDITIONS

The General Conditions shall be stipulated in the Fédération Internationale des Ingénieurs-Conseils (FIDIC) Clients / Consultant Model Services Agreement, Fourth Edition, 2006 (not bound into this document, but deemed integrally included).

The Consultant shall obtain their copy for reference (including the copies of the FIDIC Code of Ethics and FIDIC Integrity Management System). Consulting Engineers South Africa (CESA) is the distribution agent for selling FIDIC publications in South Africa. The contact details for CESA are as follows:

Tel: 011 463 2022
e-mail: general@cesa.co.za

PARTICULAR CONDITIONS

The following are to be read in conjunction with the General Conditions.

A. REFERENCES FROM CLAUSES IN THE GENERAL CONDITIONS:

1.1 DEFINITIONS

- 1.1.2 The Project is the uMkhomazi Water Project - Phase One (uMWP-1):
Smithfield Dam and Associated Infrastructure in the Republic of South Africa.
- 1.1.10 Commencement Date is seven days after the Consultant receives the letter of acceptance.
- 1.1.11 Time for Completion is 95 months.

1.3 LANGUAGE FOR COMMUNICATIONS

The language for communications is English.

1.4 LANGUAGE OF THE LANGUAGE

The ruling language of the Agreement is English.
This Agreement shall be governed by and construed in accordance with the laws of the Republic of South Africa.

1.8 NOTICES

Client:

Postal address

The Chief Executive Officer

TCTA

PO Box 10335

CENTURION

0046

Telephone

012 683 1200

e-mail

info@tcta.co.za

Domicilium Executandi

Byls Bridge Office Park

Building 9, 1st Floor

Corner Olivenhoutbosch Road and Jean Avenue

CENTURION

0157

Consultant:

Postal address

Telephone

email

Domicilium Executandi

5.2.2 AGREED COMPENSATION FOR OVERDUE PAYMENT

Replace the words “compounded daily” with “compounded monthly”.

Agreed Compensation for overdue payment shall be the prime bank interest rate of the major South African banks.

6.2. DURATION OF LIABILITY

The duration of liability is ten years reckoned from the Time for Completion.

6.3.1 LIMIT OF COMPENSATION

The limit of compensation is R250 000 000.00 (two hundred and fifty million Rand).

8.3.2 RULES OF ARBITRATION

Rules for arbitration is by the Association of Arbitrators (Southern Africa) in force at the effective date of the Agreement.

Each Party agrees to waive its rights to any form of appeal insofar as such waiver can validly be made.

The arbitration shall be conducted by a single arbitrator. In the absence of agreement between the Parties on the appointment of the arbitrator, the arbitrator shall be nominated by the chairperson of the Association of Arbitrators (Southern Africa).

B. ADDITIONAL CLAUSES

1.1 DEFINITIONS

Add the following sub-clauses:

- 1.1.16 “person-month” means a period of 22 working days in a month.
- 1.1.17 “Engineer” means the Consultant, for the purpose of managing and administering the construction contract according to the duties and authority in the FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Red Book) (second Ed., 2017).
- 1.1.18 “Black People” means the definition in the Broad-Based Black Economic Empowerment (B-BBEE) Codes of Good Practice - i.e. it is a generic term that means Africans, Coloureds and Indians.
- Who are citizens of the Republic of South Africa by birth or descent; or
 - Who became citizens of the Republic of South Africa by naturalisation –
 - Before 27 April 1994;
 - On or before 27 April 1994 and who would have been entitled to acquire citizenship by naturalisation before that date.
- 1.1.19 “51% Black-owned” means the definition in the Broad-Based Black Economic Empowerment (B-BBEE) Codes of Good Practice. Means an entity in which:
- Black people hold at least 51% of the exercisable voting rights as determined under Code series 100;
 - Black people hold at least 51% of the economic interest as determined under Code series; and
 - Has earned all the points for Net Value understatement 100.
- 1.1.20 “Force Majeure Event” means an event or circumstance which is
- 1.1.20.1 beyond a Party's control;
- 1.1.20.2 which such Party could not reasonably have provided against before entering into the Agreement;
- 1.1.20.3 which having arisen, such Party could not reasonably have avoided or overcome; and
- 1.1.20.4 which is not substantially attributable to the other Party.
- 1.1.20.5 A Force Majeure Event may include, but is not limited to, events or circumstances of the kind listed below, subject to clauses 1.1.20.1 to 1.1.20.4 above:
- 1.1.20.5.1 acts of God;
 - 1.1.20.5.2 war, hostilities (whether war be declared or not), invasion, act of foreign enemies;
 - 1.1.20.5.3 rebellion, terrorism, revolution, insurrection, military or usurped power or civil war;
 - 1.1.20.5.4 riot, commotion, disorder, strike or lockout by persons other than the Consultant's personnel and other

- employees of the Consultant and Consultant's sub-consultants;
- 1.1.20.5.5 munitions of war, explosive materials, ionising radiation or contamination by radio-activity except as may be attributable to the Consultant's actions;
- 1.1.20.5.6 natural catastrophes such as epidemics, earthquake, hurricane, typhoon or volcanic activity;
- 1.1.20.5.7 acts or omissions by governments (central, federal, regional, provincial, local, municipal) and state organs or public authorities or legislation promulgated by such governments (central, federal, regional, provincial, local, municipal) and state organs or public authorities resulting in an economic lockdown and/or restricts business operations and/or restricts movement between provinces and/or restricts import and/or export;
- 1.1.20.5.8 and anything else that may reasonably be outside the control of a Party.

1.9 PUBLICATION

Delete sub-clause 1.9.1 and replace with:

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

1.10.1 CORRUPTION AND FRAUD

Add the words "...and the Competition Commission of South Africa" at the end of the first sentence in sub-clause 1.10.1.

2.1 INFORMATION

Delete and replace with:

"The Client shall, following the request from the Consultant, provide within a reasonable time the information as set out in Appendix 1, 2, 3, 4 or 5, or as otherwise requested by the Consultant."

2.4 CLIENT'S FINANCIAL ARRANGEMENTS

Delete in its entirety.

3.3 DUTY OF CARE AND EXERCISE OF AUTHORITY

Add sub-clause 3.3.3:

"The members to the joint venture or consortium accept joint and several liability for the work that forms the subject of this Agreement. The acceptance is certified by the

signatures of the duly authorised representatives of the members on the **Joint and Several Liability.**”

3.5 SUPPLY OF PERSONNEL

Delete sub-clause 3.5.1 and replace with:

“The obligations for the Consultant to supply personnel are set out in its bid and the Agreement to perform the Services.”

Any eventual agreement with the Consultant will contain the following conditions:

- (a) The duration of the Services and total person-months in the Agreement are reasonable estimates based on the Time Schedule for Services as set out in Appendix 4.
- (b) The Consultant agrees to retain qualified personnel for as long as it takes to complete all the Services.
- (c) The Consultant will not be entitled to assign and charge for additional personnel, nor charge person-months of more than those proposed for any position, without the prior approval of the Client.”

“Add sub-clause 3.5.2:

Notwithstanding the above, TCTA considers that the Consultant will require the personnel below. Furthermore, TCTA has set the minimum requirements for those personnel. The list of personnel positions below is not exhaustive and doesn't represent the whole team to render all the Services. Only some of the key personnel positions are listed and the number of persons is not specified. As such, the Consultant must provide other technical, administrative and managerial personnel, e.g. draughtspersons, inspectors, environmental monitors, biodiversity specialist, cathodic protection specialists, hydro-mechanical engineers and technicians, heritage specialists, archaeologists, manager (per **Task 6: Black South African, Enterprise and Supplier Development Requirements** under **Appendix 1: Scope of Services**), administrators, architect, etc. In addition, the Consultant must determine the number of persons, for example, the Consultant can have one or two environmental managers.”

Position	Minimum Qualifications	Minimum Experience	Specific Tasks
Project Manager*	Civil Engineering degree Pr. Eng.	At least ten years of professional experience managing similar or comparable civil engineering infrastructure or large dams (category 3) projects. Should have extensive	A dedicated full-time team leader for the entire duration of the Project.

Position	Minimum Qualifications	Minimum Experience	Specific Tasks
		experience working in Southern Africa and knowledge of the FIDIC contracts.	
Dam Design Engineer *	Civil engineering degree Pr. Eng.	At least ten years of professional experience designing and constructing new large dams (category 3 with vertical height ≥ 25 m) and related infrastructure, preferably large rockfill dams.	Oversee and conduct the design and documentation of the Project. Provide technical support where required.
Contracts Engineer	Civil or quantity surveying degree Pr. Eng or Pr. QS	At least ten years of professional experience in similar or comparable civil engineering infrastructure projects, preferably using FIDIC contracts.	Develop conditions of contracts, tender documents, and Bill of Materials, including estimates for construction. Measurement and payment certificates (monthly), assess contractor's claim and support the project manager and chief resident engineer.
Senior Geological and Geotechnical Engineer*	Civil, mining or geotechnical engineering degree, or geology degree BSc (geology), PR. Sci. Nat. OR Pr. Eng.	At least ten years of professional experience in geological, geohydrological and geotechnical investigations, geophysical surveys, mapping, testing and assessment of large civil	Oversee and conduct technical investigations and tests, designs and documentation of the Project. During construction, do geological mapping and

Position	Minimum Qualifications	Minimum Experience	Specific Tasks
		engineering infrastructure projects, i.e. large dams (category 3 with vertical height ≥ 25 m) and related infrastructure.	evaluate and document actual rock conditions. Provide technical support where required.
Senior Structural Design Engineer	Civil engineering degree Pr. Eng.	At least ten years of professional experience designing and constructing large civil and hydraulic infrastructure.	Provide structural designs and documentation and technical support where required.
Road Design Engineer	Civil engineering degree Pr. Eng.	At least ten years of professional experience designing and constructing roads and hydraulic infrastructure.	Provide road designs and documentation and technical support where required.
Senior Hydraulic Design Engineer	Civil engineering degree Pr. Eng.	At least eight years of professional experience in hydraulic analysis, design, and construction of dams.	Conduct hydraulic analysis, design, documentation, and support the construction supervision team where required.
Senior Hydro-mechanical Engineer	National Diploma in mechanical engineering Pr. Tech.	At least eight years of professional experience designing, installing and commissioning hydro-mechanical plant items and equipment in similar bulk water infrastructure projects.	Oversee or conduct design and installation and develop the technical construction specifications. Support the construction supervision team where required.
Chief Resident Engineer*	Civil or mining engineering degree Pr. Eng.	At least ten years of professional experience as the engineer or	Lead construction supervision team.

Position	Minimum Qualifications	Minimum Experience	Specific Tasks
		employer's representative on large dams (category 3 with vertical height ≥ 25 m). Should have extensive experience working in Southern Africa and knowledge of the FIDIC contracts.	Employer's representative or engineer if the project manager is not nominated as such.
Engineers (RE) for the dam embankment	Civil engineering degree Pr. Eng.	At least eight years of professional experience as a resident engineer on large dams (category 3) preferably with experience in rockfill dams	Construction supervision and support to the CRE.
RE for structural/concrete works	Civil engineering degree or equivalent Pr. Eng.	At least eight years of professional experience as a resident engineer, preferably with experience on large dams (category 3).	Construction supervision and support to the CRE.
RE for ancillary works, i.e. roads, weirs, resettlement houses, biodiversity offset initiatives.	Civil engineering degree	At least eight years of experience as a resident engineer on civil and building works.	Construction supervision and support to the CRE.
Materials Engineer	National Diploma in materials sciences Pr. Tech.	At least ten years of professional experience in similar bulk water infrastructure projects or large civil engineering projects.	Assess all material requirements. Manage the construction site materials testing laboratory.
Engineering Surveyor	Bachelor's Technology in surveying	At least five years' experience	Fulfil survey requirements.

Position	Minimum Qualifications	Minimum Experience	Specific Tasks
	(geometrics) or land surveying degree (geometrics) S(GTg.ES) or PS (Gpr.ES)	surveying during the construction of similar or comparable bulk water or civil engineering infrastructure projects.	
Environmental Assessment Practitioner*	Environmental-related degree in biological, physical or earth sciences (NQF level 7) Preferably, Pr. Sci. Nat. and EAPASA registered	At least eight years of experience in managing and monitoring environmental and social management in similar or comparable civil engineering infrastructure projects i.e. Environmental Impact Assessments and preparation of Environmental Management Programmes..	Develop Environmental Management Programme and additional plan(s) for the approval of DFFE and DMRE, including submission of amendment applications where required.
Stakeholder Engagement Specialist*	A degree in culture, communications and media, social science or environmental-related (NQF level 7)	At least eight years of experience in social facilitation with emphasis on community engagements, resettlement of people and relocation of graves due to construction of large water, civil or mining infrastructure projects. The incumbent should further be knowledgeable in the local cultural practices and able to communicate in local language(s).	Social facilitation and public participation, including social support.

Position	Minimum Qualifications	Minimum Experience	Specific Tasks
Social Practitioner/Manager	A degree in environmental management, developmental studies or anthropology	At least eight years of experience in the social risk management of construction of large water or civil engineering infrastructure projects with special emphasis on heritage conservation, resettlement and grave relocation.	Oversee studies relating to Social and Heritage impacts. Facilitate all RAP-related activities. Provide Social facilitation as required.
Environmental Manager	Environmental-related degree or equivalent	At least five years of experience in environmental and social management and mitigation measures associated with similar bulk water infrastructure projects.	Provide environmental input, ensure compliance, construction supervision and support to the CRE. The incumbent shall be based at the construction site full-time to undertake Task 3: Construction Supervision.
Construction Health and Safety Specialist or Manager	Civil engineering or health and safety national diploma – SACPCMP – Construction Health and Safety Manager (CHSM)	At least ten years of experience complying with the Occupational Health and Safety Act relating to the design and construction of similar bulk water infrastructure projects.	Provide input into tender and construction documents and support construction supervision team, i.e. occupational health and safety. The Agent shall guide the above, i.e. latest Occupational Health and Safety Act and Construction Regulations.
Quality Manager	National Diploma or any accredited quality	At least five years' experience in	Develop and manage a project-specific

Position	Minimum Qualifications	Minimum Experience	Specific Tasks
	management qualifications	quality management systems using ISO 9001 on similar bulk water infrastructure projects or large engineering projects.	quality management system. Audit the established system regularly.
Programmer or Scheduler	National Diploma or any accredited programming qualifications	At least five years' experience using Primavera or MS Projects in civil engineering projects.	All programming requirements, including assessment of contractor's claims.
<p>Notes:</p> <ul style="list-style-type: none"> For personnel from countries outside of Southern Africa, where qualifications and professional registration systems differ from Southern African practice, the Consultant shall provide evidence of equivalent qualifications and professional registration. * Consultant's (as the bidder) proposed personnel (staff resources) will be evaluated per the Functionality (functional evaluation criteria, i.e. bid document). Personnel who cannot speak, read and write English will not be accepted. The Dam Design Engineer shall be the Approved Professional Person as defined in Section 117(a) of the National Water Act (Act 36 of 1998) as a person registered in terms of the Engineering Profession of South Africa Act (Act 114 of 1990) and approved by the Minister after consultation with the Engineering Council of South Africa (ECSA). 			

3.7.1 CHANGES IN PERSONNEL

Add the following words to the end of the paragraph:

"...and shall be for the approval of the Client, which approval shall not be unreasonably withheld."

4.1.1 AGREEMENT EFFECTIVE

Delete sub-clause 4.1.1 and replace with:

"The Agreement is effective from the date of receipt by the Consultant of the Client's letter of acceptance of the Consultant's proposal."

4.4 DELAYS

Add sub-clause 4.4.2:

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

4.5 CHANGED CIRCUMSTANCES

Correct the typographical error in the first line: "If..." to "If..."

Add sub-clause 4.5.3:

"No variation to the Services or any additional payment relating to changed circumstances will be made unless the Consultant has submitted a written application explaining the impact on the Services and the Client has approved such variations in writing."

4.8 EXCEPTIONAL SERVICES

Add sub-clause 4.8.3:

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

5.2.3 TIME FOR PAYMENT

Change "four days" to "14 days".

6.4 INDEMNITY

Add sub-clause 6.4.2: Occupational and mine health and safety indemnity:

"The Consultant recognises the inherent risks and liabilities of construction, mining and other hazards that exist on the Client's construction sites and in terms of Section 37(2) of the Occupational Health and Safety Act 85 of 1993, and Mine Health and Safety Act 29 of 1996, as amended, the Consultant:

- (a) acknowledges that it, its employees, agents, sub-consultants and/or contractors enter the construction sites entirely at their own risk;
- (b) will take all steps necessary to ensure that it, its employees, agents, sub-consultants and/or contractors comply with the provisions of the Occupational Health and Safety Act and any site rules/regulations put in place by it to ensure the health, safety and well-being of any such party entering on site;
- (c) agrees to indemnify and hold harmless the Client against any and all claims in respect of any loss, damage, injury and/or death arising out of or sustained by it,

its employees, agents, sub-consultants and/or contractors, arising out of or in connection with the Agreement.”

7.1.1 INSURANCE FOR LIABILITY AND INDEMNITY

The insurance to be taken out and maintained by the Consultant shall comprise the following:

Professional Indemnity Insurance

The Consultant shall provide professional indemnity insurance against liability under Sub-Clause 6.1 (Liability and Compensation between the Parties) with a limit of indemnity of R100 000 000 (one hundred million Rand) for any one occurrence and R250 000 000 (two hundred and fifty million Rand) in aggregate for the period of insurance.

The period of insurance shall be from the Commencement Date of the Services to the end of the duration of liability stated in Clause 6.2 (duration of liability).

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

Motor Vehicle Insurance

In addition to any compulsory insurance required in terms of legislation, provide comprehensive motor insurance, including passenger liability and unauthorised passenger liability, with a minimum indemnity of R5 000 000 (five million Rand) for any one occurrence for any vehicle supplied through the Agreement.

General Public Liability Insurance

General public liability insurance with a limit of indemnity of R10 000 000 (ten million Rand) for any one occurrence.

Other Insurances

Insurance against loss or damage to:

- (a) equipment, facilities and materials purchased by the Consultant in whole or in part with funds provided under this Agreement while in possession of the Consultant, to their total replacement value;
- (b) the Consultant's property or facilities used in the performance of the Services; and

- (c) all documents prepared by the Consultant in the performance of the Services.

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

8.1 AMICABLE DISPUTE RESOLUTION

Replace “mediation” with “adjudication” at the end of the paragraph.

8.2 ADJUDICATION

Delete the Sub-Clause and replace it with:

“Unless settled amicably, any dispute or difference which arises between the Consultant and the Client out of or in connection with the Agreement, including any valuation or other decision of the Client, shall be referred by either Party to adjudication in accordance with the rules set out in sub-clauses 8.2.1 to 8.2.5 below (“the Rules”). The adjudicator shall be any person agreed by the Parties. In the event of disagreement, the adjudicator shall be appointed in accordance with the Rules.

8.2.1 Appointment of Adjudicator

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

8.2.2 Terms of Appointment

- (a) The adjudicator is to be and is to remain throughout her/his appointment, impartial and independent of the Parties and shall immediately disclose in writing to the Parties anything of which he becomes aware which could affect her/his impartiality or independence.
- (b) The adjudicator shall not give advice to the Parties or their representatives concerning the conduct of the Services other than in accordance with these rules.

- (c) The adjudicator shall not be called as a witness by the Parties to give evidence concerning any dispute in connection with, or arising out of, the Agreement.
- (d) The adjudicator shall treat the details of the Agreement and all activities and hearings of the adjudicator as confidential and shall not disclose the same without the prior written consent of the Parties. The adjudicator shall not, without the permission of the Parties, assign or delegate any of her/his work under these rules or engage legal or technical assistance.
- (e) The adjudicator may resign by giving 28 days' notice to the Parties. In the event of resignation, death or incapacity, termination or a failure or refusal to perform the duties of an adjudicator under these rules, the Parties shall agree upon a replacement adjudicator within 14 days, or paragraph 8.2.1 (b) shall apply.
- (f) The adjudicator shall in no circumstances be liable for any claims for anything done or omitted in the discharge of the adjudicator's duties unless the act or omission is shown to have been in bad faith.
- (g) If the adjudicator knowingly breaches any of the provisions of paragraph 8.2.2 (f) above or acts in bad faith, she/he shall not be entitled to any fees or expenses. She/He shall reimburse each of the Parties for any fees and expenses properly paid to her/him if, as a consequence of such breach, any proceedings or decisions of the adjudicator are rendered void or ineffective.

8.2.3 Payment

- (a) The adjudicator shall be paid the fees and expenses set out in the Adjudicator's agreement.
- (b) The retainer fee, if applicable, shall be paid in full for:
 - (i) being available, on 28 days' notice, for all hearings and site visits;
 - (ii) all office overhead expenses such as secretarial services, photocopying and office supplies incurred in connection with her/his duties; and
 - (iii) all services performed hereunder except those performed during the days referred to in paragraph 8.2.3 (c) below.
- (c) The daily fee shall be payable for each working day preparing for or attending site visits or hearings or preparing decisions, including any associated travelling time.
- (d) The retainer and daily fees shall remain fixed for the period of tenure of the adjudicator.
- (e) All payments to the adjudicator shall be made by the Consultant, who will be entitled to be reimbursed half by the Client. The Consultant shall pay invoices addressed to her/him within 28 days of receipt. The adjudicator's invoices for

any monthly retainer shall be submitted quarterly in advance, and invoices for daily fees and expenses shall be submitted following the conclusion of a site visit or hearing. All invoices shall contain a brief description of the activities performed during the relevant period. The adjudicator may suspend work if any invoice remains unpaid at the expiry of the period for payment, provided that seven days prior notice has been given to both Parties.

- (f) If the Consultant fails to pay an invoice addressed to it, the Client shall be entitled to pay the sum due to the adjudicator and recover the sum paid from the Consultant.

8.2.4 Procedure for Obtaining Adjudicator's Decision

- (a) A dispute between the Parties may be referred in writing by either Party to the adjudicator for her/his decision, with a copy to the other Party. If the adjudicator has not been agreed to or appointed, the dispute shall be referred in writing to the other Party, together with a proposal for the appointment of an adjudicator. A reference shall identify the dispute and refer to these rules.
- (b) The adjudicator may decide to visit the site. The adjudicator may choose to conduct a hearing in which event she/he shall decide on the date, location and time of the hearing. The adjudicator may request that written statements from the Parties be presented to her/him prior to, at or after the hearing. The Parties shall promptly provide the adjudicator with sufficient copies of any documentation and information relevant to the Agreement that she/he may request.
- (c) The adjudicator shall act as an impartial expert, not as an arbitrator, and shall have full authority to conduct any hearing as she/he thinks fit, not bound by any rules or procedures other than those set out herein. Without limiting the preceding, the adjudicator shall have the power to:
 - (i) decide upon the adjudicator's jurisdiction and as to the scope of any dispute referred to her/him;
 - (ii) make use of her/his specialist knowledge, if any;
 - (iii) adopt an inquisitorial procedure;
 - (iv) decide upon the payment of interest in accordance with the Agreement;
 - (v) open up, review and revise any opinion, instruction, determination, certificate or valuation related to the dispute; and
 - (vi) refuse admission to hearings to any persons other than the Client, the Consultant and their respective representatives, and to proceed in the absence of any Party to who the adjudicator is satisfied received notice of the hearing.
- (d) All communications between either of the Parties and the adjudicator and all hearings shall be in the language of the Agreement. All such communications shall be copied to the other Party.

- (e) No later than the fifty-sixth day after the day on which the adjudicator received a reference or, if later, the day on which the adjudicator's agreement came into effect, the adjudicator shall give written notice of her/his decision to the Parties. Such a decision shall include reasons and state that it is issued under the Rules.

8.2.5 Notice of Dissatisfaction

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

AGREEMENT

APPENDIX 1: SCOPE OF SERVICES

1. PROJECT CONTEXT

1.1 PROJECT DESCRIPTION

The Mgeni Water Supply System (MWSS) serves the municipalities of eThekweni, uMgungundlovu, Msunduzi and the surrounding areas in KwaZulu-Natal (KZN). It consists of four major dams (Nagle, Midmar, Albert Falls and Inanda) and phases 1 and 2 of the Mooi Mgeni Transfer Scheme (MMTS).

In 2015, the Department of Water and Sanitation (DWS) completed a technical feasibility study to determine long-term future water requirements in KZN. The study investigated the uMkhomazi Water Project – Phase One (uMWP-1), which will augment the MWSS with water from the uMkhomazi River – the third-largest mean annual runoff river in KZN. The system's yield is 398 million m³/a (2013), while the estimated water requirements are 480 million m³/a and 612 million m³/a in 2023 and 2040, respectively. The water requirements projection indicates that MWSS has been in deficit since 2016. Therefore, the system is under stress and will be augmented by uMWP-1.

The implementation of uMWP-1 involves the storage and transfer of about 220 million m³/a of raw water as follows:

- Smithfield Dam and Associated Infrastructure (this Agreement):
 - 81 m high Smithfield Dam with a spillway and outlet Works in the uMkhomazi River near the town of Bulwer.
 - 26 m high saddle dam with a spillway.
 - Smithfield Dam reservoir boat ramp.
 - Three river flow gauging weirs in the uMkhomazi River – one upstream and two downstream of Smithfield Dam.
 - Temporary and permanent access roads and security fences.
 - Borrow pits, quarries and waste disposal sites.
 - River diversion works.
 - Operator facilities – permanent houses; offices/control room; guard house; storage and workshop.
 - Realignment or deviation of major and minor roads, Eskom transmission lines and other infrastructure.
 - Acquisition of land and rights to land.
 - Potential hydropower plant.
 - Rehabilitation, and biodiversity offsets and compensation.
 - Catchment Management and Ecological Infrastructure Plan.
 - Resettlement houses for the affected families/households.
- Water Conveyance Infrastructure:
 - 32km long at 3.5m diameter transfer tunnel from Smithfield Dam reservoir to the uMlaza River valley.

- 5km long at 2.6m diameter raw water steel pipeline from the outlet portal of the transfer tunnel above to the proposed Umgeni Water's Water Treatment Works (WTW) in the uMlaza River valley.
- Access roads, maintenance/service roads and security fences – permanent and temporary.
- Borrow pits, quarries and waste disposal sites.
- Acquisition of land and rights to land.
- Potential hydropower plant.
- Rehabilitation, biodiversity offsets and compensation.

The project consists of the bulk raw component above and a potable water component, i.e. Umgeni Water's WTW and pipeline. The potable water component will be implemented by Umgeni Water and therefore does not form part of the Services.

1.2 ENVIRONMENTAL AUTHORISATIONS AND AMENDMENTS

The Environmental Impact Assessments (EIAs) were undertaken for the Project. The first Environmental Authorisation (EA) was issued by the Department of Mineral Resources and Energy (DMRE) in January 2019. The second EA was issued by the Department of Forestry, Fisheries and Environment (DFFE) in November 2020 and amended in September 2021.

The first EA requires that an Environmental Management Programme (EMPr) for the opening, operation and close-out of the borrow pits and quarries be prepared and submitted by an Environmental Assessment Practitioner (EAP) to the DMRE for approval. The EMPr must incorporate conditions specified in the EAs.

The second EA requires that an EMPr for the construction and operation of the scheme's components above be prepared and submitted by an EAP to the DFFE for approval. The EMPr must incorporate conditions specified in the EAs and comply with Appendix 4 of the National Environmental Management Act (Act 107 of 1998) Environmental Impact Assessment Regulations 2014 (as amended). The EA further requires that additional plans be prepared prior to the commencement of construction.

It should be noted that the proposed Langa Balancing Dam is not required as part of the uMWP-1 raw water component as it is not part of the authorised activities in the EA (as amended).

1.3 GENERAL OBJECTIVES

The Consultant will provide engineering, project management, environmental, social and other specialist Services for the Smithfield Dam and Associated Infrastructure component of the Project as follows:

- i) Undertake tender design and documentation, detailed design, construction supervision and post-construction monitoring, and develop the construction and operation EMPr.
- ii) Produce, amongst other things, up-to-date cost estimates and cash flow, a comprehensive work breakdown structure and programme, a risk register with mitigation measures, and environmental and social plans for implementing the Project.
- iii) Assessment and close-out.

TCTA would like to fast-track the implementation of the Project but still meet the required quality standards and improve risk management. The Project must be implemented according to TCTA's policies and Project Implementation Methodology (PIM). The policies and PIM were developed to ensure that TCTA's project implementation processes comply with best practices and are consistently applied to all TCTA's projects. This scope of Services is based on TCTA's policies and PIM, and the tasks have been defined accordingly.

1.4 PROJECT LOGISTICS

The Consultant will be required to communicate and work well with TCTA, including other service providers, organisations, and contractors on the Project, and perform all the Services using a comprehensive programme (**Appendix 4: Time Schedule for Services**) and cost (**Appendix 3: Remuneration and Payment**). TCTA will appoint independent Panels of Experts (PoEs) to conduct separate independent quality reviews on behalf of TCTA and will require the Consultant's participation. The Consultant must provide quality assurance measures in accordance with this Scope of Services.

TCTA will establish and manage a Project Committee, which will have Project Partners' (DWS, Umgeni Water, and Water Users) participating in developing and implementing the most cost-effective solutions to their water needs. This will be undertaken in a transparent and consultative manner.

1.5 STANDARDS AND SPECIFICATIONS

All dimensions and quantities shall be expressed in the SI system of units. The standards shall be those of the Department of Water and Sanitation (DWS), the International Standards Organisation (ISO), and the national standards.

1.6 REFERENCE MATERIAL FROM PREVIOUS STUDIES

Reports and documents relevant to the Project are listed below.

- Technical Feasibility reports:
 - Inception, Main and Summary reports
 - Hydrological assessment of the uMkhomazi River catchment
 - Groundwater resources
 - Water supply to local communities
 - Possible water supply from Smithfield Dam to surrounding communities
 - Community Supply from the Smithfield Dam-Comrie Dam
 - Water requirements and return flow
 - Water resources yield assessment
 - Sediment yield report
 - Sediment deposition and impact report
 - Feasibility design report (Volumes 1 & 2)
 - Optimisation of conveyance report
 - Dam position report
 - Optimisation Scheme configuration
 - Cost model
 - Dam Type Selection
 - Climatology
 - Water quality and limnology
 - Water resources planning model
 - Positioning of Gauging Weirs
 - Route Investigation
 - Traffic Impact Assessment
 - Climate change Impact Assessment
 - Hydropower assessment report
 - Seismic hazard analysis and refraction investigation
 - Geotechnical report
 - Conveyance System – Materials and Geotechnical Investigation
 - Baseline socio-economic report
 - Institutional and Financial Aspects
 - Economic Impact Assessment report
 - Environmental Screening report
- DFFE: EIA reports

- Scoping Report and appendices
- EIA Report and appendices
- Addendum No. 1 and 2 to the EIA Report
- Environmental Authorisation (EA) and amendments to it for Smithfield Dam and Associated Infrastructure (**Appendix 6 of the Agreement**)
- Pre-construction Environmental Management Programme for Smithfield Dam and Associated Infrastructure and approval (**Appendix 6 of the Agreement**)
- DMRE: Environmental Impact Assessment for Quarries and Borrow Pits
 - Scoping Report
 - Environmental Authorisation (**Appendix 6 of the Agreement**)

The reports and documents are available on the websites: <https://www.dws.gov.za/iwrrp/uMkhomazi/documents.aspx>. Copies not available on these websites will be made available by TCTA per the Consultant's or bidder's request.

2. DESCRIPTION OF CONSULTANT'S SERVICES

The required Services have been divided into the following tasks:

Task 1: Tender Design and Documentation

Sub-Task 1.1: Engineering

Sub-Task 1.2: Environment, Social and Land Acquisition

Sub-Task 1.3: Health and Safety

Task 2: Detailed Design

Sub-Task 2.1: Engineering

Sub-Task 2.2: Environment, Social and Land Acquisition

Sub-Task 2.3: Health and Safety

Task 3: Construction Supervision

Sub-Task 3.1: Engineering

Sub-Task 3.2: Environment, Social and Land Acquisition

Sub-Task 3.3: Health and Safety

Task 4: Post-Construction Monitoring

Sub-Task 4.1: Engineering

Sub-Task 4.2: Environment, Social and Land Acquisition

Sub-Task 4.3: Health and Safety

Task 5 Project Management

Sub-Task 5.1: Integration Management

Sub-Task 5.2: Scope Management

Sub-Task 5.3: Time Management

Sub-Task 5.4: Cost Management

Sub-Task 5.5: Quality Management

Sub-Task 5.6: Human Resource Management

Sub-Task 5.7: Communications Management

Sub-Task 5.8: Risk Management

Sub-Task 5.9: Procurement Management

Sub-Task 5.10: Stakeholder Management

Task 6: Black South Africans, Enterprise and Supplier Development Requirements

Sub-Task 6.1: Enterprise and Supplier Development

Sub-Task 6.2: Training and Skills Development: South African Black People

Sub-Task 6.3: Non-Conformance Penalties

Sub-Task 6.4: Monitoring and Reporting

Sub-Task 6.5: Measurement and Payment

The detailed requirements, obligations and responsibilities for each task (and sub-tasks) are specified below.

3. SCOPE OF SERVICES

The Consultant shall assemble a team(s) of engineers, environmentalists and other specialists experienced in the optimisation, design, tender documentation, construction supervision and monitoring and close-out as follows:

- Main dam and the saddle dam, i.e. layout, excavations, storage volume analysis, seepage control, construction material investigation, backwater analysis, etc.
- Dam outlet design including the intake tower and access to it, i.e. hydraulic, hydro-mechanical, structural designs, operation/control and instrumentation designs, construction methods and related work.
- Design of spillways, i.e. configuration, design of approach channel, control structure, discharge carrier, energy dissipators, slope protection and plunge pool.
- River flow gauging weirs, i.e. positioning and layout, back water analysis, sizing and flow measurement requirements, instrumentation designs, and related work.
- River diversion, i.e. diversion philosophy, flood risk assessments, etc.
- Realignment or deviation of R617 and other roads, i.e. route investigation, geometric and pavement design including the design of associated drainage structures.
- Other infrastructure and facilities, i.e. boat ramp, offices/control room, guard house, storage, workshop, access roads (temporary and permanent), opening and closing of quarries and borrow pits, spoil sites/areas, all construction site establishment requirements, houses and other temporary and permanent services (water, electricity, sanitation and telecommunications).
- A potential hydropower plant i.e. layout, hydraulic, electro- and hydro-mechanical operation/control and instrumentation designs.
- Resettlement houses, i.e. design of building works, civil works, electrical works, roads, stormwater, structural designs, sewer and potable water supply infrastructure.
- Search, Rescue and Relocation Plan and Habitat Rehabilitation and Restoration Plan.

In addition to the above, the Consultant shall:

- i) Critically review the DWS Technical Feasibility reports and the EIA reports and addenda covering the planning and preliminary design of uMWP-1 to confirm the implementation decisions and identify gaps in the information presented.
- ii) Review the EAs issued by DFFE and DMRE, including the approved EMPr and highlight specific areas where environmental and social requirements may impose conditions or create operational and implementation constraints on the Project. In that case, the Consultant shall study the issues and propose solutions recognising the environmental and social requirements, the Project development requirements and detailing the potential effect on Project time and cost. Alternatively, the Consultant could recommend amendments to the EAs and approved EMPr.
- iii) Ensure all conditions of the EAs and the approved pre-construction EMPr are adhered to.
- iv) Develop the EMPr for approval by DMRE and the construction and operation EMPr for approval by DFFE.

- v) Develop a detailed Biodiversity Offsets and Compensation Plan for approval by DFFE.
- vi) Develop a Catchment and Ecological Infrastructure Management Plan for approval by DFFE.
- vii) Prepare a Resource Management Plan for acceptance by TCTA.
- viii) Undertake environmental and social baseline surveys, investigations and assessments and develop various plans and reports.
- ix) Carry out additional tests, studies, investigations and surveys, and document them.
- x) Develop design criteria memoranda and project-specific guidelines for technical implementations and operation rules/philosophy.
- xi) Undertake tender design and documentation, detailed design, construction supervision, post-construction monitoring, and assessment and close-out. Ensure that the EIA recommendations, mitigation measures, and environmental conditions are considered and all conditions of the EAs and the approved EMPs are adhered to.
- xii) Apply the latest ISO 14001 during the execution of the Services and respond to the TCTA Environmental and Social Management System (ESMS) requirements.
- xiii) Collaborate with the consultant(s) for uMWP-1: Water Conveyance Infrastructure.

The Consultant shall adopt an integrated approach while executing the Services, considering the other tasks and the interfaces with the uMWP-1: Water Conveyance Infrastructure.

3.1 TASK 1: TENDER DESIGN AND DOCUMENTATION

The Consultant's personnel will be required to provide the Services below from the same location in South Africa, Gauteng (i.e. office building). In the instance of a consortium or joint venture, the Consultant's staff who are rendering Services uninterrupted for a period of more than two months shall not be permitted to work from home or different offices. The Consultant shall make suitable arrangements for all such technical staff to work in the same office building.

3.1.1 Sub-Task 1.1: Engineering

3.1.1.1 Record of Implementation Decisions (RID)

The approved RID from DWS has a reference, and the document is in **Appendix 7 of the Agreement**. This document summarises all decisions by DWS regarding the implementation of the Project by TCTA. The Consultant shall ensure that the Services comply with such decisions.

3.1.1.2 Field Reconnaissance

The Consultant shall undertake field reconnaissance during the early stages of the Services to become familiar with the Project site (including biodiversity offset sites/areas) and investigate hydrological, geological, geophysical, topographical and geographical features and requirements, and environmental and social conditions that might affect the implementation of the Project.

The findings shall form part of the **Inception Report** below.

3.1.1.3 Inception Report

Soon after the Commencement Date of the Agreement or contract, the Consultant shall immediately review the preliminary designs (Technical Feasibility reports) and assess all information under **Section 1.6: Reference Material from Previous Studies** and the scope of Services. The review and assessment shall, amongst other things, cover the following:

- Technical Feasibility reports for the Project.
- RID.
- EIA reports and related information for the Project.
- Available information on geological and geotechnical parameters, i.e. sub-surface conditions.
- Information on the availability of construction materials, i.e. sources, quality and quantity.
- The operation philosophy, rule or strategy.

The Consultant must take these primary and critical conditions and constraints into consideration and provide suitable solutions:

- Water quality affecting Umgeni Water's WTW.
- Tight timeframes for Project implementation due to the long EIA process.

- Reduced coastal sedimentation affecting the shoreline stability due to the construction of the Smithfield Dam.
- Future Phase 2 of the uMWP should be considered.

The Inception Report shall provide the outcome of the reviews, assessments, data collection and field reconnaissance. The gaps, discrepancies, errors, omissions, problems and uncertainties in the information must be identified, and recommendations for additional information or remedial action should be included in the Inception Report. The Consultant must also describe the approach they intend to follow in fulfilling each task and sub-task associated with the Services. A comprehensive report shall be prepared and presented to TCTA no later than six weeks after the Commencement Date of the Agreement. The Consultant's final Inception Report shall incorporate all comments and recommendations and address all queries and questions by TCTA.

The additional information, studies and investigations required from the Consultant or other service providers to supplement and enhance the information on the Project as proposed by the Consultant and approved by TCTA shall be Additional Services. Procurement will be per **Section 3.5.9: Procurement Management** and cost management per **Section 3.5.4.2: Assistance to TCTA**.

3.1.1.4 Existing Infrastructure and Services

The Consultant must identify all infrastructure and services affected by the Project and determine the relevant solutions.

SERVICES/INFRASTRUCTURE	PROPOSED SOLUTIONS
Buildings	Demolished and removed, or protected
Minor roads and road bridges, in general	Left as is, realigned, deviated, or upgraded
R617 and the main access road to Nonguqa	Realignment or deviations. The Consultant's designs must be approved by the owners of the roads.
Fences	Demolished and removed.
Electricity, fibre and telephone lines	Left as is, relocated or protected.
Eskom overhead transmission lines	Eskom to determine the solutions.
Septic Tanks	Opened and fill with uncompacted soil.
Abstraction works, pump stations and/or pipelines	Disconnected but left <i>in situ</i> , or realigned or relocated.
Notes: 1. The list above is not exhaustive. 2. The final solutions will not be implemented during the pre-construction phase (i.e. Task 1: Tender Design and Documentation). Still, the existing infrastructure and services must be identified and documented during the pre-construction phase, and appropriate solutions determined with accurate cost estimates and programmed accordingly by the Consultant.	

3.1.1.5 Operation Rule and Philosophy

The Consultant shall, from the Technical Feasibility reports and in consultation with TCTA and DWS, develop operation rules and philosophy, considering:

- i) Life cycle costs.
- ii) Asset management.
- iii) Recommended operation and maintenance by manufacturers.
- iv) Spares availability, i.e. operation and maintenance.
- v) Skills of operators, i.e. repairs and facilities to that.
- vi) Procurement processes and challenges during operation and maintenance of the infrastructure.
- vii) Ecological Water Requirements (EWR).

The Consultant shall also develop a real-time computer-based Decision Support System (DSS) to calculate EWR (baseflow and freshets/flood) requirements for the operation of Smithfield Dam and Associated Infrastructure, i.e. timing, volumes and discharges/releases from the dam using the outlet works and spillway(s).

3.1.1.6 Guideline for Technical Implementation (GTI)

The “Technical Guidelines for the Development of Water and Sanitation Infrastructure” (Second Edition, 2004) by the Department of Water and Sanitation (DWS) has reference, and it is in **Appendix 8 of the Agreement**. This document provides technical guidance to engineering for developing government waterworks, especially regarding planning and design.

The DWS undertook the planning of the Project per the Technical Feasibility reports. Therefore, the Consultant shall consider the guidelines above and develop a project-specific GTI. This GTI for the Project should, amongst others, provide technical guidelines relating to the design of the Smithfield Dam and Associated infrastructure, i.e. dam and related infrastructure, electrical plant and equipment, telemetry, etc.

The GTI must be submitted to TCTA and DWS for review and approval before the Design Criteria Memoranda (DCM) is prepared. TCTA will facilitate the engagements with the DWS where required.

3.1.1.7 Design Criteria

The Consultant shall compile the DCM, setting out all the principles, parameters and assumptions based on best practices and international and national codes and standards for the tender design. It must include loading cases, factors of safety, allowable stresses, seismic, stability, deformation, minimum operational requirements, methods of application, flow diagrams and other factors. The Consultant shall submit the DCM to TCTA and DWS for review and acceptance before the design studies.

3.1.1.8 Investigations, Surveys and Studies

(1) Topographical Survey and Mapping

The Consultant shall install survey control points, undertake LiDAR and bathymetry surveys and aerial photographs, and map the entire Project footprint/area at a suitable scale. The data must be used to develop a two- or three-dimensional digital terrain model that must include cadastral information and digital orthophotos.

The above by a specialist contractor(s), as well as the specifications and tender document(s) by the Consultant, will be Additional Services per **sections 3.5.4.2 (Assistance to TCTA) and 3.5.9 (Procurement Management)**.

(2) Field Surveys and Investigations

The Consultant shall plan and execute supplementary field surveys, sampling and investigations, and field and laboratory testing programme(s) for all the infrastructure components to support optimising the layout and arrangement of such infrastructure components and the design studies.

In addition to the above, the Consultant shall:

- i) Determine and mitigate against the subsurface construction risks.
- ii) Establish the topsoil profile and nutrients.
- iii) Define geology and provide geotechnical and geohydrological information, i.e. rock lithology, weathering, groundwater, etc.
- iv) Measure strength, deformation and permeability of foundations.
- v) Establish the availability, quantity, and quality of construction materials from the quarries and borrow pits on-site and foundation excavations, including spoil sites/areas.
- vi) Determine Smithfield Dam reservoir integrity and leakage, including mineral resources.

The Consultant shall arrange the surveys and investigations, including geophysical surveys; drilling and logging of boreholes; test pits/trenches and mapping; various field and laboratory tests. The Consultant must optimise and prioritise these investigations into phases/stages to ensure cost-saving. The actual surveys, sampling, investigations and tests by a specialist contractor(s), as well as the specifications, tender documents, evaluation and contract administration and management by the Consultant, will be Additional Services per **sections 3.5.4.2 (Assistance to TCTA) and 3.5.9 (Procurement Management)**.

The field surveys, sampling, investigation and test results shall form part of the **Geotechnical Baseline Report** below by the Consultant.

(3) Geotechnical Baseline Report

Upon completing the supplementary **Section 3.1.1.8 (2) Field Surveys and Investigations** for all the components, the Consultant shall submit a comprehensive Geotechnical Baseline Report. This report shall include the results of the geotechnical investigations undertaken in other studies, i.e. Technical Feasibility reports.

The Geotechnical Baseline Report shall include plotted profiles, all the results (field and laboratory tests, geophysical studies, etc.) and a complete account of the technical analyses, interpretation and evaluation. The definitions, classifications, terminology, symbols and reporting shall be based on common terminology. The Geotechnical Baseline Report shall be submitted to TCTA for review and acceptance. The final Geotechnical Baseline Report shall incorporate all the queries and comments by TCTA.

The above shall be Additional Services per **Section 3.5.4.2 (Assistance to TCTA)** during the administration of this Agreement, i.e. drafting and compiling the Geotechnical Baseline Report.

(4) Flood Hydrology Studies

The Consultant shall determine the flood risks and frequencies associated with designing and constructing all infrastructure components. The Consultant shall also determine the magnitudes, durations and water levels related to flood events.

(5) Hydraulic Design Studies

The Consultant shall conduct hydraulic studies using suitable modelling techniques (including computational fluid dynamics modelling), calculations and analysis to determine the hydraulic conditions associated with all the infrastructure components. The studies shall, amongst other things, include the scour and sedimentation potential/yield; water hammer; submergence of intakes; hydraulic stability; hydrodynamic vibration; energy dissipation; flow patterns; water levels; aeration; pressures; and flooding of existing upstream and downstream structures and properties.

The Consultant will be required to conduct a 3-dimensional hydraulic physical model study to optimise or verify the hydraulic design of the Smithfield Dam spillway, subject to TCTA's approval of the Additional Services per **sections 3.5.4.2 (Assistance to TCTA) and 3.5.9 (Procurement Management)**.

3.1.1.9 Optimisation of Infrastructure Components

The Consultant shall develop the final layouts and general arrangements of all the infrastructure components considering the following:

- Available information from previous studies and assessments.
- Corridors and conditions specified in the EA.
- Outcome of the environmental and engineering investigations, studies, surveys and plans.
- Non-alienation of the affected properties.

- Design studies, including other studies and investigations recommended by the Consultant and approved by TCTA.

Upon completing the optimisation process, the Consultant shall prepare drawings showing the layouts and general arrangements of all the temporary and permanent infrastructure components. This will enable the Consultant to determine the construction footprint/area and calculate quantities and cost estimates. The information shall be revised as needed.

All the layouts and general arrangements shall be discussed with TCTA before they form the basis for more detailed studies

3.1.1.10 Tender Design Studies

The Consultant shall undertake various design studies using information from the tasks above and any additional information from other sources to successfully design all the required infrastructure components for effective and efficient construction. The objectives include, among other things, the following:

- i) Optimise and finalise the layouts and arrangements to reduce the overall costs and improve the technical performance of the infrastructure components. All the proposed arrangements shall be discussed with TCTA before they form the basis for more detailed studies.
- ii) Provide complete designs for all the infrastructure components, including the hydro-mechanical and electrical plant and equipment, systems, instrumentation, reinforced concrete, stability, drainage, lighting, etc.
- iii) Provide the outline designs and performance specifications related to mechanical and electrical equipment and plant items such as diesel-powered backup generator, gates and valves to enable detailed design and manufacturing by the contractor.
- iv) The designs, reports, specifications and drawings must be to a high level of standard to allow tenderers/bidders to quickly and fully understand the requirements of the proposed infrastructure to resource accurately, programme and price for the work.
- v) Identify and list any long lead items for construction plant and equipment (temporary and permanent) for inclusion under Risk Management and Tender Document.
- vi) Exclude poor plant, equipment and materials and only use new high-quality plant, equipment and materials that have a proven track record of being successfully operated and maintained in KZN, South Africa. Furthermore, all plant, equipment and materials must be suitable under all local climatic conditions and altitudes, providing the highest service life without refurbishment and using locally available materials if feasible.
- vii) Operation and maintenance must be safe, hygienic, secure, user-friendly, low-cost, accurate, efficient, durable, and accessible during all weather conditions, including remote and local operation (automatic and manual).
- viii) Do not adversely affect the environment and people's security, hygiene, health and safety.
- ix) Consider the impacts and risks of climate change.

- x) Determine design requirements for the implementation of the biodiversity offsets initiatives.
- xi) Level of detail on the above must be suitable for international tendering.
- xii) Identify interfaces required with others and items to be provided by others for the proper execution of the Services.

The design studies should include:

- i) Design calculations and analyses to determine the system's performance and failure probabilities, including reliability analysis.
- ii) Concrete mix and reinforcement designs for all grades of concrete, including pre-cast units.
- iii) Hazard and Operability Study (HAZOP).
- iv) Constructability or appropriate construction methods.
- v) Process Flow Diagrams.
- vi) Cathodic Protection.
- vii) Seismic analyses.
- viii) Modelling and simulation of site-specific impacts and risks relating to climate change and makes the necessary allowance in, or adjustments to, the tender design studies below.
- ix) Operation Rule and Philosophy per **Section 3.1.1.5**.

(1) Dam Design Studies

The Consultant's Approved Professional Person and other engineers and specialists shall undertake a design study for Smithfield Dam, saddle dam and river flow gauging weirs. The study shall include, amongst other things, the following:

- i) Optimum layout and arrangements to improve the technical performance of the structure, including access roads (temporary and permanent), bridges and other ancillary infrastructure.
- ii) Foundation treatment requirements to ensure stability and impermeability.
- iii) Overall design – freeboard, embankment, crest width, pore pressure relief, dead storage requirements (i.e. siltation), etc.
- iv) Management of quarries, borrow pits and spoil and construction materials.
- v) Telemetry, instrumentation and housing requirements.
- vi) Construction and Project footprints for land acquisition purposes.
- vii) Drawings of all arrangements to determine quantities and cost estimates.
- viii) Dam Safety Office requirements.
- ix) Operation Rule and Philosophy per **Section 3.1.1.5**, including a boat ramp.
- x) Spillways, river diversion works, and outlet works – refer to the requirements below.

- xi) Acquire the license to construct from the Dam Safety Office.

(2) Spillway Design Studies

The Consultant shall undertake a design study of the Smithfield Dam and saddle dam spillways (ungated). The study shall include, amongst other things, the following:

- i) Optimum layout and arrangements for the spillways including its components (i.e. ogee, chute, ski-jump and plunge pool).
- ii) The capacity of the spillways for a range of floods, considering the various types of spillways and energy dissipation alternative measures.
- iii) Overall design – the types of spillways, energy dissipation measures, pore pressure relief, stability, scouring, drainage system, hydraulic performance, etc.
- iv) Numerical and 3-dimensional hydraulic physical modelling.
- v) Drawings of all arrangements to determine quantities and cost estimates.
- vi) Operation Rule and Philosophy per **Section 3.1.1.5**.

(3) River Diversion Works

The Consultant shall undertake a design study of the river diversion facilities for the construction of the Smithfield Dam, river flow gauging weirs, bridge piers, etc. The study shall include, amongst other things, the following:

- i) Risks associated with various floods and assessment on overtopping/flooding for each infrastructure component.
- ii) Alternative types of diversion facilities must be examined to determine the optimum arrangements considering the construction programme, costs, risks, constructability and hydraulic performance for each infrastructure component.
- iii) Drawings of all arrangements to determine quantities and cost estimates.

(4) Outlet Works

The Consultant shall undertake a design study of the facilities to discharge/release water through the dam, i.e. EWR or compensation flows and operation and maintenance of the Smithfield Dam. The study shall include, amongst other things, the following:

- i) Overall design of all the components, i.e. multi-level intake tower and access to it, hydro-mechanical plant, structural, electrical, outlet pipes/tunnel and interface with the tunnel intake.
- ii) Optimum layout and arrangements of the Works considering the construction programme, costs, constructability and hydraulic performance.
- iii) Drawings of all arrangements to determine quantities and cost estimates.
- iv) Operation Rule or Philosophy (refer to **Section 3.1.1.5**), including telemetry and instrumentation requirements.

(5) River Flow Gauging Weirs

The Consultant shall undertake the design studies of the three river flow gauging weirs in the uMkhomazi River per the requirements under Dam Design Studies above:

- The first will be below the proposed Impendle Dam (note: the proposed dam is not part of the Project) to measure inflow to Smithfield Dam. This gauging weir will replace the existing station, which the construction of Smithfield Dam will inundate.
- The second will be immediately downstream of Smithfield Dam to determine the discharges/releases from Smithfield Dam and to monitor the EWR.
- The third will be about a kilometre downstream of Smithfield Dam near Hella Hella (EWR/IFR2) to determine the runoff from the catchment downstream of Smithfield Dam.

(6) Services Design Studies

The Consultant shall determine site establishment and access roads (temporary for construction and permanent) design requirements. The construction roads shall include access roads to the quarries, borrow pits and waste disposal areas.

The Consultant shall determine the electricity supply points, demand and voltage requirements for the scheme's construction and operation and maintenance phases, including the timing and cost estimates (capital costs for the work and consumption). TCTA will facilitate engagements with Eskom and submit electricity supply applications where needed.

The Consultant shall determine all potable water supply and sanitation design requirements, i.e. temporary for construction and permanent for operation and maintenance.

3.1.1.11 Potential Hydropower Plant

TCTA will undertake a hydropower feasibility study and determine the need to have a hydropower plant at the Smithfield Dam. This study will be undertaken by others.

Should the Consultant be required and instructed to undertake the hydropower design studies, tender documentation and construction supervision and monitoring, this shall be Additional Services per **Section 3.5.4.2 (Assistance to TCTA)**.

3.1.1.12 Operator Facilities

The Consultant and its architect shall undertake the design studies as follows:

- i) Building Works: five three-bedroom houses (approximately 150 m²); five single quarter units; control room and offices to accommodate approximately ten operators; guardhouse; garaging facility; workshop; and storage building. The sizes shall be agreed with TCTA before the design studies.
- ii) Civil Works: roads, stormwater, structural, sewer pipelines and conservancy tank, water tower and pipelines for the supply of potable water.
- iii) Electrical Works: main supply, internal and reticulation.

The Consultant and its architect shall provide optimum layout and arrangements of all the above, including the construction programme, quantities and cost estimates.

3.1.1.13 Resettlement Houses for Affected Families/Households

A social survey undertaken during the EIA identified approximately 28 households (each with an average of five dwellings/structures) that will need to be relocated due to the construction of Smithfield Dam and Associated Infrastructure.

The Consultant and its architect shall undertake design studies as follows:

- i) Building Works: resettlement houses with varying sizes to accommodate the affected families/households.
- ii) Civil Works: roads, stormwater, structural designs, sewer and potable water supply infrastructure.
- iii) Electrical Works: main supply, internal and reticulation.
- iv) All the above shall be “effective and efficient and contribute to the creation of sustainable human resettlement” as well as be accommodative of persons with disabilities and physical challenges.

The resettlement houses must comply with the following:

- Department of Human Settlements standards or exceed such standards. The latter must be in consultation with TCTA to achieve the application of “equal or better” principle.
- National Home Builders Registration Council (NHBRC) regulations and standards per Housing Consumers Protection Measures Act 95 of 1998 (as amended).

IMPORTANT NOTE: The number of households and dwellings/structures may be more than indicated above. This is because only half of the eSheshi area was surveyed during the EIA. As such, the Consultant shall undertake a detailed investigation to confirm the actual number of households, dwellings/structures, specific conditions and needs of each household per the **sections 3.1.2.6: Social Impact Assessment and Documentation** and **3.1.2.8: Resettlement Action Plan (RAP)**.

3.1.1.14 Tender Design Report

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

Notwithstanding the above, and as agreed with TCTA, the Consultant will be required to submit clear and concise technical memoranda during the design process, i.e. Design Studies. Each memorandum shall set out the concepts, methods, criteria and critical parameters used in the design, the design calculation results, discussion on the technical decisions or recommendations, an indication of outstanding matters, and implications on costs and programme. The memoranda must be submitted to TCTA for review and acceptance soon after the Services are performed on specific items. The final memoranda

shall incorporate all the queries and comments by TCTA. The particular items shall be agreed upon with TCTA and form part of **Task 5: Project Management - Time Management**.

The contents of the tender design report shall include, amongst other things, the following:

- i) Methods used in the design.
- ii) Reasons for technical decisions.
- iii) Construction programme developed and presented in Primavera or MS Projects.
- iv) Details of further design work required during construction, with recommended methods and criteria.
- v) Details on approvals/authorisations required from authorities, if any.
- vi) Technical memoranda and other design reports in the appendices.
- vii) Design sketches and drawings and calculations in appendices.
- viii) Schedules for equipment and long lead items, including spares for operation and maintenance.
- ix) Resource-based cost estimates.

The tender design report shall be submitted to TCTA for review and acceptance. The final report shall incorporate all the queries and comments by TCTA.

3.1.1.15 Tender Document

The Consultant shall produce the tender document for the construction contract based on the Construction Industry Development Board (CIDB) Standard for Uniformity in Engineering and Construction Works Contracts, which are published in terms of the regulations of the CIDB Act 38 of 2000 (as amended).

The document shall describe the Works, including temporary works, as necessary, in sufficient detail to allow tenderers to determine their construction cost confidently and ensure the receipt of at least three tenders. Furthermore, the Consultant shall prepare suitable particular conditions of tender and contract.

The tender document shall include, amongst other things, the following:

- i) Tendering procedures and tender data, including the functional evaluation criteria. The Consultant shall develop such criteria in consultation with TCTA.
- ii) Returnable documents. Such documents must, amongst other things, be aligned with the functional evaluation criteria.
- iii) Agreement and contract data per the Conditions of Contract: FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Red Book) (second edition, 2017). The Consultant shall develop the particular conditions of contract in consultation with TCTA.

- iv) Pricing data and the Bill of Quantities (BoQ) per the recognised standard measurement method of civil engineering works. The BoQ must enable the evaluation of variations and determination of claims.
- v) Scope of work, including technical/construction specifications: engineering, environmental, social, black South Africans, enterprise and supplier development requirements, and health and safety.
- vi) Site information and other documents:
 - Drawings.
 - Site information such as the Geotechnical Baseline Report and environmental and baseline reports and plans.
 - Detailed design and construction programme developed and presented in Primavera or MS Projects.
 - Other relevant documents and reports such as the construction and operation EMPr, DMRE approved EMPr and EA.

A separate pre-qualification document and the process will precede the tender document and process. The pre-qualification document shall include, amongst other things, procedures data and evaluation criteria, returnable documents and additional relevant information to shortlist contractors for the tender process. The Consultant shall develop the complete pre-qualification document in consultation with TCTA.

The pre-qualification and tender documents shall be submitted to TCTA for review and acceptance, and approval by its Bid Specification Committee (BSC) as detailed under **Sub-Task 5.9: Procurement Management**. The final pre-qualification and tender documents shall incorporate all the queries and comments by TCTA and its BSC.

3.1.2 Sub-Task 1.2: Environment, Social and Land Acquisition

3.1.2.1 Environmental Management Programme (DFFE)

The Consultant will be required to comply with the EA conditions and obtain approval from DFFE for the construction and operation EMPr. As such, the Consultant shall be responsible for the preparation, public participation process and the submission of the final construction and operation EMPr to DFFE for approval, notification of the decision and management of the appeals process (if required). The Consultant must allow no less than two revisions of the EMPr, including public participation processes.

The format and structure of the construction and operation EMPr must be based on the Pre-construction EMPr, unless otherwise approved by TCTA.

3.1.2.2 Environmental Management Programme (DMRE)

An EA in terms of NEMA and the EIA Regulations, 2014 (as amended) for the quarries and borrow pits was issued by the Department of Mineral Resources and Energy (DMRE) (as it is now known). The EA requires an EMPr to be prepared and submitted by an EAP to DMRE for approval. The Consultant must allow no less than two revisions of the EMPr, including public participation processes.

The format and structure of the EMP are to be agreed upon with TCTA.

3.1.2.3 Environmental Plans

(1) Biodiversity Offsets and Compensation Plan (DFFE)

A detailed Biodiversity Offset and Compensation Study was undertaken by the EAP during the preparation of the second Addendum to the EIA Report. This report (dated July 2020) addresses the significant ecological impacts that will occur during construction as well as the impoundment of Smithfield Dam, and in line with the mitigation hierarchy, various options were considered. The main option being three recipient areas identified using desktop method, comprising of eight landowners, with over 25 properties/farms outside the Project footprint/area, willing to participate in the biodiversity offsets initiatives.

To achieve the targets in the table below on the properties above, the following summary of initiatives are detailed in the abovementioned report:

- Alien and invasive plant, waste, rubble, and litter removal
- Stormwater management – sediment traps, sloping/shaping areas with steep banks, etc.
- Planting/seeding, i.e. vegetation.
- Erosion control measures – installation of geofabrics, staking vertical strips, etc.
- Grazing and fire management plans.
- Short-term maintenance for approximately three years – monitoring and carrying out the above as required to achieve vegetation cover.
- Long-term management for over 30 years.

A budget estimate was also prepared for the above, totalling R170 million (including VAT) (2020), i.e. Smithfield Dam and Associated Infrastructure and the Water Conveyance Infrastructure. The estimate includes compensation payable for the impact of uMWP-1 on critical species.

The affected habitats, footprints, and targets described in Addendum 2 of the EIA report are summarised below:

AFFECTED HABITAT	AFFECTED HABITAT FOOTPRINT	TARGET
Wetland Habitat	55 ha	1100 ha
Riparian Habitat	17 km	17 km
CBA Irreplaceable Habitat	29.45 ha	883.5 ha
CBA Optimal Habitat	129.22 ha	646.1 ha

AFFECTED HABITAT	AFFECTED HABITAT FOOTPRINT	TARGET
<p>Notes:</p> <ol style="list-style-type: none"> 1. CBA - Critical Biodiversity Area. 2. The targets are based on the national and provincial guidelines: Wetland Habitat (20:1); Riparian Habitat (1:1); CBA Irreplaceable Habitat (30:1); CBA Optimal Habitat (5:1). The Consultant shall revise these targets to comply with the official National Biodiversity Offset Guidelines or the latest relevant guidelines as Normal Services. 3. The wetland offset tool requires a target of 11:1 for Wetland Habitat. This will reduce the target to 605 ha. 		

The Consultant shall use the report above as the basis to develop the Biodiversity Offsets and Compensation Plan. TCTA identified issues and gaps in the report above as follows:

- The budget and programme may be high-level and outdated and not appropriate for Tender Design and Documentation.
- Landowners may have changed or no longer be interested in the biodiversity offsets projects/initiatives.
- The solutions/designs don't have detailed drawings and quantities for accurate pricing by contractors.
- Compensation amounts lacked objective motivation and details on how it was calculated.
- There are no environmental authorisations or exemptions in place, required to implement biodiversity offsets.
- There are no Water Use Licence in place, required to implement biodiversity offsets.

The Consultant shall address all the issues and gaps and develop the Biodiversity Offsets and Compensation Plan after considering the National Biodiversity Offsets Guideline (as gazetted) and Biodiversity Offsets and Compensation Study, with initiatives identified to compensate for the loss of identified species of conservation significance, which was undertaken during the EIA process.

The Biodiversity Offsets and Compensation Plan must include, amongst other things, the following:

- DFFE requirements per the EA as amended.
- Undertake Investigations, Surveys and Studies (per **Section 3.1.1.8** above) and provide details of the biodiversity offset areas/sites, including how to secure such sites/areas (approach and method only). This must be done in consultation with TCTA and will include revisiting the engagements with the landowners identified during the EIA process to obtain formal approvals relating to the further studies and implementation of the above on their properties.
- Detailed scope of work for each biodiversity offset site/area – designs, specifications and requirements, drawings, cost estimates, escalated cash flow, implementation/construction programme (including short-term maintenance and long-term management), etc. per requirements under **Section 3.1.1.14: Tender Design Report** above. The cost estimates must differentiate between Operating Expenditure (OpEx) and Capital Expenditure (CapEx).

- The conditions for long-term management for each biodiversity offset site/area. The conditions must be included in the agreements below.
- Negotiate and attach the signed agreements with the eight landowners and terms of reference for role players that will be involved with the implementation of the biodiversity offsets. The agreements must consider the approach and method to secure the biodiversity offset sites/areas above. The proposed agreements and terms of reference must be submitted to TCTA for approval.
- Undertake a Basic Assessment for the biodiversity offset sites/areas and attach the Environmental Authorisation(s), or a formal exemption(s).
- Apply for Water Use Licence(s) and attach it, or a formal exemption(s).
- Where offsetting is impossible, the Consultant shall determine the compensation quantum. This shall be based on sound, objective, and scientifically defensible methods.

The Consultant will be required to work closely with the consultant for the Water Conveyance Infrastructure, upon the award of such a contract/agreement, to produce a consolidated and integrated Biodiversity Offsets and Compensation Plan.

The Biodiversity Offsets and Compensation Plan shall be submitted to TCTA for review and acceptance. The Consultant shall incorporate all the queries and comments by TCTA, before the public consultation process. The plan shall then undergo a formal public consultation process facilitated by the Consultant's EAP and the final plan signed by the EAP, considering the comments, shall be submitted to DFFE for approval. To this end, the Consultant will be required to address DFFE's queries for the plan to be approved.

IMPORTANT NOTE: If the properties or initiatives identified during the EIA process are no longer available as potential biodiversity offset sites/areas or unsuitable, the Consultant will be required to identify and propose new biodiversity offset sites/areas and initiatives. This will be considered as Additional Services and Exceptional Services, but subject to TCTA's approval.

(2) Search, Rescue and Relocation Plan (DFFE)

The Consultant shall undertake an ecological walk-through survey to document the flora and fauna within the habitats that will be affected by the development including amongst other things the following:

- Details of red-data and conservation-worthy species and medicinal plants, e.g. *Protea caffra*.
- Blue Swallows (*Hirundo atrocaerulea*), Riverine Keeled Millipede (*Gnomeskelus fluvialis*), Pennington's Protea Butterfly (*Capys penningtoni*), and other sensitive faunal species.

The Consultant shall develop the Search, Rescue and Relocation Plan. The Search, Rescue and Relocation Plan shall include amongst other things the following:

- Flora that must be rescued and transplanted and the method of propagation, e.g. in whole or seeds collected.

- Identification of suitable relocation sites, including the establishment of an on-site nursery where relevant.
- Where relocation cannot be undertaken, this will inform the Biodiversity Offsets and Compensation Plan above.

The Search, Rescue and Relocation Plan shall be submitted to TCTA for review and acceptance. The Consultant shall incorporate all the queries and comments by TCTA, before the public consultation process. The plan shall then undergo a formal public consultation process facilitated by the Consultant's EAP and the final plan signed by the EAP, considering the comments, shall be submitted to DFFE for approval. To this end, the Consultant will be required to address DFFE's queries for the plan to be approved.

(3) Habitat Rehabilitation and Restoration Plan (DFFE)

The Consultant shall undertake an ecological walk-through survey and investigations to document the habitats that will be affected by the development and develop the Habitat Rehabilitation and Restoration Plan. The plan shall include amongst other things the following:

- Laboratory results of soil samples tests, e.g. nutrients.
- Detailed and specific rehabilitation measures for each affected Project footprint/area where rehabilitation will be required.
- Requirements for controlling alien and invasive plants.
- Where rehabilitation cannot be undertaken, this will inform the Biodiversity Offsets and Compensation Plan above.

The Habitat Rehabilitation and Restoration Plan shall be submitted to TCTA for review and acceptance. The Consultant shall incorporate all the queries and comments by TCTA, before the public consultation process. The plan shall then undergo a formal public consultation process facilitated by the Consultant's EAP and the final plan signed by the EAP, considering the comments, shall be submitted to DFFE for approval. To this end, the Consultant will be required to address DFFE's queries for the plan to be approved.

(4) Catchment and Ecological Infrastructure Management Plan (DFFE)

The uMkhomazi River has an enormous catchment (over 200 000 ha). Umgeni Water (UW) is already undertaking some catchment management work. Due to the size of the catchment, the study is focused on micro-catchments, i.e. critical focal areas. Furthermore, the Institute of Natural Resources (INR), with input from UW, undertook a scoping study on behalf of the Nature Conservancy that investigated opportunities to establish a Water Fund to improve water security through Ecological Infrastructure (EI). The upper uMkhomazi River catchment was identified as having a high potential to benefit from these EI investments.

In addition to the above, the Water Research Commission (WRC) developed an ecological infrastructure management plan and framework for institutional arrangements and funding for Smithfield Dam through its National Siltation Programme. The Consultant will be required to consider the above, especially under **Section 3.1.1.10: Tender Design Studies** above and Detailed Design.

The condition in the EA requires that a framework is prepared whereby strategic interventions be directed or developed so that all parties undertaking EIA restoration and rehabilitation can be managed in the catchment to be more efficient and effective.

Taking the above into consideration, the Consultant shall prepare the Catchment and Ecological Infrastructure Plan for the upper uMkhomazi River catchment that includes, amongst other things, the following:

- Review initiatives by UW, the INR and the WRC to identify gaps and synergies.
- Identify and map degraded and declining ecological features in the uMkhomazi Catchment above the Smithfield Dam.
- Identify interventions to restore, improve and maintain ecological features in the uMkhomazi Catchment above the Smithfield Dam.
- Develop a strategic framework plan to guide, coordinate and direct interventions aimed at the rehabilitation, restoration, and maintenance of ecological infrastructure in the uMkhomazi Catchment above the Smithfield Dam.
- Provide a framework for funding and implementation. The implementation will be by others.
- In addition to the above, the Consultant will be required to consult and collaborate with UW, the INR and the WRC.

The Catchment and Ecological Infrastructure Management Plan shall be submitted to TCTA for review and acceptance. The Consultant shall incorporate all the queries and comments by TCTA, before the public consultation process. The plan shall then undergo a formal public consultation process facilitated by the Consultant's EAP and the final plan signed by the EAP, considering the comments, shall be submitted to DFFE for approval. To this end, the Consultant will be required to address DFFE's queries for the plan to be approved.

3.1.2.4 Environmental Baseline

The Environmental Baseline (including, among other things: land use practices, vegetation status (in terms of plant species, alien invasive plants, noxious weeds, etc.), conditions of haul roads, river water quality, the state of river banks (where affected), ambient dust, noise and traffic volumes) and pre-construction survey (land uses and structures, e.g. fencing, boreholes, houses, etc.) situated approximately 100 metres adjacent from the site boundary(ies) must be undertaken by the Consultant. The Consultant shall record all the variables and parameters, including photographic evidence, and prepare baseline reports for inclusion in **Section 3.1.1.15: Tender Document**.

3.1.2.5 Environmental Aspects

TCTA has developed and operates an Environmental and Social Management System (ESMS) per the requirements of King IV. The ESMS requires the Consultant to identify the aspects and determine their significance.

The table below provides a summary of the aspects. Note that this is not exhaustive, and the Consultant shall identify gaps and create a comprehensive list for the Project. To

achieve responsible environmental management, direct and indirect impacts at an appropriate scale will be required from the Consultant.

COMPONENT	ASPECTS*
Site Layout	<ul style="list-style-type: none"> • Demarcation of the infrastructure (temporary and permanent) required for site establishment and construction. • Indicate access roads, haul roads, and above and below-ground infrastructure, including fences and gates. • Site micro-climate features (aspect and slope) to specify site buildings' locations, dimensions, and orientation to enhance solar gain. • Identification of bulk fuelling stations. • Site traffic plan; topsoil stockpiling areas; staging area for firefighting; waste stations (general and hazardous). • Designate vehicle and plant cleaning and maintenance areas.
Site establishment	<ul style="list-style-type: none"> • Demarcation of the site; site drainage • Protection/removal of vegetation, natural features, fauna, and cultural-historical aspects • Topsoil conservation; de-bushing and de-stumping; erosion and sedimentation control; firefighting plant and procedures
Site infrastructure/structure and accommodation	<ul style="list-style-type: none"> • Energy efficient construction office building design (e.g. ventilation, solar orientation, windows, insulation, etc.) • Water conservation (e.g. installing low-flow appliances in the temporary construction facilities/buildings, greywater re-use in toilet flushing, directing roof runoff, etc.) • Contractor's offices, workshops and lay-down areas; batching plants; crusher plants; sand washing plants; nurseries; roads and access; gates and fences; waste stations
Site management	<ul style="list-style-type: none"> • Rubble and waste rock; solid waste (management, recycling, and re-use); recycled use of waste materials; liquid waste (management, recycling and re-use) • System for capturing site water run-off for dust control • Hazardous waste (handling, use, disposal, mitigation measures in case of spill and use of Material Safety Data Sheets) • Pollution control; implements and equipment; blasting; air quality; noise control; fire control; health and safety; bioremediation • Construction waste recycling and re-use • Fuel/oil bundling of standing plant and storage areas • Oil and fuel spill absorption kits for fuel storage areas and provision in critical areas • Disposal techniques for waste materials from construction activities

COMPONENT	ASPECTS*
	<ul style="list-style-type: none"> Erosion control (site stormwater and drainage plan, mitigation measures, inspection schedule and correction of sediment control measures)
Earthworks	Prospecting boreholes and test pits; excavations and trenches; cut and fill; shaping and trimming
Stockpiles, storage and handling of materials	Topsoil; waste materials; vehicles and equipment; fuel; hazardous substances
Water Management	<ul style="list-style-type: none"> Settlement ponds (design, management and rehabilitation); river crossings and diversions; working in or near rivers and wetlands; borrow pits; stormwater drainage; trench excavations; Water quality and quantity monitoring Ponding, especially near communities and homesteads Water quality discharged from construction activities Surface water management; erosion protection and control
Rehabilitation, biodiversity offsetting and compensation	<ul style="list-style-type: none"> Removal of temporary structures and infrastructure; inert waste and rubble; hazardous waste and pollution control; final shaping; surface water management; topsoil replacement and soil amelioration; ripping and scarifying; planting; grassing; maintenance Landowner consultation and property packs for every affected property – these packs to be signed off by the landowner pre-construction (confirming the accuracy of data) as well as post-construction (assuring the success of rehabilitation): <ul style="list-style-type: none"> Preconstruction baseline information of habitats and vegetation types within the servitudes, land parcels and neighbouring properties. Rehabilitation interventions are property specific, i.e. fertiliser application, kind of seed mix, special measures for slope stabilisation, etc. A wetland assessment that maps all wetlands within the construction footprint, that includes amongst others, the dam basin, the realignment of roads, and gauging weir sites. The wetlands must be classified both in terms of type and condition. A similar assessment must be undertaken for grasslands and stretch of river that will be inundated.
Incident Reporting	Design an incident reporting protocol
Environmental awareness (biophysical and social)	Training programmes; induction training; tool-box talks; signage; refresher training
Social Management	<ul style="list-style-type: none"> Social impact assessment and mitigation Heritage resources and palaeontological impact assessment and mitigation Resettlement and livelihood restoration

COMPONENT	ASPECTS*
Interactions with interested and affected parties	<ul style="list-style-type: none"> • Access procedure to impacted properties • Response procedure to landowner concerns and claims • Provision of information to TCTA for sharing with affected landowners
Note: * Aspects are how Project activities and related processes interact with the receiving environment, resulting in positive or negative changes.	

3.1.2.6 Social Impact Assessment and Documentation

The Consultant shall determine the social impacts associated with the development (Project footprint/area) and document (signed records and photographic evidence) all the direct and indirect impacts along with the proposed mitigation measures where relevant. The Consultant shall submit a report to TCTA for review and approval.

The report must include, amongst other things, a list of all households/families directly affected by the development, construction or residing within the Project footprint/area and additional detailed information on each family/household as follows:

- Occupation status, e.g., contractual right to live on the property or tenant agreement. A copy of the occupation status must be provided or sourced from the relevant authorities such as the Ingonyama Trust or deeds registry office.
- Number of people and their relationships: age, gender, home and preferred languages, income and the source thereof e.g. small house-based businesses, employment status, and the living arrangement of each person. Also identify vulnerable individuals.
- Superstructures: number, size and condition of structures/houses and use thereof, number and size of each room per structure/house, crawls, size and condition of kraal(s), etc.
- Graves on the property or elsewhere. Where graves are affected, record details of each grave (name, age, location, etc.) and determine cultural norms or practices for exhumation, reinterment, or other requirements. The information on graves must be considered and included under **Section 3.1.2.7: Heritage Resources Impact Assessment and Mitigation** below.
- Preferred resettlement: the Consultant shall develop a questionnaire, in consultation with TCTA, to be completed by the Consultant during the interview of each family/household and business.
- Land and usage for crop production (i.e. subsistence farming), livestock and grazing area(s) (if any).
- The head of each household/family must formally sign off all the information above.

In addition to the above, the Consultant shall make use of existing literature and collect field data through sample interviews to estimate and document the number of households/families or size of the affected communities who will be indirectly affected by the development or construction (to a maximum impact of 10 km from and around the footprint of the Smithfield Dam reservoir), including the following:

- Information such as the preferred language(s), cultural and religious practices and norms.
- The employment status of people and other sources of income.
- Access to services, e.g. what the distance is to them, which roads are used and which transport is available.
- Identify positive and negative impacts to interested and affected parties resulting from or related to construction activities or the development.

3.1.2.7 Heritage Resources and Paleontological Impact Assessment and Mitigation

A Phase 1 Heritage Impact Assessment and a palaeontological desktop study were undertaken during the EIA. A palaeo-sensitivity map from the South African Heritage Resources Information System (SAHRIS) (produced by the South African Heritage Resources Agency (SAHRA)) classify the Project footprint as a very fossil-sensitive area, therefore, the probability of finding fossils is high.

The Consultant shall undertake assessments limited to the footprint/area of the Project as follows:

- i) Phase 2 Heritage Impact Assessment to investigate and document all the culturally significant land; archaeological excavations and study of stone/iron age deposits, cultural artefacts; rock art; historical (stone-built) structures; and graves.
- ii) A detailed Paleontological Impact Assessment to investigate (including field investigations) and document all the fossil sites and their significance.

Upon completing the above, the Consultant shall develop a Heritage Resources and Palaeontological Management Plan as follows:

- i) Provide mitigation measures relating to affected heritage resources and fossil sites.
- ii) Where removal or relocation is unavoidable, provide removal and relocation requirements for heritage resources and fossils.
- iii) Estimate the costs associated with the above, including programme implications on the Project's overall implementation.
- iv) The mitigation measures or solutions for the affected graves and related requirements must be included under **Section 3.1.2.8: Resettlement Action Plan (RAP)** below.

The current access to Nonguqa is via the Deepdale Bridge (built in 1896) which will be inundated. This structure has high heritage significance, and the EIA recommends documenting the structure and leaving it in situ. However, consideration must be given to possible risks to human life, as the bridge will be exposed during period of low water levels and under no circumstances should people be able to utilise or access it.

3.1.2.8 Resettlement Action Plan (RAP)

Upon completing the Social Impact Assessment and Documentation and the Heritage Resources Impact Assessment and Mitigation above, the Consultant shall develop a RAP considering the table below.

The plan must include, amongst other things, the following:

- i) Outline the consultation process and grievances, complaints and issues redress mechanism. The Consultant will be required to undertake extensive surveys, and lengthy consultation and negotiation process with the affected parties. The Consultant shall develop the process and mechanism in consultation with TCTA.
- ii) Eligibility/classification criteria for each negative impact or item.
- iii) Mitigation measures for each negative impact as well as vulnerable individuals, considering the host communities where resettlement is proposed. Other mitigation measures may include compensation.
- iv) Measures to promote social and economic integration of resettled families/households into host communities, and mitigation measures for host communities if negatively affected.

The plan shall be submitted to TCTA for review and acceptance. The final plan shall incorporate all the queries and comments by TCTA.

IMPORTANT NOTE: The Consultant shall endeavour to restore all communal practices and norms of affected people and improve their environment and livelihood.

AFFECTED ITEM	ESTIMATED QUANTITY	PROPOSED SOLUTIONS	ADDITIONAL REQUIREMENTS	RESPONSIBLE PARTY
Households/families	28 households with an average of five dwellings/structures per household (one large main house, bridal houses (smaller to the main house) and ancestral hut(s))	Relocation per requirements under Section 3.1.1.13: Resettlement Houses for Affected Families/Households		Consultant
		<ul style="list-style-type: none"> • Construction of resettlement houses • Relocation of families and household contents • Temporary accommodation, if required 		Contractor as supervised by the Consultant
Graves ¹	350 ³	<ul style="list-style-type: none"> • Relocation of each grave at a suitable, legal and agreed location, or protection details of each grave • Cash payments, e.g. solatium, allowances, etc. 	<ul style="list-style-type: none"> • Public advertisement • Details of each grave (name, dates, location, etc.) • Confirmation of grave locations (field investigations, mapping, etc.) • Negotiations and agreement(s) • Procurement of undertakers, animal suppliers, etc. 	Consultant
Subsistence farming ²	To be determined ⁴	<ul style="list-style-type: none"> • Identify and secure land suitable for the same use, including re-establishment requirements/costs, OR • Compensate for loss of produce 	Determination compensation mechanism and value(s) using life cycle cost where applicable	Consultant
Livestock and grazing land ²	To be determined ⁴	Identify and secure land suitable for the same use, including re-	Details of livestock (name of owner, breed, number, affected area(s))	Consultant

AFFECTED ITEM	ESTIMATED QUANTITY	PROPOSED SOLUTIONS	ADDITIONAL REQUIREMENTS	RESPONSIBLE PARTY
		establishment requirements/costs		
		Relocation of livestock and existing infrastructure where feasible		Contractor as supervised by the Consultant
Small house-based business ²	To be determined ⁴	Identify and secure location suitable for the same use	<ul style="list-style-type: none">• Identification of businesses affected by construction• Valuation of income generation of the business	Consultant
		<ul style="list-style-type: none">• Relocation of existing infrastructure or construction of similar infrastructure, where feasible.• Compensation	Financial loss claims by the affected parties, i.e. compensation	TCTA, or contractor or sub-contractor as supervised by the Consultant
Notes:				
1. The provision for other related costs (undertakers, coffins, food, head or tombstones, crosses, blankets, animals for cultural ceremonies/rituals, remains/family transportation, etc.) and monetary compensation to the next-of-kins via the Consultant is in Appendix 3: Remuneration and Payment of the Agreement. The Consultant must price for the Services to finalise the solutions and comply with all specified requirements.				
2. The provision for all costs and cash payments to the affected parties via the Consultant is in Appendix 3: Remuneration and Payment of the Agreement . The Consultant must price for the Services to finalise the solutions and comply with all the specified requirements.				
3. Notwithstanding the estimated number of affected graves during the feasibility study and EIA, the Consultant shall provide the Services to relocate the total number of graves specified by TCTA.				
4. To be determined by the Consultant per Section 3.1.2.6: Social Impact Assessment and Documentation .				

3.1.2.9 Water Use Licence Application

The Consultant shall prepare the necessary documentation per the National Water Act (Act 36 of 1998) (as amended). This includes engagement between the applicant (TCTA) and DWS to determine the type of authorisation, conduct site inspections and confirm the information requirements. The Consultant shall also be responsible for preparing the technical reports and any supporting documents that DWS may request. The Consultant must allow for no less than two revisions of the Water Use Licence Application, including any public participation processes that may be required.

3.1.2.10 Applications for permits and approvals

The Consultant shall identify all activities that require permits and approvals and prepare and submit the necessary documentation and applications to the relevant authorities.

- i) Amafa Institute (the Provincial Heritage Resources Authority (PHRA) for KwaZulu-Natal): archaeological and paleoanthropological field investigations, including applications for the management of gravesites during construction, as well as applications for permits required to undertake construction activities.
- ii) DFFE and Ezemvelo KwaZulu-Natal: permits for the removal, relocation, or destruction of any protected or endangered plant and animal species that cannot be accommodated within the construction footprint/area.
- iii) The Department of Cooperative Governance and Traditional Affairs (CoGTA) and SAHRA: approval/permits relating to the exhumation and reinter or protection of graves.
- iv) NHBRC: registration/enrolment of each resettlement house. It should be noted that the provision for the NHBRC fee for each resettlement house is in **Appendix 3: Remuneration and Payment**.

3.1.2.11 Land Acquisition

The Consultant shall identify the footprint of all the land and rights to land (permanent and temporary servitudes) required for the Project (including the requirements of the Resource Management Plan under Task 2 below) and compile a schedule of the affected properties, maps/drawings and technical information per affected cadastral portion. Also, the Consultant shall, in consultation with TCTA, determine the timing for acquisition of the required land and servitudes.

The Consultant shall obtain relevant title documentation at the Deeds Office (i.e. title deeds) and the Surveyor General's office (i.e. SG diagrams). The schedule must include the details of the registered landowners and the names and contact details of the contact person(s).

The footprint of reservoirs or the dam basin must be determined using the following principles:

- i) 1:100 year flood level with the weir, abstraction Works in place and a buffer strip, and without the weir and abstraction Works.
- ii) Buffer strip should a servitude of submergence be required: The greater of 1.5 m vertically above the 1:100 year flood level or 15 m horizontally.

The Consultant shall ensure that all technical information and maps/drawings provided are accurate and readable. Technical information provided by the Consultant shall include, amongst other things, the location, dimensions and coordinates of the land and rights to land pertaining to the relevant infrastructure and construction footprint/area. The Consultant must make provision for five revisions of the information above during this task and **Task 2: Detailed Design** below, i.e. maps/drawings and supporting documentation. This shall not be Additional Services nor Exceptional Services during the administration of this Agreement.

The above will enable TCTA to compile the Land Acquisition Execution Plan for the Project and prepare various notices in terms of the Promotion of Administrative Justice Act (Act 3 of 2000) (as amended) and Expropriation Act (Act 63 of 1975) (as amended) and/or agreements per affected land portion.

3.1.3 Sub-Task 1.3: Health and Safety

The Consultant shall comply with the following:

- Occupational Health and Safety Act (Act 85 of 1993) (the OHS Act) and the Construction Regulations 2014 (as amended).
- Consultant's/designer's Health and Safety Specification in **Agreement: Appendix 5**, which TCTA has compiled.

The Construction Health and Safety Agent (the Agent), appointed by TCTA, will enforce compliance with the OHS Act and Construction Regulations 2014 (as amended). The Agent will develop the baseline risk assessment and site-specific construction health and safety specification, conduct regular reviews of the Consultant's tender designs and other documentation and apply for the construction work permit.

Under the Agent's guidance, the Consultant will ensure that the sub-consultants and contractors comply with the same legislation, regulations and specifications.

3.2 TASK 2: DETAILED DESIGN

The Consultant will be required to provide the Services as follows:

- i) Carry out detailed design and timeously issue construction drawings.
- ii) Evaluate contractors' proposals, plans and method statements to ensure compliance with the design intent.
- iii) Respond promptly to any technical queries raised during the construction.
- iv) The design team to support the construction supervision team.
- v) Ensure that the contractors' documents, plans and other vital documents are approved before the construction and manufacture activities, e.g. Quality Plan and method statements.
- vi) Assist TCTA in managing or coordinating approvals and applications by the Construction and Health and Safety Agent, e.g. construction work permit, health and safety plan. This shall not be Additional Services nor Exceptional Services during the administration of this Agreement.
- vii) Collaborate with the Consultant(s) for uMWP-1: Water Conveyance Infrastructure.
- viii) Acquire the license to impound from the Dam Safety Office.

The Consultant shall adopt an integrated approach while executing the Services, considering the other tasks and the interfaces with the uMWP-1: Water Conveyance Infrastructure.

3.2.1 Sub-Task 2.1: Engineering

3.2.1.1 Detail Design and Construction Drawings

The Consultant shall prepare construction drawings for the proposed Works. The drawings shall have sufficient detail for the construction of the Works, including reinforcement and electrical drawings and reinforcement bending schedules. The contractor will design and detail the temporary works unless specified otherwise in the construction contract. The Consultant shall issue the construction drawings per the approved contract programme to enable the contractor sufficient time for planning, procurement, fabrication and construction.

The Consultant will be responsible for the adequacy of all designs and shall undertake detailed designs for the proposed Works. The construction drawings shall impart the detailed design of the Works and shall be revised and supplemented to meet field conditions as the construction of the Works progresses. The Consultant shall engage with the contractor regarding construction methodologies and amend the tender designs and revise the drawings to address the following technical factors:

- i) Constructability, including transportability;
- ii) Operability; and
- iii) Maintainability.

3.2.1.2 Detail Design Report

The Consultant shall produce a detailed design report with the updated and revised tender design and other elements in the tender design report. The report shall include all the additional designs undertaken during construction and the as-built drawings.

The detailed design report shall be submitted to TCTA for review and acceptance. The final report shall incorporate all the queries and comments by TCTA.

3.2.2 Sub-Task 2.2: Environment, Social and Land Acquisition

3.2.2.1 Environmental and Social Compliance

The Consultant must ensure that the detailed designs do not result in significant changes to the nature and scope of the environmental and social impacts. As such, the Consultant will be required to comply with the EAs (as amended) and approved pre-construction EMP, including the construction and operation EMP (approved by DFFE) and EMP (approved by DMRE) for the development. However, should there be any significant changes, the Consultant shall prepare the necessary documentation per NEMA and the EIA Regulations for any changes to the project description or design refinements.

The Consultant must ensure and manage the implementation of the following, i.e. this task and Task 3: Construction Supervision:

- i) Biodiversity Offsets and Compensation Plan (CapEx-related activities and short-term maintenance only);
- ii) Search, Rescue and Relocation Plan;
- iii) Habitat Rehabilitation and Restoration Plan;
- iv) Heritage Resources and Palaeontological Management Plan;
- v) Resettlement Action Plan; and
- vi) Stormwater Management Plan.

The biodiversity offset sites/areas must be formally secured before the implementation of the Biodiversity Offsets and Compensation Plan. This will be undertaken by a biodiversity specialist and conveyancing attorney, as well as the terms of reference and procurement process by the Consultant, will be Additional Services per **sections 3.5.4.2 (Assistance to TCTA) and 3.5.9 (Procurement Management)**.

The Consultant will not be required to develop the Stormwater Management Plan for construction activities (i.e. **Task 3: Construction Supervision**), which requires DFFE's approval. This plan will be developed and implemented by the contractor; however, the Consultant and its EAP will be required to review the plan and submit to TCTA for comments. The final plan shall be signed by the Consultant's EAP, considering the comments, and submitted to DFFE for approval. To this end, the Consultant will be required to address DFFE's queries for the plan to be approved.

3.2.2.2 Resource Management Plan (RMP)

The Consultant shall in accordance with guidelines published by DWS (Recreational Water Use Manual, RWU – GP2) prepare a RMP for the Smithfield Dam and consider other studies in this Agreement, i.e. areas of high conservation. The RMP must address resource management and community beneficiation and utilisation of the dam and its shoreline. The process shall be as follows:

Phase 1: Evaluating the Process Triggers and Define the Project Plan:

- Establish the motive, clarify the procedural steps and detail roles and functions of role-players/stakeholders.
- Examine policies, strategies, plans and programmes of the various spheres of government, as well as considering objectives expressed by other institutions.
- Establish and submit the Process Triggers Report.

Phase 2: Encumbrance Survey: Prepare and submit an Encumbrance Survey Report that details any hindrances to the RMP process or limitations associated with the utilisation of the dam and its shoreline area.

Phase 3: Vision and Objectives Identification: Undertake public participation process as well as targeted/focussed consultation to define the vision and the objectives. Prepare and submit comments and responses report.

Phase 4: Research and Information Generation: Prepare a detailed research report, considering access and land acquisition requirements, and the Catchment Management and Ecological Infrastructure Plan.

Phase 5: Integrated Management, Zoning and Institutionalisation:

- Prepare the business case report with an institutional plan.
- Zoning should consider amongst others the following: shoreline management zones, water surface management zones; high conservation priority areas; and activities for each zone.

Phase 6: Evaluation and Decision-Making:

- Consider all the information and prepare the draft RMP, which must be presented to all role-players/stakeholders. Prepare and submit comments and responses report.
- Prepare the final RMP.

Phase 7: Operationalisation: This final phase will be undertaken by DWS.

The Consultant should plan for at least 10 meetings (including logistics for all meetings, e.g. venue hire, etc.), i.e. public participation processes.

The plan shall be submitted to TCTA for review and acceptance. The final plan shall incorporate all the queries and comments by TCTA.

3.2.2.3 Land Acquisition

The Consultant shall inform TCTA of instances where the detailed designs and construction supervision/monitoring resulted in significant changes to **Task 1: Tender Design and Documentation** - Land Acquisition. Similar to Task 1, and where TCTA must undertake changes during detailed design and **Task 3: Construction Supervision**, the Consultant shall provide ongoing support to TCTA, i.e. provide new or revised technical information and maps/drawings.

The above information must be of sufficient detail to enable TCTA to issue the PAJA and Expropriation Notices or amendments to the original notices.

3.2.3 Sub-Task 2.3: Health and Safety

The Consultant shall comply with the following:

- Occupational Health and Safety Act (Act 85 of 1993) (the OHS Act) and the Construction Regulations 2014 (as amended).
- Consultant's/designer's Health and Safety Specification in **Agreement: Appendix 5**, which TCTA has compiled.

The Agent will conduct regular reviews of the Consultant's detailed designs.

Under the Agent's guidance, the Consultant will ensure that the sub-consultants and contractors comply with the same legislation, regulations and specifications.

3.3 TASK 3: CONSTRUCTION SUPERVISION

The Consultant shall act as the Engineer for administering the FIDIC construction contract. As such, the Consultant shall provide a suitably qualified person to act on its behalf as the Engineer, including other engineers, environmentalists, administrators, etc., necessary for the construction supervision on a full-time basis per the tasks below.

The Consultant shall adopt an integrated approach while executing the Services, considering the other tasks and the interfaces with the uMWP-1: Water Conveyance Infrastructure.

3.3.1 Sub-Task 3.1: Engineering

3.3.1.1 Contract Administration and Construction Supervision

The Consultant shall undertake all the Engineer's duties associated with construction supervision and contract administration that includes, amongst other things, the following:

- i) Administer and manage all the works per the signed construction contract, including the site(s) handover.
- ii) Develop and implement a Quality Management System, and materials management plan and control procure for all the works with the contractor, including establishing and managing on-site testing laboratory and witness tests during manufacturing, as required.
- iii) Establish specific contract management procedures, processes and protocols.
- iv) Perform additional studies or investigations and issue instructions and additional and revised construction drawings to ensure satisfactory completion of the Works.
- v) Undertake geological and geotechnical inspections and mapping and approve the final foundation levels and dam excavations for the Works.
- vi) Review, comment and approve the contractor's contract programme (including long lead items) and monitor construction progress monthly using the approved contract programme or as required.
- vii) Administer variations and evaluate all claims per the construction contract.
- viii) Review, comment, and accept or confirm "no objection" to the contractor's method statements and contractor's designs and detailing of the temporary works, including health and safety, environmental and social.
- ix) Provide an appropriate level of technical inspections, monitoring and supervision to ensure compliance with the design intent, field and laboratory testing programme, construction drawings and the construction contract, i.e. construction activities and manufacturing and installation of mechanical and electrical equipment and plant.
- x) Ensure that electrical and mechanical plant and equipment such as valves, gates, pipes, etc., meet the required design, performance and quality specifications.
- xi) Maintain all records and documents – daily site diary, reports, test results, payment certificates, determinations, agreements, instructions, letters, variations, claims and claim notices, monthly progress reports with photographic records, manuals, minutes of meetings, quality plan, health and safety plan, emergency plan and procedures, etc.

- xii) Update construction drawings to “as built” status continuously throughout construction, especially for completed parts of the Works.
- xiii) Monitor and revise the cash flow continuously to completion of the contract.
- xiv) Liaise with TCTA to establish specific commissioning requirements in addition to the construction contract. Supervise the commissioning of the completed Works, including training of the operators.
- xv) Provide a draft operation and maintenance manual for the operators and the asset register. The format and structure are to be agreed upon with TCTA.
- xvi) Resolve problems and conflicts promptly.
- xvii) Collaborate with the Consultant(s) for uMkhomazi Water Project – Phase 1: Water Conveyance Infrastructure.

IMPORTANT NOTES:

- (1) The FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Red Book) (second edition, 2017) has more onerous and stringent administration and management conditions and requirements for the Engineer compared to the first edition (1999). As such, the Consultant must make provisions to fulfil all the conditions and requirements of the second edition (2017). This shall not be Additional Services nor Exceptional Services during the administration of this Agreement.
- (2) This sub-task is also applicable to the construction of resettlement houses for affected families/households and biodiversity offset initiatives.

3.3.1.2 Manufacture of Mechanical Plant and Pipes

The Consultant shall establish an inspection programme in consultation with TCTA and the contractor and implement it through an independent inspectorate:

- i) Ensure that the contractor and manufacturers have sound quality management systems or programmes for the work.
- ii) Review and approve shop drawings, catalogues, materials, finishes, test reports, welding procedures, etc.
- iii) Undertake factory and construction site inspections during the manufacturing, repairs and testing to ensure the quality of materials and workmanship and produce the inspection reports.
- iv) Reject or ensure the contractor remedies the deficiencies and problems identified during the inspections above.

The independent inspectorate services will be under the construction contract, and it is not part of the Services. The Consultant will be required to review the reports by the independent inspectorate and ensure that the set specifications for quality materials and workmanship are met through the independent inspectorate services. To this end, the Consultant shall regularly engage with the independent inspectorate and contractor to monitor such services.

In addition to the above, the Consultant and TCTA will be required to witness factory acceptance tests carried out on the main hydro-mechanical plant and equipment critical for the continuous operation of the infrastructure.

3.3.2 Sub-Task 3.2: Environment, Social and Land Acquisition

3.3.2.1 Environmental and Social Monitoring

The Consultant shall supervise all the construction activities and enforce compliance with the construction contract, i.e. environmental specifications, including the EAs, and the approved EMPs and plans. This shall include, amongst other things, the following:

- i) Monitor the implementation of the contractor's environmental specifications and mitigation measures, including the following plans:
 - Biodiversity Offsets and Compensation Plan (CapEx-related activities and short-term maintenance only);
 - Search, Rescue and Relocation Plan;
 - Habitat Rehabilitation and Restoration Plan;
 - Heritage Resources and Palaeontological Management Plan;
 - Resettlement Action Plan; and
 - Stormwater Management Plan.
- ii) Issue instructions for corrective actions when there is non-compliance by the contractor.
- iii) Review, comment and accept or conform “no objection” to environmental matters in the construction method statements.
- iv) Establish and follow a formal protocol to access the construction footprint/areas. The protocol must provide details on interacting or liaising with the landowners.
- v) Establish and maintain protocol to record, address and respond to queries, complaints and issues, and provide a single point of contact (suitably qualified person) through whom the interested and affected parties may register queries, issues or complaints.
- vi) Apply the latest ISO 14001 during construction.

3.3.2.2 Incident Management

Incidents are defined as events which are either natural (e.g. fires, floods, etc.) or human-induced (e.g. oil, diesel or hazardous liquid spill) or related to social issues (e.g. complaints, strike action, community unrest, etc.) that may cause a significant adverse environmental or social impact or that will result in public concern – project-related only. These incidents may be of an accidental nature or result from non-compliance with the construction contract or obligations of the EA and EMPs.

The Consultant will be required to report the details of the incidents listed below as part of **Task 5: Project Management - Communication Management**.

- Hydrocarbon and hazardous liquid spills.
- Construction vehicles in watercourses without authorisation.
- Accidental discharge of large quantities of sediment into watercourses.
- Explosions.
- Fire on site.
- Flooding.
- Workers' strike actions.
- Any other incident or emergency defined in Section 30 and 30A of National Environmental Management Act (Act 107 of 1998) (as amended).

3.3.2.3 Environmental Control Officer (ECO)

TCTA will appoint the ECO on behalf of the DFFE. The Consultant shall provide the ECO with the contractors' environmental and social monitoring information. The Consultant shall accompany the ECO on the inspections and audits. The Consultant shall review and provide input into all ECO reports. The Consultant shall forward the ECO's reports to the contractor for written responses and implement corrective measures.

The Consultant shall make available the following staff members or personnel to prepare for, attend and participate in ECO audits (as required in the EA), namely the Chief Resident Engineer (or delegated Resident Engineer(s)) and the Environmental Manager(s).

3.3.2.4 Environmental Monitoring Committee (EMC)

TCTA will facilitate the establishment of the EMC and appoint the EMC chairperson. The Consultant shall make available the Environmental Manager(s) to attend (as observer(s)) EMC meetings that will be held monthly.

3.3.3 Sub-Task 3.3: Health and Safety

The Consultant shall, amongst other things and under guidance of the Agent, perform the following:

- Review, comment, and approve the contractor's health and safety plan. The plan's final approval shall be by the Agent per the Occupational Health and Safety Act (Act 85 of 1993) and Construction Regulations 2014 (as amended).
- Monitor and enforce the above, including the site-specific construction health and safety specifications per the construction contract.
- Compile safety statistics.
- Ensure no unsafe practices and conditions during the construction.
- Ensure the contractor's qualifications, competency and resources are in place.
- Perform health and safety inspections and audits, and issue instructions for corrective actions when there is non-compliance by the contractor.

- Monitor and ensure compliance with the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations 2014 (as amended).

The Agent will conduct regular independent site audits and inspections (with the Consultant, contractor and TCTA), and the Consultant and contractor will be required to comply with the Agent's requirements. The Consultant and contractor will, under the Agent's guidance, ensure that the sub-consultants and sub-contractors comply with the same legislation, regulations, specifications and requirements of the Agent.

3.4 TASK 4: POST-CONSTRUCTION MONITORING

The objective of the task is to monitor the completed Works and any outstanding Works and claims/disputes after issuing the taking-over certificate for the whole of the Works, e.g. rehabilitation, and to conclude all contractual obligations and claims/disputes, i.e. 1-year defects notification period on the construction contract.

The Consultant shall adopt an integrated approach while executing the Services, considering the other tasks and the interfaces with the uMWP-1: Water Conveyance Infrastructure.

3.4.1 Sub-Task 4.1: Engineering

During the Defects Notification Period (DNP), the Consultant shall conduct monthly inspections of the completed and outstanding Works and notify the contractor and TCTA of the following:

- i) Damages and defects which require rectification and remedying.
- ii) Operation and maintenance issues.
- iii) Environmental-related items that have failed or issues that have become apparent after construction requiring remedying.
- iv) Collaborate with the Consultant(s) for uMkhomazi Water Project – Phase 1: Water Conveyance Infrastructure.

Shortly before the end of the DNP, the Consultant shall inspect or test the completed Works (including rehabilitation) and, after ensuring that all the recorded issues, disputes, defects and damages have been remedied and rectified by the contractor to the Consultant's and TCTA's satisfaction, issue the performance certificate to the contractor, and comply with all other conditions and obligations of the construction contract.

3.4.2 Sub-Task 4.2: Environment, Social and Land Acquisition

3.4.2.1 Environmental and Social Monitoring

During the DNP, the Consultant shall conduct monthly inspections and submit reports to TCTA and contractors to monitor rehabilitation progress and any remedial measures, including outstanding Works. The Consultant shall be responsible for the overall compliance to the plans, specifications, and final acceptance of rehabilitation by the landowners, DFFE and TCTA.

To ensure compliance to the RAP, international practices, and legislation, all completed resettlement activities must be audited. The auditing shall be carried out by an independent external auditor appointed and paid by the Consultant and the resulting audit report submitted to TCTA. The terms of reference for the independent external auditor shall be agreed upon with TCTA before the appointment.

3.4.2.2 Environmental Control Officer (ECO)

The Consultant shall accompany the ECO on the inspections (monthly) and audits (6-monthly). The Consultant shall review and provide input into all ECO reports. The Consultant shall forward the ECO's reports to the contractor for written responses and implement corrective measures.

The Consultant shall make available their Environmental Manager(s) to prepare for, attend and participate in ECO audits as required in the EA.

3.4.2.3 Land Acquisition

The Consultant will be required to support TCTA and the contractor as and when needed, particularly at the expiry of the temporary servitudes that require TCTA to extend or construction activities resulting in claims by the landowners.

3.4.3 Sub-Task 4.3: Health and Safety

The Consultant shall comply with the health and safety requirements of the Occupational Health and Safety Act (Act 85 of 1993) and access protocols of the DWS and its operators.

3.5 TASK 5: PROJECT MANAGEMENT

This section covers the tasks required to comply with the project management requirements and applies to all the other tasks, i.e. Services. The objectives of the task:

- i) Distribution of information, good communication, and coordination and integration of all activities related to the Services, including presentations to dignitaries, PoE and TCTA visitors.
- ii) Successful administration and management of the Agreement and all the contracts regarding the scope, programme, costs, quality and risks associated with the Project and Services.
- iii) Recruitment and participation of qualified and experienced personnel, e.g. engineers, environmental managers, programmers, scientists, administrators, etc.
- iv) Timely procurement of goods, equipment and services from consultants and contractors to achieve the above.
- v) Fulfilment of any instructions issued by TCTA from time to time.

It should be noted that the Consultant will be required to render comprehensive and full-time Services under project management to ensure successful administration and management of the Services, including other contracts.

The Consultant shall manage and administer all the Services in this Agreement per the FIDIC Conditions of the Client/Consultant Model Services Agreement (White Book) (fourth edition, 2006).

3.5.1 Sub-Task 5.1: Integration Management

The Consultant's Project Manager shall be responsible for the proper performance and management of all Project activities per the Agreement, including processes and control methods to progress, monitor and control the Services, integrated change control, and completing the Services. The Consultant's Project Manager shall report directly to the TCTA's Project Manager.

The Consultant will be responsible for integrating all disciplines within their team throughout the Services per the Agreement while considering interfaces with the Consultant(s) for uMWP-1: Water Conveyance Infrastructure.

3.5.2 Sub-Task 5.2: Scope Management

The Consultant shall define, develop a work breakdown structure, monitor, control and ensure that the scope of Services complies with all the requirements of the Project, and keep a detailed record of all the scope changes.

3.5.2.1 Scope Variance Analysis

The Consultant shall continuously review the scope of the Services and bring to the attention of TCTA any discrepancies, errors, omissions or problems, and make recommendations supported by relevant details for remedial action for the approval of TCTA.

3.5.3 Sub-Task 5.3: Time Management

The Consultant shall use a programme to review, monitor and manage the progress of the Services.

3.5.3.1 Programme

The Consultant shall review TCTA's programme (**Appendix 4: Time Schedule for Services**) when bidding and planning for the Services and prepare and submit a comprehensive programme with activities, tasks and dates for approval by TCTA.

3.5.3.2 Updating the Programme

The Consultant shall monitor the programme and update it monthly. Variances must be highlighted, and corrective measures must be proposed in case of delays. If the redevelopment of the programme is required, a revised programme shall be prepared and submitted for approval.

3.5.3.3 Programme Variance Report

In the monthly progress reports, the Consultant shall provide variance reports explaining changes and revisions of the programme.

3.5.4 Sub-Task 5.4: Cost Management

3.5.4.1 Cost Control

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

The Consultant shall also prepare a comprehensive report on the financial status and the estimated cost of completing the Services and all other contracts. The cost estimate for the Services shall be resource-based and up to the end of the Services. The comprehensive report figures need to be kept live and updated monthly and be viewed by TCTA when requested at any given time. The report must be submitted in August of each year.

The Consultant shall ensure that there is no unauthorised expenditure as per National Treasury Instruction No. 4 of 2022/2023: PFMA Compliance and Reporting Framework, i.e. actual costs exceeding the approved budgets, at all times, and advise TCTA in advance of any additional funds required.

The format and structure are to be agreed upon with TCTA.

3.5.4.2 Assistance to TCTA

This task allows TCTA to instruct, or agree to, Additional or Exceptional Services that may be required due to unforeseen and other circumstances such as expanding available information and data. The extent cannot be reasonably defined on or before the bidding/tender process. A Provisional Sum for these Additional or Exceptional Services is provided in **Appendix 3 of the Agreement**.

The probable Additional and Exceptional Services that may be required include but are not limited to the following (subject to approval by TCTA):

- i) Geological, geohydrological and geotechnical investigations, surveys and tests by a third parties, as identified by the Consultant or TCTA.
- ii) Further or additional surveys, studies, tests or investigations identified by the Consultant or TCTA.
- iii) Review of land acquisition valuation reports and landowner's financial loss claims by a specialist to be appointed by the Consultant through instructions by TCTA.
- iv) Three-dimensional hydraulic physical model study to optimise or verify the Consultant's hydraulic design of the Smithfield Dam spillway by a third party.
- v) RAP-related costs: coffins, food, animals for cultural ceremonies/rituals, cash compensations/solatium, remains/family transportation, financial loss claim payments, relocation of businesses, and relocation of artefacts and rock art.
- vi) Lessons learnt workshop, i.e. venue hire and consumables.
- vii) Dispute or arbitration pursuant to the relevant clause of the construction contract (Clause 21 in FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Red Book) (second edition, 2017)) by the Consultant.
- viii) Secure biodiversity offset sites/areas by a biodiversity specialist and conveyancing attorney.

3.5.4.3 Cost Estimate and Cashflow

In consultation with TCTA, the Consultant shall prepare and submit a detailed cost estimate and cash flow for the Project considering the requirements below.

- i) Format to be suitable for presenting to financial institutions.
- ii) The cost of the Services per the Agreement.
- iii) Prepared using resource-based costing as far as possible. The Consultant may use rates and prices from similar projects where resource-based costing cannot be used. The use of such rates must be highlighted.
- iv) Construction programme and methodologies, as well as production rates and quantities, shall be used.
- v) Materials, plant, labour, services, lump sums, time and value-related costs, insurance, profits, etc. Where relevant quotations from manufacturers must be used.
- vi) Sale of materials and plant after construction.

- vii) Cashflow prepared from cost estimates and includes escalation.

3.5.5 Sub-Task 5.5: Quality Management

The Consultant shall prepare a Quality Plan for the Services. The plan should include, among other things, the following and be submitted to TCTA for approval before commencement of any Services:

- i) Management and supervision, administration, monitoring, document control, procurement, engineering, environmental, social and quality assurance per the latest recognised standards (ISO 9001).
- ii) Deal with aspects of contract management, including variation orders and claims to ensure compliance to national and local statutes with particular emphasis on the Public Finance Management Act (Act 1 of 1999) and contract documents.
- iii) The minimum sign-offs on all the reports and documents (all draft and final revisions) must be by the Consultant's project manager, senior engineer(s) of the relevant discipline(s), environmental manager/specialist(s) and health and safety manager/specialist(s). This requirement aims to ensure integration across all disciplines and superior quality management Services.
- iv) Signing or certifying of reports, documents and agreements shall be digital on softcopy files such as Portable Document Format (PDF). In general, signing, initialling or certifying hard copy reports, documents and agreements using wet signatures will not be permitted. To this end, Adobe Acrobat Pro (or similar software, but compatible with Adobe Acrobat) certificate-based electronic/digital signatures must be used. This type of signature shall have the actual signature including labels ("digitally signed by"), identity (name and surname), and date and time stamp.

The Quality Plan shall be audited every six months by an independent auditor, and the report submitted to TCTA. The Consultant must make provision for an independent auditor. TCTA, or its representative, may, on an ad-hoc basis, audit the Consultant's quality management system.

3.5.6 Sub-Task 5.6: Human Resource Management

The Consultant shall provide adequately qualified and competent human resources or personnel such as engineers, environmental managers, a project manager, and other specialists experienced in the design and supervision/monitoring; administration and management, and construction of bulk water infrastructure (inlet/outlet structures, hydromechanical works, dams, roads, etc.) and biodiversity offsetting to undertake all the Services.

The Consultant will be required to compose and manage the entire team to ensure the successful implementation of the Project and execution of all the Services. It should be noted that the Consultant will be required to provide a dedicated full-time project manager and construction supervision team.

The Consultant shall mobilise each member of the construction supervision team one calendar month before the commencement of the relevant construction activities that the member is required for.

The Consultant's human resources must be presented in an organogram and submitted to TCTA before or soon after the commencement of the Services. All the changes to the organogram must also be submitted to TCTA, i.e. revised organogram. The organisational structure (organogram) must conform to, amongst other things, the following:

- i) The representative details (refer to Clause 3.6 of the FIDIC Client/Consultant Model Services Agreement).
- ii) An organisational chart that indicates interfaces between the Consultant's team and:
 - its own home office;
 - survey and mapping team;
 - geotechnical investigations team;
 - environmental and social teams;
 - draftspersons;
 - ancillary works consultant and contractor(s);
 - sub-consultants and sub-contractors; and
 - the TCTA.
- iii) The organisational and functional relationships between all members of the joint venture or consortium (if relevant).
- iv) The exact manner in which any members of the joint venture or consortium would participate in the Services and contribute to the work, including their respective percent participation numerically stated. The mere fact of a joint venture or consortium will not be considered an adequate response in this respect.
- v) The following data should be submitted for each member entity of the joint venture or consortium and the entity:
 - Name and designation of persons who will be authorised to represent the Consultant.
 - Name of entity/company auditor(s).
 - A signed joint venture or consortium agreement.

3.5.7 Sub-Task 5.7: Communication Management

The Consultant shall ensure that there is appropriate and timeous planning, collection, creation, distribution, storage, retrieval, management, control and monitoring of Project information:

- i) between the Consultant and TCTA.
- ii) between the Consultant and the Construction Health and Safety Agent.

- iii) between the Consultant, sub-consultants, contractors and others (e.g. consultant(s) for uMWP-1: Water Conveyance Infrastructure).
- iv) within the Consultant's organisation(s).

All hardcopy records and documents must be scanned into suitable electronic format and be kept/filed in a fire-resistant facility.

3.5.7.1 Reporting

At pre-determined milestones, the Consultant shall submit two hard copies and one soft copy (original format and pdf) of all deliverables to TCTA. The Consultant shall identify the report milestones in its programme. The preparation of these reports shall be carried out as part of the tasks, and no separate remuneration shall be made to produce such information.

The Consultant shall prepare and present to TCTA, amongst other things, the following reports:

- i) Inception report, Geotechnical Baseline Report and various other reports and documents.
- ii) EMPs, Biodiversity Offsets and Compensation Plan and various other plans, reports and documents.
- iii) Monthly progress reports.
- iv) Daily and weekly reports during construction.
- v) Financial review reports.
- vi) PoE briefing reports.
- vii) Responses to the PoE queries, comments and reports.
- viii) DAB progress/update reports.
- ix) Any other report that TCTA may need from time to time.

3.5.7.1.1 *Monthly Progress Reports*

The Consultant shall provide monthly progress reports summarising the status, risks, and progress during the month on a quantitative and cost basis (including variation orders, issues/disputes, and claims) with appropriate graphical presentations. Progress shall be compared with the programmes and provide updates in the report. Reasons shall be given for any discrepancies, anomalies and delays. Furthermore, recommendations on the proposed remedial measures and action must be included.

In addition to the above, the Consultant shall monitor and report accurately on the **Task6: Black South Africans, Enterprise and Supplier Development Requirements** throughout the Project.

The Consultant shall submit monthly progress reports to TCTA on the 1st day of each month, followed by a monthly progress meeting with TCTA. Reports on unusual occurrences should be submitted promptly to appropriate higher levels of management/supervision personnel or TCTA.

3.5.7.1.2 Panel of Experts Reports

The TCTA may, as and when required, request its independent PoE to review the Consultant's Services, i.e. technical records and information (environmental, social and engineering).

The Consultant shall issue a briefing report at least 14 days before a site inspection or engagement with TCTA's Engineering, Environmental and Social PoE, highlighting the progress of the Project, a summary of technical/engineering records and information, social and environmental records and information, all significant difficulties and challenges, proposed solutions.

The Consultant will be required to respond to all the comments and queries by the PoE, including written responses to the PoE report(s).

3.5.7.2 Meetings

The Consultant shall arrange and attend regular and ad-hoc meetings as requested by TCTA or the Consultant (see table below) to ensure good communication. Per the table below, these meetings may be in-person (TCTA offices in Centurion and at construction sites in KZN) or virtual (audio-visual telecommunication).

Meeting	Frequency	Responsibility for Minutes/Notes	Chairperson
Project Committee	Monthly	TCTA	TCTA
Coordination and Integration Meetings *	Quarterly or as required	TCTA	TCTA
Management Meetings	Quarterly or as required	Consultant	TCTA
Technical Meetings	As required	Consultant	Consultant
Progress Meetings	Monthly	Consultant	TCTA
Panel of Experts	Quarterly or as required	Consultant	TCTA
Environmental Management Committee (EMC)	Monthly	Environmental Control Officer	EMC
Note * The meetings are for coordination and to ensure integration of requirements and the scope of work in this Agreement (i.e. Smithfield Dam and Associated Infrastructure) and the Water Conveyance Infrastructure by another consultant.			

The Consultant shall prepare minutes or notes of the relevant meetings and distribute them within seven (7) calendar days from the meeting date.

3.5.8 Sub-Task 5.8: Risk Management

In consultation with TCTA, the Consultant shall develop (i.e. identify/determine, analyse and control), maintain and continuously update a risk register for the Services and implementation of the Project. The risk register must also include a list or log of assumptions. The updated or revised register for the Services must be included in the monthly progress report.

The format and structure are to be agreed upon with TCTA.

3.5.9 Sub-Task 5.9: Procurement Management

The Consultant shall prepare bid or tender documents, advertise, manage the bidding process (i.e. advert, evaluation, award), and establish and manage the contracts. The TCTA shall approve the procurement strategy and procedures to procure sub-consultants, contractors, and third parties under Provisional Sums.

In principle, procurement of goods and services shall conform to the Broad-Based Black Economic Empowerment Act (Act 53 of 2003) (B-BBEEA) and its regulations and codes (as amended) and Preferential Procurement Policy Framework Act (Act No. 5 of 2000) (PPPFA) and regulations (as amended).

3.5.9.1 Procurement of the Contractor

The Consultant shall determine the work breakdown structure and tendering programme and prepare the tender's procurement strategy and functional evaluation criteria. In particular, the Consultant will be required to undertake a market analysis relating to the development of South African black-owned construction enterprises and determine the transformation or socio-economic development criteria for the procurement strategy, construction tender and contract considering B-BBEEA and its regulations and codes (as amended) and PPPFA and regulations (as amended). The construction contract's procurement strategy and the tender document must conform to the Construction Industry Development Board Act (Act 38 of 2000) and its regulations and standards (as amended).

The procurement of the contractor will be based on the following process:

- Stage 1: Pre-qualification process:
 - i) Produce the pre-qualification document per **Task 1: Tender Design and Documentation** for approval by the TCTA Bid Specification Committee (BSC). The Consultant will be required to provide support throughout this process and respond to queries and questions from the BSC.
 - ii) Open public pre-qualification process and advertisement by TCTA following approval by the BSC. The Consultant will be required to provide the final pre-qualification document (a hardcopy and portable document format) and respond to questions and queries from tenderers/bidders by drafting clarification letters and addenda. The TCTA will formally issue all clarification letters and addenda. The pre-qualification document will be made available by TCTA, and tenderers/bidders will collect or download the document from TCTA offices and websites.
 - iii) The Consultant will be required to coordinate and conduct a compulsory briefing meeting for the tenderers/bidders, including keeping a record of attendance and issues raised by the tenderers.
 - iv) On or soon after closing, the Consultant shall be responsible for opening bids and checking bids for completeness and compliance.
 - v) Evaluation of bids by the Consultant and TCTA: The Consultant and TCTA will produce the reports on the relevant sections of their evaluations. TCTA will

present the consolidated tender evaluation report to the TCTA Bid Adjudication Committee (BAC) for approval. The Consultant will also be required to provide support throughout this process and respond to queries and questions from the BAC.

- vi) TCTA will notify tenderers/bidders of the outcome of the pre-qualification process.
- Stage 2: Tender process:
 - i) Produce the tender document per **Task 1: Tender Design and Documentation** for approval by the BSC. The Consultant will be required to provide support throughout this process and respond to queries and questions from the BSC.
 - ii) Open public tender process and advertisement or issue invitations to the prequalified tenderers by TCTA following approval by the BSC. The Consultant will be required to provide the final tender document (a hardcopy and portable document format) and respond to questions and queries from tenderers by drafting clarification letters and addenda. The TCTA will formally issue all clarification letters and addenda. The tender document will be made available by TCTA, and tenderers will collect or download the tender document from TCTA offices and websites.
 - iii) The Consultant will be required to coordinate and conduct a compulsory briefing meeting and facilitate a site inspection for the tenderers, including keeping a record of attendance and issues raised by the tenderers.
 - iv) On or soon after tender closing, the Consultant shall be responsible for opening tenders and checking tenders for completeness and compliance.
 - v) Evaluation of tenders by the Consultant and TCTA: The Consultant and TCTA will produce the reports on the relevant sections of their evaluations. TCTA will present the consolidated tender evaluation report to the BAC for approval. The Consultant will also be required to provide support throughout this process and respond to queries and questions from the BAC.
 - vi) Negotiations with the preferred tenderer: The Consultant shall conduct the negotiations and record and issue the minutes or notes of the negotiations. Upon successful negotiations, the Consultant will be required to draft the Memorandum of Understanding for review and acceptance by the preferred tenderer and TCTA. TCTA will then issue the letter of acceptance and the final Memorandum of Understanding for signing.
 - vii) The Consultant will be required to prepare the conformed contract document for signature by the contractor and TCTA. The Consultant shall provide two original signed hardcopies with leather binding and four paper-bound hard copies.

IMPORTANT NOTE: Bids/tenders will remain at TCTA offices until the procurement process is concluded. Therefore, the Consultant must make provision to evaluate all bids/tenders at TCTA offices/boardrooms.

3.5.9.2 Administration of the Construction Contract

In terms of the construction contract, the Consultant, as the Engineer, shall manage and administer the construction contract per the FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Red Book) (second edition, 2017). The Consultant must report any discrepancies, errors or omissions discovered during construction.

3.5.9.3 Project Vehicles and Accommodation for TCTA

The Consultant shall procure vehicles for use by TCTA and temporary accommodation during construction for TCTA, as instructed by TCTA. These vehicles shall be registered in the Consultant's name, which will be responsible for all administration, operation and maintenance expenses, including comprehensive insurance during the entire period of the Project. A Provisional Sum is provided in **Appendix 3 of the Agreement**.

Upon close-out of the Project, the Consultant shall dispose of the vehicles, and the residual value shall accrue to TCTA.

3.5.9.4 Assessment and Close-out

The Consultant shall close the construction contract per the relevant construction contract. As part of the close-out, the Consultant will be required to assess and document the performance of the Services as follows:

- i) Compile the construction completion report.
- ii) Compile the close-out report, i.e. Consultant's Services.
- iii) Provide input into the lessons learnt workshop, document the lessons learnt, and report on the recommendations for successful implementation of future projects. The contractor must be included in the lessons learnt workshop.
- iv) Archive and submit to TCTA all hardcopy records and documents using Metrofile's forms and labels (provided by TCTA), storage and information management system. The TCTA shall be responsible for the offsite storage, i.e. construction supervision and monitoring.
- v) Submit to TCTA a USB external hard drive(s) with electronic copies of all the records and documents relating to construction supervision and monitoring.

The construction completion report shall, amongst other things, include:

- i) Contractor's performance.
- ii) Details of the completed work, including construction methods and techniques, materials (type, quality, quantities, sources), essential studies, main problems encountered during construction, etc.
- iii) Details of the quality control results, e.g. concrete cube strengths.
- iv) Details of all claims, agreements, and disputes.
- v) Details of all variations.

- vi) Health and safety performance and statistics.
- vii) Summary information of the construction records and documents. However, the geological maps of the final excavations must be comprehensive and form part of the as-built drawings below.
- viii) The final payment certificate (copy).
- ix) Financial assessment with variance notes and reports.
- x) All as-built construction drawings (native files and portable document format).
- xi) All as-built records and documentation relating to rehabilitation and mitigation of heritage resources and social impacts not included in the closeout report below.
- xii) The final operation and maintenance manual and asset register.

The closeout report shall, amongst other things, include, i.e. Consultant's Services:

- i) Summary of the Services rendered by the Consultant, including challenges and issues experienced.
- ii) All as-built records and documentation relating to rehabilitation and mitigation of heritage resources not included under the construction completion report.
- iii) Comments relating to compliance with the GTI and RID.
- iv) Comments relating to compliance with the EA and EMPs.
- v) Performance relating to **Task 6: Task6: Black South Africans, Enterprise and Supplier Development Requirements**.
- vi) Audit reports (by independent external auditors).
- vii) Details of all disputes and agreements between the Parties.
- viii) Details of all variations related to the Consultant's Services.
- ix) Summary information of the records and documents.
- x) As-built schedule of all land and rights to land (permanent only) with the details of the landowners.
- xi) Consultant's final invoice (copy).
- xii) Financial assessment with variance notes and reports.
- xiii) Lessons learnt report.

3.5.10 Sub-Task 5.10: Stakeholder Management

The Consultant will, amongst others, be required to manage or coordinate with the following entities:

- Authorities such as DFFE, DMRE, SAHRA, Ezemvelo KwaZulu-Natal, Amafa KwaZulu-Natal, CoGTA and NHBRC.
- DWS and Umgeni Water (UW) operation and maintenance staff.
- DWS, i.e. Dam Safety Office and Water Use Licence Application.
- Eskom and its contractors.

- Directly affected landowners and occupants.
- UW and its consultants and contractors for the design and construction of the potable component of the project.
- Construction Health and Safety Agent.
- Various other consultants and contractors, e.g. contractors for geological and geotechnical investigations, the consultant for the design and construction of uMWP-1: Water Conveyance Infrastructure.
- Various interested and affected parties, including local and provincial government authorities and the Ingonyama Trust.

The Consultant must:

- i) Promote good project relations and, in so doing, monitor community relations.
- ii) Inform interested and affected parties about Project activities, particularly the directly affected communities and landowners.
- iii) Keep a detailed record of all interactions with the interested and affected parties, including details of each interested and affected party.
- iv) Identify and resolve potential problems and challenges promptly.
- v) Record and promptly address all complaints and issues submitted by interested and affected parties.
- vi) Report regularly to TCTA on the above and co-operate with TCTA in facilitating site visits.

3.6 TASK 6 – BLACK SOUTH AFRICANS, ENTERPRISE AND SUPPLIER DEVELOPMENT REQUIREMENTS

TCTA must ensure that the Consultant contributes to sustainable socio-economic development by maximising the items below in this Agreement:

- i) Enterprise and supplier development through compulsory subcontracting/sub-consulting of South African companies.
- ii) Participation of previously disadvantaged individuals through preferential recruitment/employment, i.e. South African black persons and women, black professionals and persons with disabilities.
- iii) Training and skills development for previously disadvantaged South African individuals, i.e. black persons and women, black professionals and persons with disabilities.

The Consultant shall be subject to and comply with the following requirements below and conditions related to the above in providing the Services.

3.6.1 Sub-Task 6.1: Enterprise and Supplier Development

The Consultant will be required to subcontract/sub-consult a minimum of 30% of the total amount (i.e. personnel costs) of this Agreement to advance and develop these designated groups:

- i) An EME or QSE, which is at least 51% owned by black people.
- ii) An EME or QSE, which is at least 51% owned by black people who are youth.
- iii) An EME or QSE, which is at least 51% owned by black people who are women.
- iv) An EME or QSE, which is at least 51% owned by black people with disabilities.
- v) An EME or QSE, which is 51% owned by black people living in rural or underdeveloped areas or townships.
- vi) A cooperative or company which is at least 51% owned by black people.
- vii) An EME or QSE, which is at least 51% owned by black people who are military veterans.
- viii) More than one of the categories referred to in items i) to vii) above.

The Consultant shall submit the following documents per designated groups above:

- i) The subcontract/subconsultant agreement with each enterprise/supplier.
- ii) South African National Accreditation System (SANAS) verified B-BBEE scorecard and certificate or sworn affidavit for each enterprise/supplier.

The agreement with each enterprise/supplier shall, amongst other things, include:

- Needs analysis, i.e. enterprise/supplier.
- Details of the Services to be rendered by the enterprise/supplier and the cost thereof.

- Details of the development requirements i.e. skills, knowledge and capacity.
- Implementation programme/plan for the identified development requirements.
- Information of the persons (curriculum vitae) who will manage the development of the enterprise/supplier.
- The above shall be amended as required.

3.6.2 Sub-Task 6.2: Training and Skills Development: South African Black People

The Consultant must develop and submit to TCTA a detailed and comprehensive plan for its staff/personnel and subconsultant(s) (per Sub-Task 6.1 above) that must be implemented for the period of this Agreement. The plan must cover the entire duration of the Project and have measures to develop personnel capabilities to achieve significant career progression and shall be subject to acceptance by TCTA.

To this end, the Consultant shall ensure that a minimum of four South African black people are registered as professionals with the relevant institution such as Engineering Council of South Africa and/or The South African Council for Natural Scientific Professions.

3.6.3 Sub-Task 6.3: Non-Conformance Penalties

The Consultant will be penalised if he/she fails to achieve the specified and agreed targets for each category/sub-task above at the Services' completion date. The penalty amounts shall be calculated based on the individual category per sub-task spent and their respective targets.

The penalty for **Sub-Task 6.1: Enterprise and Supplier Development** will be calculated as follows: $\text{Penalty amount} = (\text{Target \%} - \text{Actual \%}) \times \text{total contract Agreement amount/price (i.e. personnel costs)}$.

The penalty for **Sub-Task 6.2 Training and Skills Development: South African Black People** will be R450,000.00 for each person not registered as a professional.

3.6.4 Sub-Task 6.4: Monitoring and Reporting

The Consultant shall submit on an annual basis its South African National Accreditation System (SANAS) verified (consolidated, for the joint venture or consortium) B-BBEE scorecard and certificate.

For interim monitoring, the Consultant shall submit to TCTA, on the 1st day of each month, throughout the Agreement, a progress report on the implementation of programmes/plans and targets stipulated above. The format and structure of the progress report shall be agreed upon with TCTA. The Consultant shall sign the progress report and ensure that the information is accurate and correct. The progress report shall also include the participation of South African black people (including female, youth and persons with disabilities) – the number and percent of person-months thereof in the following categories: specialist; MANCO; internal review panel; environmental; engineering (natural and social) and project management.

Within 60 days after the completion of the Services, an audited statement verifying that agreed targets for each programme/plan and category have been met shall be submitted to TCTA. During the execution of the Agreement, the same shall also be audited annually and submitted to TCTA, including the participation of South African black people.

The auditing shall be carried out by an independent external auditor appointed and paid by the Consultant. However, TCTA reserves the right to appoint an independent external auditor at the Consultant's cost should the Consultant fail to appoint an independent external auditor in time or if TCTA is not satisfied with the independent external auditor's qualifications or independence. The terms of reference for the independent external auditor shall be agreed upon with TCTA before the appointment.

The derived data will be the figures by which final penalties, if any, will be calculated after the Services.

3.6.5 Sub-Task 6.5: Measurement and Payment

The costs for complying with the Consultant's obligations regarding implementing and managing all the development requirements shall be allowed in the Consultant's bid submission, i.e. price returnables and **Appendix 3: Remuneration and Payment**. The Consultant shall also include the costs for a dedicated manager to manage this aspect and ensure compliance with and enforcement of the specified requirements.

AGREEMENT

APPENDIX 2: PERSONNEL, EQUIPMENT, FACILITIES AND SERVICES OF OTHERS TO BE PROVIDED BY THE CLIENT

1. PROVISIONS BY THE TCTA

In general, TCTA will not provide or make available, free of cost, any personnel, equipment, facilities or services by others to the Consultant for the Services. The cost of any equipment, facilities or services by others is deemed to be covered in the Consultant's remuneration or elsewhere in the Agreement, unless specified otherwise below.

1.1 TASK 1 – TENDER DESIGN AND DOCUMENTATION

TCTA will not provide personnel, equipment, facilities or services by others to the Consultant during this Task.

1.2 TASK 2 – DETAILED DESIGN

TCTA will not provide personnel, equipment, facilities or services by others to the Consultant during this task.

1.3 TASK 3 – CONSTRUCTION SUPERVISION

TCTA will not provide personnel, equipment, facilities or services by others to the Consultant during this task, except for the following items that will be provided by TCTA through the construction contract:

- i) Site offices with office furniture and desk telephones only, including ablution facilities and consumables, parking, fully equipped kitchen and eating area and consumables. The Consultant, in consultation with TCTA, shall determine detailed requirements for the Consultant's construction supervision team and TCTA staff for inclusion in the construction tender documentation. Cleaning and other services (electricity, water, refuse and sewage) will be provided by the contractor.
- ii) Laboratory and field-testing equipment, instruments and consumables. This will be the contractor's laboratory shared or utilised with the Consultant. As such, the facility and equipment will be managed and serviced by the contractor, including the provision of technicians, laboratory assistance and administration staff.
- iii) Digital telecommunications infrastructure and associated service costs at the construction site(s).
- iv) International travel and accommodation costs to witness factory acceptance test(s).

Only the above items will be provided by TCTA through the construction contract.

1.4 TASK 4 – POST-CONSTRUCTION MONITORING

TCTA will not provide personnel, equipment, facilities or services by others to the Consultant during this task.

1.5 TASK 5 – PROJECT MANAGEMENT

TCTA will not provide personnel, equipment, facilities or services by others to the Consultant during this task.

1.6 TASK 6 – BLACK SOUTH AFRICANS, ENTERPRISE AND SUPPLIER DEVELOPMENT REQUIREMENTS

TCTA will not provide personnel, equipment, facilities or services by others to the Consultant during this task.

Graduate engineer(s), technologist(s), technician(s) and environmental scientist(s) may, however, be seconded to the Consultant for training and skills development to build capacity in TCTA and the built industry. A Provisional Sum is provided in Appendix 3 of the Agreement.

AGREEMENT

APPENDIX 3: REMUNERATION AND PAYMENT

1. TERMS OF PRICING FOR THE SERVICES

1.1 GENERAL

The Consultant shall, amongst other factors, consider the following items and conditions when preparing the financial proposal:

- The costs of equipment, facilities and services by others, considering the conditions and requirements in the Agreement (Appendix 2: Personnel, Equipment, Facilities and Services of Others to be provided by the Client). If not explicitly provided in this Appendix 3 of the Agreement, it will be deemed covered or incorporated into other elements of the Consultant's financial proposal.
- Scope of Services (Appendix 1) and Time Schedule for Services (Appendix 4) of the Agreement.
- The time and currency of payment to the Consultant shall be per the Agreement.
- No payment will be made for any Additional or Exceptional Services or other additional expenses which have not been authorised or approved by TCTA as "Variation Orders".
- The TCTA will not accept any mark-up or handling charges by the Consultant regarding other Services by the Consultant's sub-consultants and contractors.
- For any month, the total time charged for each personnel shall not exceed one person-month.
- Administration (i.e. secretaries, clerks, messengers, etc.) and direct reimbursable costs. If not explicitly provided in this appendix, it will be deemed covered or incorporated into other elements of the Consultant's bid submission.
- Contingencies and allowances for bonuses or other profit-sharing means are not permitted.
- Insurance for liability and indemnity, per Clause 7.1 of the Conditions of Agreement.

1.2 CONSULTANT'S PERSONNEL

The TCTA will not accept an invoice with personnel not named or assigned to a position in the Agreement.

The Consultant will not be entitled to supply additional personnel or change the personnel named in the Agreement, nor amend any person-months in the Agreement without the prior approval of TCTA. Such changes will be subject to Clause 3.7 and Clause 4.3 of the Conditions of Agreement.

1.2.3 Personnel Categories and Levels

The categories for personnel have different levels, depending on the qualifications and years of experience, as shown in the table below.

Level	Engineers		Technologists		Technicians		Scientists	
	Qualification	Exp	Qualification	Exp	Qualification	Exp	Qualification	Exp
1					Technician	<4		
2			Technologist	<4	Technician	4-7	Env Scientist	<4
3	Engineer	<4	Technologist	4-7	Technician	8-12	Env Scientist	4-7
4	Engineer	4-7	Technologist	8-12	Technician	>12	Env Scientist	8-12
5	Engineer	8-12	Technologist	>12	Pr Eng Techni	4-7	Env Scientist	13-18
6	Engineer	>12	Pr Eng Techno	4-7	Pr Eng Techni	8-12	Env Scientist	>18
7	Pr Eng	4-7	Pr Eng Techno	8-12	Pr Eng Techni	>12	Pr Sci Nat	4-7
8	Pr Eng	8-12	Pr Eng Techno	13-18			Pr Sci Nat	8-12
9	Pr Eng	13-16	Pr Eng Techno	>18			Pr Sci Nat	13-18
10	Pr Eng	17-20					Pr Sci Nat	>18
11	Pr Eng	21-24						
12	Pr Eng	>25						

Notes:

1. Minimum qualifications: Engineer (Bachelor's degree; NQF level 8); Technologist (Bachelor of Technology; NQF level 7); Technician (National diploma; NQF level 6); and Environmental Scientist ("Env Scientists") (Bachelor's degree; NQF level 7).
2. Professional Engineer (Pr Eng); Professional Engineering Technologist (Pr Eng Techno); and Professional Engineering Technician (Pr Eng Techni) by Engineering Council of South Africa. Professional Natural Scientist (Pr Sci Nat) by South African Council for Natural Scientific Professions.
3. "Exp" refers to the years of experience.
4. For personnel from countries outside of Southern Africa, where qualifications and professional registration systems differ from Southern African practice, the Consultant shall provide evidence of equivalent qualifications and professional registration.

An average cost-to-company billing rate applies to all personnel on the same level as **Personnel Billing Rates** (Returnable).

A separate motivation will be required for billing levels greater than level 11. These levels are generally reserved for industry specialists, review panel members and executive managers of the Consultant.

1.2.2 Personnel Billing Rates

The remuneration for personnel shall be made on a person-month(s) basis at the billing rates set out in **Personnel Billing Rates** (Returnable). The billing rates shall be deemed to cover, among other things, the following:

- i) Cost-to-company consisting of the following:
 - All actual salaries (no premium or bonus).
 - Other costs and charges (medical and retirement/pension benefits, annual leave, sick leave or other leave, public holidays, life insurances, etc.).
- ii) Cost of overtime worked by the personnel, as required to fulfil the Services and comply with the Time Schedule for Services.
- iii) Company overhead costs (administration, marketing, office rent and services, communications, computer charges, and other costs not directly reimbursable).
- iv) Secretaries, clerks, messengers, and any other support personnel.
- v) All other costs, except the directly reimbursable costs/expenses.

The Consultant shall specify billing rates for all positions and qualified personnel to render the Services. Qualified personnel shall fill such vacancies two calendar months before the required services or as agreed with TCTA. The categories for billing purposes shall be per **Personnel Billing Rates** (Returnable).

1.2.3 Consultant's Fee on Personnel

The Consultant's fee shall be a fixed percentage of the costs for personnel, as per **Summary of Cost Estimate** (Returnable). Only the billing rates for personnel shall be subject to price changes and not the Consultant's fee on personnel.

1.3 CONSULTANT'S DIRECT REIMBURSABLE COSTS

The TCTA shall pay or reimburse the Consultant for the reasonable costs or unit rates only, i.e. no mark-up on handling charges that are related to performing the Services, and to the extent that such costs are specified and allowed for in **Direct Reimbursable Costs** (Returnable), as follows:

- i) *Per diem* allowances to cover additional expenses for home office personnel working on site.
- ii) A site allowance or living subsistence to cover additional expenses for personnel residing at the site and accommodation.
- iii) Costs of other items, services and charges as listed and priced by the Consultant in Direct Reimbursable Costs (Returnable).

1.4 PROVISIONAL SUMS

Provisional Sum items listed under **Summary of Cost Estimate** (Returnable) shall be expended only on the instruction or with the prior written approval of TCTA, as Additional Services or Exceptional Services. The TCTA shall pay or reimburse the Consultant a fixed mark-up on handling/administration charges, which will not be subject to price changes where relevant.

The Provisional Sum items:

- i) “TCTA Adjudication/Arbitration Costs” is an allowance for the costs of adjudication and arbitration that may arise between the Parties. This allowance will only pay for TCTA’s costs. The Consultant will be liable for its costs separately (i.e. adjudicator’s/arbitrator’s fees, venue hire, catering etc.).
- ii) “Assistance to TCTA” is an allowance for the Consultant to provide Additional Services as follows:
 - Geological, geohydrological and geotechnical investigations, surveys and tests by a third parties, and drafting and compiling the Geotechnical Baseline Report, as identified by the Consultant or TCTA.
 - Further or additional surveys, studies, or investigations identified by the Consultant or TCTA.
 - Review of land acquisition valuation reports and landowners’ financial loss claims by a specialist to be appointed by the Consultant through instructions by TCTA.
 - Three-dimensional hydraulic physical model study to optimise or verify the Consultant’s hydraulic design of the Smithfield Dam spillway by a third party, subject to TCTA’s approval.
 - RAP-related costs including but not limited to coffins, food, head or tombstones, crosses, blankets, animals for cultural ceremonies/rituals, cash compensations/solatum, transportation, financial loss claim payments, relocation of small businesses, and relocation of artefacts and rock art.
 - Lessons learnt workshop, i.e. venue hire and consumables.
 - Dispute or arbitration pursuant to the relevant clause of the construction contract (Clause 21 in FIDIC Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (Red Book) (second edition, 2017)) by the Consultant.
 - Secure biodiversity offset sites/areas by a biodiversity specialist and conveyancing attorney.
- iii) “Hydropower plant complete scope of services” is an allowance for the Consultant to undertake tender design and documentation, detail design, construction supervision and monitoring, and assessment and close-out per instructions by TCTA.
- iv) “Project Vehicles and Accommodation for TCTA” is an allowance per Appendix 1: Scope of Services.
- v) “Secondment of TCTA Graduates, Engineers and Scientists” under Appendix 2: Personnel, Equipment, Facilities and Services of others to be provided by the Client.

- vi) "Exceptional and Unforeseen Circumstances" e.g. extended construction supervision due to strike actions.

All the Provisional Sum items listed above are not part of and will not be used as the Normal Services and shall be subject to instructions and approvals by TCTA, as Additional Services or Exceptional Services.

2. PRICE CHANGES (ESCALATION)

Personnel or staff billing rates, consultancy fee (fee percentage to remain fixed) and direct reimbursable unit rates and costs will stay in effect (without escalation) for 12 calendar months after the Commencement Date and shall, after that, be adjusted annually for escalation on the anniversary of the date, to be billed or invoiced in arrears, as explained below.

The following conditions and procedures shall apply in the calculation of the escalation:

- i) The costs of personnel and Consultant's fee on personnel and direct reimbursable expenses shall be billed monthly at the rates stated in the returnables.
- ii) The base date for escalation shall be the Commencement Date.
- iii) Escalation to personnel billing rates, consultancy fee (fee percentage to remain fixed), and direct reimbursable unit rates and costs shall be calculated using the Consumer Price Index (CPI for all urban areas – STATS SA Statistical Release P0141, all items (i.e. CPI Headline)).
- iv) If any index relevant to any invoice is unknown when the Services are valued, the latest available index shall be used. Any adjustments necessary shall be made only when the actual index relevant to that invoice is published.
- v) Actual direct reimbursable costs will not be subject to any adjustment.

IMPORTANT NOTE: For budget and bidding purposes, all the bidders (or the Consultant) must allow 5% per annum for escalation, i.e. Time Schedule for Services – Consultant's fee on personnel and direct reimbursable unit rates and costs.

2.1 CASH FLOW

The Consultant shall provide an estimated monthly cash flow for the duration of the Services. The cash flow shall be based on the expected submission dates of monthly invoices.

The cash flow shall, amongst other things, show the following information by month and, where appropriate, amounts by sub-consultants and contractors:

- i) Personnel costs.
- ii) Consultant's fee.
- iii) Direct reimbursable costs.

- iv) Estimated escalation.
- v) Provisional sums and variation orders, as approved by TCTA.

The cash flow shall be updated each month to show a payment to date in each category, changes in the Services (i.e. variation orders), programme, progress, and escalation, affecting the cash flow and total forecast costs from that date to completion.

3. TERMS OF PAYMENT

3.1 GENERAL

The Consultant shall maintain comprehensive records of accounts relating to the Services and make such records available for inspection by TCTA for audits.

The Consultant shall cooperate with TCTA to establish working arrangements and management practices, especially reporting, approval, cost control and billing procedures, which will expedite routine activities and minimise the costs of these activities for both Parties.

The TCTA, at its discretion and cost, shall have the right to obtain, through the Consultant's auditors, details of the Consultant's (and the respective joint venture or consortium members) records of time charges for personnel, management and cost-control procedures, salary rates, annual remuneration increases, books of accounts relating to the operation of offices, and any other factor relating to charges for the Services.

3.2 CONSULTANT'S TAX INVOICES

Regarding the Services performed, the Consultant shall submit a tax invoice as soon as practicable and not later than seven days after the end of each calendar month. Before submitting the first tax invoice, the Consultant shall agree with TCTA on the format and details of the invoices and the administrative procedures to be followed for submission.

No payment will be made by TCTA until the format and details of the invoice have been agreed upon and finalised by the Parties.

The invoices must show, amongst other things, the following information:

- i) A statement of account.
- ii) Purchase order number (provided by TCTA); TCTA and its address and VAT number (4360104923); Consultant's name, address and VAT number; date of invoice and its number, contract award amount, the amount due, due date, etc.
- iii) Cost of personnel:
 - Net person-months expended for the month by each personnel and task.
 - Billing rates for each personnel.
 - Person-month budget, by task.
 - Cumulative person-months expended to date, by task.

- Costs of personnel for the month, by each personnel and by task.
 - Budget and updated forecasts by task, i.e. cash-flow and comprehensive financial reviews.
 - Balance forward and cumulative costs of personnel to date, by task.
- iv) Consultant's fee.
- v) Direct reimbursable costs, all by line item:
- Budget and updated forecasts, i.e. cash-flow and comprehensive financial reviews.
 - Costs for the month.
 - Costs to date.
 - Supporting documentation.
- vi) Escalation on the cost of personnel.
- vii) Escalation on direct reimbursable costs (where applicable).
- viii) Variation orders (including the items above, relevant to such variation orders).
- ix) Net payment due in the month.
- x) Balance forward and cumulative total payment.

The tax invoice must be based on the representations made by the Consultant. Should TCTA find such representations (through inspections, audits, or other means) materially incomplete or inaccurate, TCTA shall be entitled to introduce appropriate modifications in the affected rates and items. Any such change shall have a retroactive effect, and in case of payment made by TCTA before any such modification:

- i) The TCTA shall be entitled to offset any excess payment against the following payment to the Consultant, or
- ii) If TCTA makes no further payments to the Consultant, the Consultant shall reimburse TCTA for any excess payment within 28 days of receipt of a written demand from TCTA.

4. METHOD OF PAYMENT

Payments by TCTA will be made by direct transfer to the Consultant's bank account. Please note that TCTA will not pay any consortium or joint venture member directly nor a specific or nominated member on behalf of the consortium or joint venture.

The Consultant shall provide TCTA with the following information and documents:

- i) Formal written notice from the Consultant's authorised representative designating which Consultant's official(s) is authorised to issue bank instructions on behalf of the Consultant.
- ii) Certified original specimen signature(s) of the person(s) named above.

- iii) Bank destination instructions duly signed by an official(s) of the Consultant authorised above. Bank destination instructions must include:
- Bank name and address.
 - Beneficiary name (i.e. account holder).
 - Account type and number.
 - Any special instructions.
- iv) VAT registration certificate if the Consultant is a VAT vendor.

Please note that the information must be in its original form. E-mails, photocopies, or facsimile copies will not be accepted.

Regarding any future changes the Consultant may wish to make to the destination bank account(s), the authorities must provide such modifications to TCTA and deliver them to TCTA in their original form. Any such changes must be received at least 28 days before payment is required.

The TCTA must receive all payment instructions and bank destination documents before making payments.

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APPENDIX 4: TIME SCHEDULE FOR SERVICES

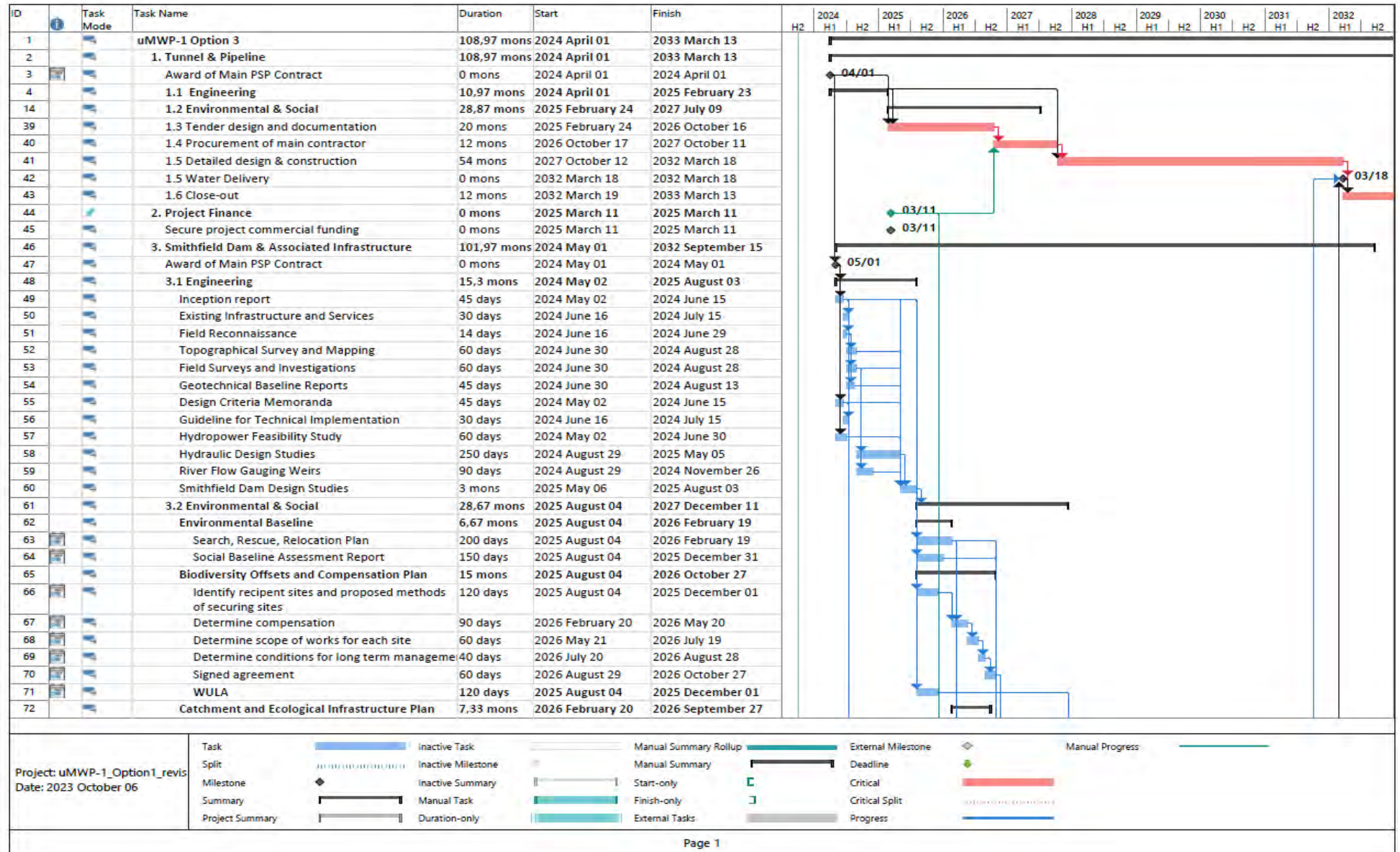
1. TIME SCHEDULE FOR SERVICES

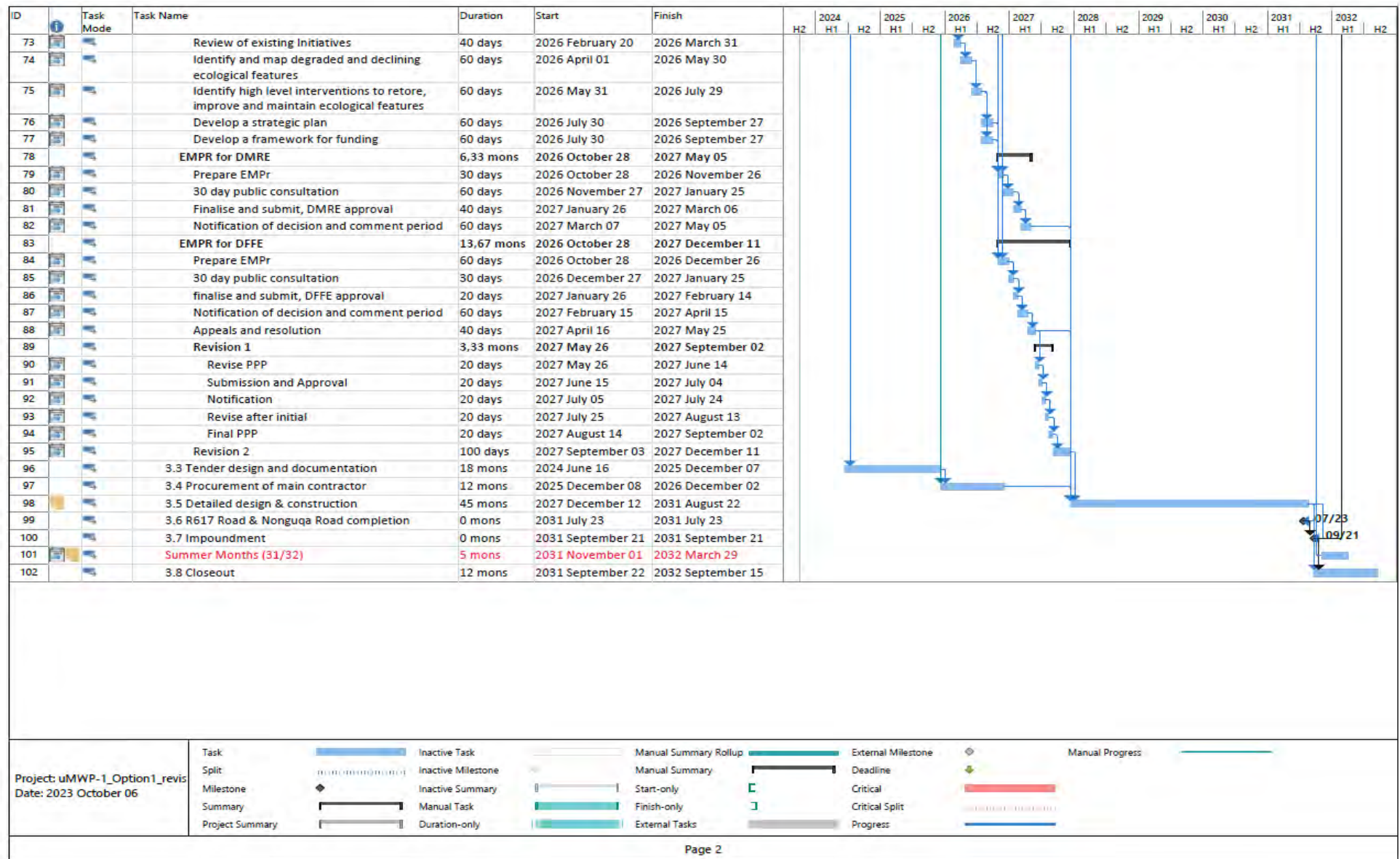
1.1 INDICATIVE PROGRAMME BY THE CLIENT

TCTA's indicative programme for the Services is provided below. The bidders shall refer to, or consider the information in preparing its programme.

IMPORTANT NOTE: A separate pre-qualification process for the main construction contract (i.e. Smithfield Dam and Associated Infrastructure) is not shown on the indicative programme as it is assumed to run in parallel with Tender Design and Documentation.

TCTA'S INDICATIVE PROGRAMME:





1.2 PROGRAMME

The charts and schedules must be provided as described below:

- i) A detailed programme with critical path analysis and a comprehensive Gantt chart and graphs for all the Services. The programme is to have a calendar time in months and must be suitable for monitoring changes and fulfilling the reporting requirements under **Task 5 in Appendix 1: Scope of Services**.
- ii) The Gantt chart and graphs shall illustrate the start and finish dates, including the dependency relationship, of all the work breakdown structure elements and the task, sub-tasks, activities, deliverables, and milestones in the programme.
- iii) The personnel (human resources) allocation and durations must be linked to the programme. The personnel must be retained for as long as necessary to complete the Services to the required standards and quality per **Appendix 1: Scope of Services**. The TCTA will not be obliged to compensate the Consultant for personnel that exceed the durations in the Consultant's bid submission.
- iv) The personnel and determined person-months by the Consultant must be summarised and adjusted if so, required for uncertainties and the like, and carried forward into the price returnables and **Appendix 3: Remuneration and Payment**.

AGREEMENT

APPENDIX 5: CONSULTANT'S HEALTH AND SAFETY SPECIFICATION

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Occupational health and safety specification

1. Definitions

In this document the following expressions shall bear the meanings assigned to them below:

- 1.1 **TCTA** means the client (as defined by Construction Regulation 1) for whom construction work is being performed and/or undertaken;
- 1.2 **Agent** means a competent person as per the Construction Regulation who acts as a representative for a client.
- 1.3 **Construction Regulations** means the Occupational Health and Safety Act's, No 85 of 1993, Construction Regulations that came into effect on 09 July 2014;
- 1.4 **Occupational health and safety plan** means a sufficiently documented plan to the standards of TCTA, which addresses hazards identified and includes safe working procedures to mitigate, reduce or control the hazards identified;
- 1.5 **Occupational health and safety specification** means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons working, visiting, passing, staying and/or working close to the construction site and/or other applicable areas such as site camp;
- 1.6 **OHSA** means the Occupational Health and Safety Act, No 85 of 1993, as amended;
- 1.7 **Consultant** means TCTA's agent-who acts as a representative for a TCTA in providing professional services for the engineering and construction management (ECP) for the overall work, which shall also include the professional engineer or professional certified engineer as referred to in the Construction Regulations who shall also be obliged to carry out as part of the contract, with TCTA, geotechnical field investigations which includes work classified as construction work or excavation work in Construction Regulations 1 and ;
- 1.8 **Principal Contractor** means an employer, as defined by Section 1 of the OHSA who performs construction work, i.e. civil, building, electrical or mechanical work, and is appointed by TCTA to be in overall control and management of the construction site and works.

2. Introduction

In terms of Construction Regulation 5 (1) (b) of the OHSA, TCTA is required to compile an occupational health and safety specification for any intended project and provide such specification to prospective tenderers/bidders.

In terms of Construction Regulation 5(5) TCTA will appoint an independent incumbent as an Agent to act on its behalf in fulfilling its health and safety obligations during the engineering and construction stages of the project. The incumbent will be contracted to TCTA directly.

This specification has an objective to ensure that the Consultant entering into a contract with TCTA for the services ensures that construction work is undertaken in

accordance with the OHSa and Construction Regulations as further elaborated in these specifications.

This document defines roles, obligations and duties for the Consultant regarding health and safety on the entire project.

Compliance with this document does not absolve the Consultant from complying with any other minimum legal requirements and the Consultant remains responsible for the health and safety of his employees, those of his mandataries as well as any persons coming on site or on adjacent properties as far as it relates to the construction activities.

3. Scope

The occupational health and safety obligation by the Consultant on this project entails:-

- 3.1 Develop a project specific occupational health and safety specification that addresses the reasonable and foreseeable risks, exposures and aspects of occupational health and safety as affected by the construction work to be undertaken by the Principal Contractors. The specification will include the requirements that the Principal Contractor will have to comply with in order to reduce the risks associated with work which is definable under Construction Regulation 1 which may lead to incidents causing injury and/or ill health, to a level as low as reasonably practicable and possible.
- 3.2 Prepare health and safety plan based on the specification herein included and the OHSa for field work or similar work which falls under the definition of such as included in Construction Regulation 1. TCTA will evaluate the health and safety plan as part of its formal tender adjudication processes to ensure compliance with Construction Regulation 5 that stipulates that TCTA may only appoint a Principal Contractor who has the necessary competencies and resources to carry of the work appointed for safely. The plan will be submitted by all consultants interested in being appointed by TCTA for the purposes of the RFP as a draft occupational health and safety plan.
- 3.3 Submit for review and approval by the Client the health and safety plans and the customized specification for the construction contract.

4. General occupational health and safety provisions

4.1 Health and safety aspects of designs

4.1.1 Hazard analysis of scheme

The Construction Regulations require the designer of the work among others to carry out inspections during construction, thereby ensuring compliance with the design. The designer also has other obligations. The client should ensure that the appointment of the designer includes these obligations.

The Consultant shall ensure that the project is designed to achieve a high health and safety standards, and in accordance with TCTA's requirements of international best practice. The designer shall, in the case of a structural work provide the Principal Contractor with a geotechnical report (where appropriate) and to inform the Principal Contractor of the dangers posed by the construction work, the loading which the structure is designed to resist and any requirements regarding method and sequence of construction.

For the selected general arrangement, preliminary designs, definition of design criteria, tender design and production of tender drawings the Consultant shall assemble a team of individuals with varying expertise and background to undertake a process of hazard identification through a collectively brainstorming of the entire operational processes.

The Consultant shall study the complete construction requirements for ensuring healthy and safe working environment with particular emphasis on tunneling methods if applicable. He shall address any climatic influences and external and internal influences affecting construction activities such as quarry operations and construction processes. The outcome of the hazard identification process shall be included in the risk assessment and identification of the project.

The process shall be undertaken at every incidence of design change taking into consideration the previous observation during the hazard identification process.

4.1.2 Health and safety during construction

By his appointment the Consultant shall liaise with the Agent who shall be obliged to act as TCTA's appointed agent regarding the health and safety management of the project, in terms of Construction Regulation

5(5), and therefore shall perform all the required deliverables as provided in the regulation to be undertaken by TCTA's agent.

The Consultant together with the Agent shall provide an appropriate level of inspection to ensure compliance of the Principal Contractor regarding the Construction Regulations and other obligations as required by the OHSA. Processes shall be placed to ensure that the design intent, specifications, drawings, and general contractual requirements are being met to ensure all Principal Contractor's general obligations with particular regard to health and safety including the provision of adequate personal protective clothing, the maintenance of a safe working environment and adequate means of evacuation and treatment in emergencies.

The Designer shall carry out inspections during construction to ensuring compliance with the design and to stop any construction work that is not in accordance with the design.

4.2 Hazard identification and risk assessment (Construction Regulation 9)

This section shall apply to all cases where the Consultant undertakes, as a deliverable under the contract, work classified in Construction Regulation 1 as Construction Work which shall include but not limited to geotechnical field investigations.

4.2.1 Risk assessments

Attachment 7 of this specification contains a list of risk assessment headings that have been identified by TCTA as possibly applicable to the abovementioned contract work. It is, by no means, exhaustive and is only offered as assistance to the Principal Contractor intending to tender for the applicable works. It therefore remains the overall responsibility of the Consultant to consider all applicable risks and pro-actively undertake risk assessments and implement appropriate risk mitigation measures.

4.2.2 Development of risk assessments

Every Consultant performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, ensure that risk assessments are undertaken by a competent person, appointed in writing, and the risk assessments shall form part of the occupational health and safety plan and be implemented and maintained as contemplated in Construction Regulation 9 (1).

The risk assessments shall include, at least:

- The identification of the current as well as emerging risks and hazards to which persons may be exposed to;
- The analysis and evaluation of the risks and hazards identified;
- A documented plan of safe working procedures (SWP) and any method statements to mitigate, reduce or control the risks and hazards that have been identified;
- A plan to monitor the application of the SWPs; and
- A plan to review the risk assessments as the work progresses and changes are introduced or incidents occurred which requires the re-evaluation of the processes/risk mitigation.

Based on the risk assessments, the Consultant must develop a set of site-specific occupational health and safety rules that will be applied to regulate the occupational health and safety aspects of the construction.

The risk assessments, together with the site-specific occupational health and safety rules, must be submitted to TCTA before mobilization on site commences.

Despite the risk assessments listed in Attachment 7, the Consultant is required to conduct a baseline risk assessment and the aforesaid risk assessments must be incorporated into the baseline risk assessment. The baseline risk assessment must further include the SWPs and the applicable method statements based on the risk assessments.

Hazard identification and risk assessments must be undertaken whilst SWPs must be developed for all out-of-scope work.

4.2.3 Review of risk assessments

The Consultant is to review the hazards identified, the risk assessments and the SWPs at each production planning and progress report meeting as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and/or processes.

It is also proposed that should an incident occurs the SWPs and all other applicable processes be re-evaluated to ensure that the mitigation measures are still applicable and appropriate and if not a revision of the risk assessments must be undertaken.

The Consultant must provide TCTA, the Principal Contractor and all other concerned or affected parties with copies of any changes,

alterations or amendments as soon as possible but within 14 calendar days of such changes.

4.3 Legal Requirements

All Principal Contractors entering into a contract with TCTA shall, as a minimum, comply with the -

- OHSA and a current, up-to-date copy of the OHSA and its Regulations must be available on site at all times;
- Compensation for Occupational Injuries and Diseases Act, No 130 of 1993 (COIDA) as amended. The Consultant will be required to submit a letter of registration and “good-standing” from the Compensation Commissioner or compensation insurer before being awarded the contract. A current, up-to-date copy of the COIDA must be available on site at all times; and
- Where work is being carried out on mine premises, the Principal Contractor will comply with the Mine Health and Safety Act and Regulations (Act. 29 of 1996) as amended, the Minerals Act and Regulations (Act 50 of 1991) as amended and any other occupational health and safety requirements that the mine may specify. Current, up-to-date copies of the last two mentioned Acts must also be available on site at all times.

4.4 Structure and responsibilities

4.4.1 Overall supervision and responsibility for occupational health and safety

- a. The Consultant [appointed in terms of Construction Regulation 5 (1) (k)] is responsible to implement and maintain the occupational health and safety plan approved by TCTA and ensure implementation of plans submitted by Principal Contractors on the Project.
- b. The Chief Executive Officer (in terms of Section 16(1) of the OHSA) of the Consultant is to ensure that the Employer (as defined in the OHSA) complies with the OHSA. Attachment 2 “Legal Compliance Checklist” may be used for this purpose and assistance.
- c. The Consultant’s Chief Executive Officer may appoint any person reporting to him/her as Designated Person in terms of Section 16(2) of the OHSA. Such Designated Person is responsible to assist the Chief Executive Officer to ensure that the Employer complies with the requirements of the OHSA.
- d. The construction supervisor and assistant construction supervisor(s) appointed in terms of Construction Regulation 8 are responsible for supervising the construction work and in specific to ensure that all work undertaken comply with the

requirements of the OHSA, its Regulations and TCTA's specifications.

4.4.2 Operational responsibilities for occupational health and safety

In carrying out his duties TCTA the Consultant shall appoint designated competent employees and/or other competent persons as required by the Act.

The Consultant shall ensure that the Principal Contractor make the necessary appointments during construction. This list below shows the minimum requirements and is therefore not exhaustive.

Appointment description	Appointment required in terms of
Assistant construction supervisor	Construction Regulation 8(2)
Blasting supervisor	Explosives Regulation 12 (1)
Construction vehicle, mobile plant and machinery supervisor	Construction Regulation 23
Construction supervisor	Construction Regulation 8(7)
Drivers of construction vehicles and operators of plant	Construction Regulation 23
Electrical installation and appliances inspector	Construction Regulation 24
Emergency, security and fire coordinator	Construction Regulation 29
Excavation supervisor (including piling)	Construction Regulation 13
Fall protection supervisor	Construction Regulation 10
First-aiders	General Safety Regulation 3
Fire fighting equipment inspector	Construction Regulation 29
Hazardous chemical substances supervisor	Hazardous Chemicals Substances Regulations 10
Incident investigator	General Administrative Regulation 9
Ladder inspector	General Safety Regulation 13(a)
Lifting machines and equipment inspector	Construction Regulation 22
Occupational health and safety committee	OHSA Section 19
Occupational health and safety officer	Construction Regulation 8(5)
Occupational health and safety representatives	OHSA Section 17
Person responsible for machinery	General Machinery Regulation 2
Risk assessor	Construction Regulation 9(1)
Scaffolding supervisor	Construction Regulation 16
Stacking and storage supervisor	Construction Regulation 28
Suspended platform supervisor	Construction Regulation 17(1)
Suspended platform inspector	Construction Regulation 17(8)(a)

Appointment description	Appointment required in terms of
Traffic management supervisor	OHSA Section 9(1)
Traffic safety officer	OHSA Section 9(1)
Vessels under pressure supervisor	Vessels under Pressure Regulations
Working on, over or next to water supervisor	Construction Regulation 26

These appointments must be in writing and the responsibilities clearly stated together with the period for which each appointment is made. This information must be communicated to and agreed with the appointees.

Copies of appointments must be submitted to TCTA together with concise CV's of the appointees as part of the Consultant's health and safety plan and if appointed copies of the appointments included in the occupational health and safety file. All appointments must be approved by TCTA and any changes of appointees or appointments must be communicated to TCTA and agreed upon before being implemented.

The Consultant must, furthermore, provide TCTA with an organogram of all sub-consultants that he/she has appointed or intends to appoint and keep this list updated on a weekly basis.

4.4.3 Designation of occupational health and safety representatives (Section 18 of the OHSA)

Where the Consultant employs more than 50 persons [including the employees of sub-consultant and its supervisors] the consultant shall appoint one occupational health and safety representative for every 50 employees or part thereof. General Administrative Regulation 6 requires that the election, appointment and subsequent designation of the occupational health and safety representatives be executed in consultation with employee representatives or employees. (Section 17 of the OHSA as well as General Administrative Regulation 6 and 7 refer).

Occupational health and safety representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

4.4.4 Duties and functions of the occupational health and safety representatives (Section 19 of the OHSA)

- a. The Consultant must ensure that the designated occupational health and safety representatives conduct a weekly inspection of their respective areas of responsibility, using a checklist, and report thereon to the Consultant.
- b. Occupational health and safety representatives must be included in accident and/or incident investigations.
- c. Occupational health and safety representatives must attend all occupational health and safety committee meetings.

4.4.5 Appointment of occupational health and safety committee (Section 20 of the OHSA)

The Consultant must establish an occupational health and safety committee consisting of all the designated occupational health and safety representatives, management and a representative of TCTA who shall act as the chairperson without voting rights. The members of the occupational health and safety committee must be appointed in writing and copies of the appointments included in the occupational health and safety file.

The occupational health and safety committee must meet as a minimum on a monthly basis and consider, at least, the following agenda items:

1. Opening and welcome.
2. Members present, apologies and absent.
3. Minutes of previous meeting.
4. Matters arising from the previous meeting.
5. Occupational health and safety representatives' reports.
6. Incident and/or accident reports and investigations.
7. Incident, accident and/or injury statistics.
8. Other matters.
9. Endorsement of registers and other statutory documents by a duly authorised representative of the Consultant.
10. Close and next meeting.

4.5 Mandatory's

The Consultant, comply with the relevant sections of the Construction Regulations when he appoints sub-consultants

4.6 Administrative controls and the occupational health and safety file

4.6.1 The occupational health and safety file [Construction Regulation 7(1)]

As required by Construction Regulation 7(1), the Consultant and other contractors will each keep an occupational health and safety file on site containing the following documents as a minimum:

1. Notification of construction work (Construction Regulation 4).
2. Updated copies of the OHS Act and its Regulations as well as the COIDA Act (General Administrative Regulation 4.).
3. Proof of registration and good standing with the Compensation Commissioner or a COIDA Insurer [Construction Regulation 5(1)(j)].
4. Occupational health and safety plan agreed with TCTA including the underpinning risk assessment(s) and method statements [Construction regulation 9(1)].
5. Copies of occupational health and safety committee meetings and other relevant minutes.
6. Designs and/or drawings [Construction Regulation 7(1)(e)].
7. A list of contractors (sub-contractors) including copies of the agreements between the parties, proof of good standing with the Compensation Commissioner or COIDA Insurer, and the type of work to be undertaken by each contractor (Construction Regulation 5).
8. Appointment and designation forms as per paragraphs 4.3.1 and 4.3.2 above.
9. The following registers:
 - Accident and/or incident register (Attachment 1 of the General Administrative Regulations);
 - Occupational health and safety representatives' inspection register;
 - Construction vehicles and mobile plant inspections by controller;
 - Daily inspections of vehicles, plant and other equipment by the operator, driver and/or user;
 - Designer's inspections and structures record;
 - Inspection and maintenance of explosive powered tools;
 - Inspection of electrical installations (including inspection of portable electrical tools, electrical equipment and other electrical appliances);
 - Fall protection inspections;
 - First-aid box content;
 - Record of first-aid treatment;
 - Fire equipment inspections and maintenance;

- Record of hazardous chemical substances kept and used on site;
 - Ladder inspections;
 - Machine safety inspections (including machine guards, lock-outs etcetera);
 - Inspection registers and logbooks for lifting machines and – tackle (including daily inspections by drivers/operators);
 - Inspections of scaffolding;
 - Inspections of stacking and storage;
 - Inspections of structures;
 - Vessels under pressure inspections; and
 - Inspections of welding equipment.
10. All other applicable records.

TCTA will conduct and evaluation of the Consultant's occupational health and safety file from time to time.

4.7 Occupational health and safety goals and objectives and arrangements for monitoring and review of occupational health and safety performance

TCTA upholds a principle of "Zero Injury" on projects it implements. The Consultant shall aim to achieve the maximum results from measures implemented on all work fronts of the Project. The Consultant is required to maintain a Recordable Case Rate statistics on the Project per contract included his own with TCTA (See Attachment 3 to this document: "Measuring Injury Experience") and report on to TCTA on a monthly basis.

4.8 Notification of construction work (Construction Regulation 4)

The Consultant shall, where the contract meets the requirements laid down in Construction Regulation 4, within 5 working days, ensure that the Department of Labour is notified of the intention to carry out construction work and use the form (Annexure A in the Construction Regulations) for this purpose. A copy of the notification must be held on the occupational health and safety file and a copy must also be forwarded to TCTA for record purposes.

4.9 Training, awareness and competence

The contents and syllabus of all training required by the OHSA and Regulations must be included in the Consultant's occupational health and safety plan.

4.9.1 General induction training

All members of the contractor's site management as well as all the persons appointed as responsible for occupational health and safety in terms of the Construction and other Regulations will be required to attend a general induction session.

All employees of the principal and other contractors must be in possession of proof of general induction training.

All subsequent and newly appointed employees must also be subjected to the induction training as soon as possible after the appointment but prior to starting to work on site.

4.9.2 Site-specific induction training

The Consultant will be required to develop a contract work project specific induction training course based on the risk assessments for the contract work and train all employees and other contractors and their employees in this.

All employees of the principal and other contractors must be in possession of proof that they have attended a site-specific occupational health and safety induction training at all times.

4.9.3 Other training

1. All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training and where applicable licenses or proof of competency.
2. All employees in jobs requiring training in terms of the OHSA and Regulations must be in possession of valid proof of training.
3. Occupational health and safety training requirements [as required by the Construction Regulations and as indicated by the occupational health and safety specification and the risk assessment(s)] i.e. -
 - a. General induction (Section 8 of the OHSA);
 - b. Site and job specific induction, including visitors (Sections 8 and 9 of the OHSA);
 - c. Site and project manager;
 - d. Construction supervisor;
 - e. Occupational health and safety representatives [Section 18 (3) of the OHSA];

- f. Training of the appointees indicated in paragraphs 4.3.1 and 4.3.2;
- g. Operators and drivers of construction vehicles and mobile plant (Construction Regulation 23);
- h. Basic fire prevention and protection (Environmental Regulations 9 and Construction Regulation 29);
- i. Basic first-aid (General Safety Regulations 3);
- j. Storekeeping methods and safe stacking (Construction Regulation 28); and
- k. Emergency, security and fire coordinator.

4.9.4 Awareness and promotion

The Consultant is required to encourage promotion and awareness programme in place to create an occupational health and safety culture within project employees. The following are some of the methods that may be used:

- Toolbox talks
- Posters
- Videos
- Competitions
- Suggestion schemes
- Participative activities such as employee “occupational health and safety circles”.

4.9.5 Notices and signs

The following notices and signs shall, where applicable, be compulsory on the construction site as well as the contractors’ yards:

Area and/or activity where notice or sign is required	Notice or sign required in terms of
Display of notices and signs	General Safety Regulation 2B and SABS Code 1186
Entry	General Safety Regulation 2C(2)
First-aid	General Safety Regulation 3(6)
Toilets and change rooms	Facilities Regulation 2 (5) 4(2)(f)
Storage of flammable materials	General Safety Regulation 4(8)(a)(i) and (ii) [10(e) only applicable to contractor’s yards]
Grinding wheels	Driven Machinery Regulation 8(1)(7)

Machinery	General Machinery Regulation 9 (Schedule D)
Explosive powered tools	Construction Regulation 21(2)(f)
Prohibition on smoking and eating or drinking at the workplaces where high risk substances [FR5 (1)] are stored or handled	Facilities Regulation 6(b)
Non-potable water	Facilities Regulation 7(B)

4.9.6 Competence

The Consultant shall ensure that his and other contractors' employees appointed are competent and that all training required to undertake the work safely and without risk to health of their or other persons, has been successfully completed before work commences.

The Consultant shall ensure that follow-up and refresher training is conducted on a regular basis as well as the contract work progresses and the work situation or requirements changes.

Records of all training must be kept on the occupational health and safety file for auditing purposes.

4.10 Consultation, communication and liaison

The following arrangements will apply-

- 4.10.1 Occupational health and safety liaison between TCTA, the Consultant, other contractors, the designer and other concerned parties will be through the occupational health and safety committee. In the absence of a health and safety committee, TCTA and Consultant will agree on an alternative communication forum to be implemented.
- 4.10.2 In addition to the above, communication may be directly to TCTA or his appointed Agent, verbally (followed up in writing within 14 calendar days) or in writing, as and when the need arises.
- 4.10.3 Consultation with the workforce on occupational health and safety matters will be through their supervisors, occupational health and safety representatives, the occupational health and safety committee and their elected trade union representatives, if any.

- 4.10.4 The Consultant will be responsible for the dissemination of all relevant occupational health and safety information to the other contractors, for example design changes agreed with TCTA and the designer, instructions by TCTA and/or his Agent, exchange of information between contractors, the reporting of hazardous and/or dangerous conditions and/or situations etcetera.
- 4.10.5 The Consultant will be required to do site safety inspections with TCTA Agent and/or his Health & Safety Auditor on a basis to be determined and agreed between the parties.
- 4.10.6 The principle and other contractors will be required to conduct toolbox talks with their employees on at least a weekly basis and records of these including the topics discussed must be kept on the occupational health and safety file. Employees must acknowledge the receipt of toolbox talks which record must, likewise be kept on the occupational health and safety file.
- 4.10.7 TCTA Health and Safety Auditor and the Consultant will agree on the dates, times and venues of the occupational health and safety meetings.

4.11 Checking, reporting and corrective actions

4.11.1 Monthly compliance assessment by TCTA [Construction Regulation 5(1)(n)]

TCTA will be conducting a monthly assessment to comply with Construction Regulation 5(1)(n) and to confirm that the Consultant has implemented and is maintaining the agreed and approved occupational health and safety plan.

4.11.2 Other assessments and inspections by TCTA

TCTA reserves the right to conduct other ad-hoc assessments and inspections as deemed necessary. This could include among others site safety walks.

4.11.3 Conducting an assessment

A representative of the Consultant must accompany TCTA on all assessments and inspections and may conduct his/her own inspection at the same time. Each party will, however, take responsibility for the results of his/her own assessment and/or inspection.

4.11.4 Contractor's assessments and inspections

The Consultant is to conduct his own internal assessments and inspections to verify compliance with his own occupational health and safety plan and management system as well as the requirements of this specification and the compliance of other contractors under his/her control.

4.11.5 Inspections by occupational health and safety representatives and other appointees

Occupational health and safety representatives must conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees must conduct inspections and report thereon as specified in their appointments for example vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

4.11.6 Recording and review of inspection results

All the results of the abovementioned inspections must be in writing, reviewed at occupational health and safety committee meetings, endorsed by the chairperson of the meeting and placed on the occupational health and safety file.

4.11.7 Reporting of inspection results

The Consultant is required to provide TCTA with a monthly report providing technical progress updates on issues in 4.11 hereof.

4.12 Incident reporting and investigation

4.12.1 Reporting of accidents and incidents (Section 24 and General Administrative Regulation 8 of the OHSA)

The Consultant in liaison with the Agent must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

or where -

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control

to TCTA within two calendar days and to the Provincial Director of the Department of Labour within seven calendar days from date of incident (Section 24 of the OHSA and General Administrative Regulation 8), **except** that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both TCTA and the Provincial Director of the Department of Labour forthwith by telephone, telefax or e-mail. All other reports should still be completed and provided as required.

The Consultant is required to provide TCTA with copies of all statutory reports required in terms of the OHSA within seven calendar days of the incident occurring.

The Consultant is required to provide TCTA with copies of all internal and external accident/incident investigation reports, including the reports contemplated in 4.12.2 (3) and (4) below, within seven calendar days of the incident occurring.

4.12.2 Accident and incident investigation (General Administrative Regulation 9)

1. The Consultant together with the Agent is responsible for the investigation of all accidents and/or incidents where employees and non-employees were injured to the extent that he, she and/or they had to be referred for medical treatment by a doctor, hospital or clinic.
2. The results of the investigation to be entered into the accident and/or incident register.
3. The Consultant is responsible for the investigation of all minor and non-injury incidents as described in Section 24 (1) (b) and (c) of the OHSA and keeping a record of the results of such investigations including the steps taken to prevent similar accidents/incidents in future.
4. The Consultant is responsible for the investigation of all road traffic accidents, related to the construction activities, and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.
5. TCTA reserves the right to hold its own investigation into an incident or call for an independent external investigation.

5. Operational control

5.1 Emergency preparedness, contingency planning and response

- 5.1.1 The Contractor must appoint a competent person to act as emergency controller and/or coordinator.
- 5.1.2 The Consultant must conduct an emergency identification exercise and establish what emergencies could possibly develop. He/she must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that TCTA may have in place.
- 5.1.3 The Consultant and the other contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarize employees with them.

5.2 First-aid (General Safety Regulation 3)

- 5.2.1 The Consultant must provide first-aid equipment (including a stretcher) and have qualified first-aiders on site as required by General Safety Regulation 3 of the OHSA.
- 5.2.2 The contingency plan of the Consultant must include arrangements for the speedy and timely transportation of injured and/or ill person(s) to a medical facility or getting emergency medical support to person(s) who may require it.
- 5.2.3 The Consultant must have firm arrangements with his contractors in place regarding the responsibility of these contractor's first-aid arrangements as well as treatment of injured and/or ill employees.

5.3 Rescue Procedures

- 5.3.1 No later than 56 days after the commencement date and in any event no later than 7 days before the start of work in any area, the Consultant shall prepare and submit a method statement detailing evacuation procedures for the approval of TCTA.
- 5.3.2 The procedures shall detail the nature of the emergencies contemplated, the training of employees forming rescue teams, their numbers, availability (at least one team shall be available for each shift), any delegation of responsibility, liaison with the emergency services and TCTA, the equipment needed, actual methods of evacuation including transport methods, medical facilities to be used, communications systems to be used and any other matter that the Consultant considers relevant to the subject of emergency evacuation.
- 5.3.3 The emergencies contemplated shall include, among others, injury, fire, flood, falls of ground, accidental leaks, spillages and explosion.
- 5.3.4 The equipment requirements shall include for the need for items to be used exclusively by the rescue teams, and also the continuous operational readiness of plant and equipment, including standby facilities, during the construction of the works.
- 5.3.5 The procedures shall cover the level of medical competence of the rescue team, the use of support medical facilities and evacuation off site to a relevant hospital or otherwise, including the use of helicopter services or the access to air evacuation facilities.
- 5.3.6 The Consultant shall immediately implement and prominently advertise the procedures in each work area. The Consultant shall test the effectiveness of the rescue procedures under the inspection of TCTA at least every three months and shall make due allowance in his programs for the testing of the procedures.

5.4 Security

- 5.4.1 The Consultant must establish site access rules and implement and maintain these throughout the construction period. Access control must, amongst other, include the rule that non-employees will not be allowed on site unaccompanied.
- 5.4.2 The Consultant must develop a set of project applicable security rules and procedures and maintain these throughout the construction period.

5.5 Accommodation of traffic

- 5.5.1 Where construction work is undertaken in, next to or close to a public road, the use of appropriate as well as a sufficient number of road signs is of paramount importance to protect employees against traffic and to warn motorists of the presence of construction work as well as construction employees/risks/vehicles.
- 5.5.2 The Consultant shall ensure that appropriate as well as a sufficient number of road signs are posted to protect employees against traffic and to warn motorists of the presence of construction work as well as construction employees/vehicles. These signs shall be repeated and utilised, where appropriate, as actual construction work is approached.
- 5.5.3 The following signage is required as a minimum where construction work is undertaken in, next to or close to a public road:
 - a. "Construction work ahead" sign at least 45 meters before the start of the construction work;
 - b. "Lane narrows" sign 30 meters before the start of the construction work;
 - c. "Keep right/left" sign 15 meters before the start of the construction work and again where the tapering begins; and
 - d. Delineators and cones every 5 meters for the entire stretch of construction work.
- 5.5.4 Where construction work includes excavations in or next to a public road, warning lights or visible boundary indicators should be provided after dark or when visibility is poor.
- 5.5.5 The maintenance of all signage and especially those that is suitable after dark should be duly managed.
- 5.5.6 Where appropriate duly trained flag persons should be deployed a good distance ahead of areas where traffic is deviated or lanes closed off. These flag persons should be managed assertively to ensure that they add optimal value and should they not do so they should be retrained and if necessary replaced.

- 5.5.7 The community liaison officer (CLO) should also be sensitised on the optimal management of traffic and the risks involved and then be instructed to increase community awareness through talking to all stakeholders including the distribution of suitable information brochures.

5.6. Fall protection [Working in elevated positions (Construction Regulation 10)]

- 5.6.1 A pre-emptive risk assessment will be required for any work to be carried out above two metres from the ground or any floor level and will be classified as “work in elevated positions”.

- 5.6.2 As far as is practicable, any person working in an elevated position will work from a stable platform, ladder or other device that is at least as safe as if he or she is working at ground level and whilst working in this position be wearing a safety belt with lanyard to prevent the person falling from the platform, ladder or other device utilized. This safety belt will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge.

Alternatively any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with suitable guard rails at two different heights as prescribed in SANS 10085 code of practice for the design, erection, use and inspection of access scaffolding.

- 5.6.3 Where the requirement in paragraph 5.4.2 is not practicable, the person will be provided with a full body harness that will be worn and attached above the wearer’s head at all times and the lanyard must be fitted with a shock absorbing device or the person must be attached to a fall arrest system that is approved by TCTA.
- 5.6.4 Where the requirements in paragraph 5.4.3 are not practicable, a suitable catch net, which must be able to sustain the weight of at least the average person working in the elevated position, must be erected.
- 5.6.5 Employees working in elevated positions must be trained to do this safely and without risk to their or other person’s health and safety.
- 5.6.6 Updated records confirming the physical and psychological fitness of employees working at elevated positions should be kept on the health and safety file at all times.

5.7 Access scaffolding (Construction Regulation 16)

Access scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 10085 entitled, "The Design, Erection, Use and Inspection of Access Scaffolding".

Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly and safely.

Scaffolding must be erected, altered or dismantled by person(s) who has/have adequate training and experience in this type of work or under the continuous supervision of such a person.

5.8 Lifting equipment (Construction Regulation 22)

Lifting equipment must be designed and constructed in accordance with the manufactures/designers specifications as well as generally accepted technical standards and operated, used, inspected and maintained in accordance with the manufactures requirements as well as that of the Driven Machinery Regulation 18 of the OHSA:

The Driven Machinery Regulation requires that:

- a. Lifting equipment to be clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. When the MML varies with the conditions of use, the table of maximum loads should be used by the driver/operator;
- b. Each winch on a lifting machine must at all time have, at least, three full turns of rope on the drum when the winch has been run to its lowest limit;
- c. Lifting equipment be fitted with a brake or other applicable device capable of holding the MML. This brake or device must automatically prevent the downward movement of the load when the lifting power is interrupted;
- d. Lifting equipment fitted with a load limiting device that automatically arrest the lift when the load reaches its highest safe position or when the mass of the load is greater than the MML;
- e. Every chain or rope on a lifting machine that forms an integral part of the machine must have a factor of safety as prescribed by the manufacturer of the machine and where no standard is available the factor of safety must be:
 - chains – 4 (four)
 - steel wire ropes - 5 (five)
 - fibre ropes- 10 (ten)
- f. Every hook or load attaching device must be designed as such or fitted with a device that will prevent the load from slipping off or disconnecting;
- g. Every lifting machine must be inspected and load tested by a competent person every time it has been dismantled and re-erected and every 12 months after that. The load test must be in accordance with the manufacturers prescription or to 110% of the MML in addition all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices forming an integral part of a lifting machine must be inspected every 6 months by a competent person;
- h. All maintenance, repairs, alterations and inspection results must be recorded in a log book and each lifting machine must have its own log book; and
- i. No person may be lifted by a lifting machine not designed for lifting persons unless in a cradle approved by an inspector of the Department of Labour.

5.9 Lifting tackle

- a. Manufactured of sound material, well constructed and free from latent defects;
- b. Clearly and conspicuously marked with an identity number;
- c. Maximum mass load factor of safety:
 - Natural fibre ropes - 10(ten)
 - Man-made fibre ropes and woven webbing - 06(six)

- Steel wire ropes – single rope - 06(six)
 - Steel wire ropes – combination slings - 08(eight)
 - Mild Steel chains - 05(five)
 - High tensile/alloy steel chains - 04(four)
- d. Steel wire ropes must be discarded (not used any further for lifting purposes) when wear and corrosion is evident and must be examined by a competent person every three months for this purpose and the results recorded in a designated log book.

5.10 Construction vehicle and mobile plant operators

The following requirements will apply to construction vehicle and mobile plant operators:

- a. Only certified and/or competent employees may be allowed to operate any construction vehicle and mobile plant.
- b. Every lifting machine operator must be trained specifically for the type of lifting machine that he or she is operating.
- c. Operators of jib cranes with a maximum mass load of 500 kg or more must be in possession of a certificate of training issued by an accredited (by the Department of Labour) training provider.
- d. Only employees duly authorized to do so may operate any construction vehicle and mobile plant.
- e. Only employees physically and psychologically fit, i.e. in possession of a medical certificate of fitness, may be allowed to operate any construction vehicle and mobile plant.

5.11 Construction vehicles and mobile plant (Construction Regulation 23)

Construction vehicles and mobile plant will initially during the competency evaluation process be inspected by TCTA prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the OHSA and Regulations.

Construction vehicles and mobile plant must be:

- a. Of acceptable design and construction;
- b. Maintained in good working order;
- c. Used in accordance with their design and intention for which they were designed;
- d. Operated and/or driven by trained, competent and authorized operators/drivers. No unauthorized persons to be allowed to drive construction vehicles and mobile plant;
- e. Provided with safe and suitable means of access;
- f. Fitted with adequate signaling devices to make movement safe including reversing;
- g. Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into same;
- h. Provided with roll-over protection;
- i. Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/log book and any defects addressed as matter of urgency;

- j. Fitted with two head and two tail lights that is in good working condition whilst operating under poor visibility conditions; and
- k. Used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported.

No loose tools, material etcetera is allowed in the driver and/or operators compartment/cabin nor in the compartment in which any other persons are transported.

No person may ride on construction vehicles and mobile plant except for in a safe place designed and provided for this purpose.

The construction site must be organized to facilitate the movement of construction vehicles and mobile plant in such a manner that pedestrians and other vehicles are not endangered. Traffic routes to be suitable, sufficient in number and adequately demarcated.

Construction vehicles and mobile plant left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights, reflectors or adequate barricades to prevent moving traffic from a sudden emergency, or to come into contact with the parked construction vehicles and mobile plant.

In addition construction vehicles and mobile plant left unattended after hours must be parked with all buckets, booms etc. full lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely.

All construction vehicles and mobile plant daily inspection records must be kept in the occupational health and safety file.

5.12 Electrical installations (Construction Regulation 24)

The installation of temporary electricity for construction use shall be in accordance with Construction Regulation 24 and the Electrical Installation Regulations.

The Consultant must ensure that:

- a. Existing services are to be located and clearly marked before construction commences and during the progress thereof;
- b. Where the abovementioned is not possible, employees with jackhammers etc. will be protected against electric shock by the use of suitable protective equipment e.g. rubber mats, insulated handles etcetera;
- c. Electrical installations and -machinery are sufficiently robust to withstand normal working conditions on site;
- d. Temporary electrical installations must be inspected at least once per week by a competent person and a record of the inspections kept on the occupational health and safety file;
- e. Electrical machinery used on a construction site must be inspected daily before start-up by the competent driver/operator or any other competent person and a record of the inspections kept on the occupational health and safety file; and

- f. A competent person appointed in writing must control all temporary electrical installations.

5.13 Use and storage of flammables (Construction Regulation 25)

The Consultant must ensure that:

- a. No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapors being present unless adequate precautions is taken;
- b. No flammables is used or applied e.g. in spay painting, unless in a room or cabinet or other enclosure specially designed and constructed for the purpose unless there is no danger of fire or explosion due to the application of adequate ventilation;
- c. The workplace is effectively ventilated. Where this cannot be achieved:
 - Employees must wear suitable respiratory equipment
 - No smoking or other sources of ignition is allowed in the area
 - The area is conspicuously demarcated as “flammable”
- d. Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container, cage or room that is kept locked with consistent access control measures in place and sufficient fire fighting equipment installed and fire prevention methods practiced for example proper housekeeping;
- e. Flammables stored in a permanent flammable store are stored so that no fire or explosion is caused i.e.:
 - Stored in a locked and well-ventilated reasonably fire resistant container, cage or room conspicuously demarcated as “Flammable Store – No Smoking or Naked Lights”
 - The flammables store to be constructed of two-hour fire retardant walls, door and roof and separated from adjoining rooms or workplaces by means of a two-hour fire retardant fire wall
 - Adequate and suitable fire fighting equipment installed in close vicinity of the flammables store and marked with the prescribed signs
 - All electrical switches and fittings to be of a flameproof design
 - Any work done with tools in a flammable store or work areas to be of a non-sparking nature
 - No Class A combustibles such as paper, cardboard, wood, plastic, straw etcetera to be stored together with flammables
 - The flammable store to be designed and constructed to, in the event of spillage of liquids in the store, to contain the full quantity + 10% of the liquids stored

- A sign indicating the capacity of the store to be displayed on the door
- f. Only one day's quantity of flammable is to be kept in the workplace;
- g. Containers (including empty containers) to be kept closed to prevent fumes/vapors from escaping and accumulating in low lying areas;
- h. Metal containers to be bonded to earth whilst decanting to prevent build-up of static forces; and
- i. Welding and other flammable gases to be stored segregated as to the type of gas and empty and full cylinders.

5.14 Housekeeping (Construction Regulation 27)

The Consultant must ensure that:

- a. Housekeeping is continuously implemented and maintained;
- b. Materials and equipment is properly stored;
- c. Scrap, waste and debris is removed off site regularly;
- d. Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and vehicular traffic;
- e. Waste and debris not to be removed by throwing from heights but by chute or crane;
- f. Where practicable, construction sites are fenced off to prevent entry of unauthorized persons;
- g. Catch platforms or -nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects;
- h. An unimpeded work space is maintained for every employee;
- i. Every workplace is kept clean, orderly and free of tools and the likes that are not required for the work being done;
- j. As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials;
- k. The walls and roof of every indoor workplace be sound and leak-free; and
- l. Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling.

5.15 Stacking and storage (Construction Regulation 28)

The Consultant must ensure that:

- a. A competent person is appointed in writing to supervise all stacking and storage on a construction site;
- b. Adequate storage areas are provided and demarcated;
- c. The storage areas are kept neat and under control;
- d. The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
- e. The items in the lower layers can support the weight exerted by the top layers;
- f. Cartons and other containers that may become unstable due to wet conditions are kept dry;
- g. Pallets and containers are in good condition and no material is allowed to spill out;
- h. The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector of the Department of Labour has been

obtained to build the stacks higher with the aid of a machine. (The operator of the machine must be protected against items falling from overhead or off the stack and no items may overhang);

- i. The articles that make up a single tier are consistently of the same size, shape and mass;
- j. Structures for supporting stacks are structurally sound and able to support the mass of the stack;
- k. No articles are removed from the bottom of the stack first but from the top tier first;
- l. Anybody climbing onto a stack can and does do it safely and that the stack is sufficiently stable to support him or her;
- m. Stacks that are in danger of collapsing are broken down and restacked;
- n. Stability of stacks are not threatened by vehicles or other moving plant and machinery;
- o. Stacks are built in a header and stretcher fashion and that corners are securely bonded; and
- p. Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations.

5.16 Storage of flammable and hazardous chemicals (Hazardous Chemical Substances Regulations)

See paragraphs 5.13 above and 5.22 below.

5.17 Fire prevention and protection

The Consultant must ensure that:

- a. The risk of fire is avoided;
- b. Sufficient and suitable storage of flammables is provided;
- c. Sources of ignition is obviated wherever flammable or highly combustible material is present in the workplace, for example:
 - Notices prohibiting smoking is displayed and enforced
 - Welding and flame cutting is only allowed under controlled conditions that includes written hot work permits and by duly competent persons
 - Only spark-free hand and power tools are used
 - No grinding, cutting and shaping of ferrous metals are allowed using electrically driven power tools that produces sparks
 - Flameproof switches and fittings are to be used in the flammable atmosphere
 - Good housekeeping is maintained to prevent the accumulation of unnecessary combustibles
 - Adequate ventilation is maintained
 - Adequate and suitable fixed and portable fire fighting equipment are provided and maintained in good working order with unrestricted access.
- d. Maintenance must include:
 - Regular inspections by a competent person appointed in writing and records of such inspections should be kept in the occupational health and safety file
 - Annual inspection and service by an accredited service provider
- e. All employees are instructed in the use of the fire fighting equipment and know how to attempt to extinguish a fire;

- f. A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;
- g. Employees are informed regarding emergency evacuation procedures and escape routes;
- h. Emergency escape routes are kept clear at all times and clearly marked;
- i. Evacuation assembly points are demarcated and made known to employees;
- j. Evacuation is regularly practiced to ensure that all persons are evacuated timeously and;
- k. Roll call is held after evacuation to account for all employees and to ensure that no-one including visitors and disabled persons have been left behind; and
- l. A clearly audible, to all persons on site, siren or alarm is fitted and regularly tested.

5.18 Eating, changing, washing and toilet facilities (Construction Regulation 30)

5.18.1 Toilets

- a. The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 30.
- b. Chemical toilets are allowed instead of the water borne sewerage type. Toilets have to be provided at a ratio of at least 1 toilet per 30 employees.

5.18.2 Showers

At least cold-water showers of some sort for each sex have to be provided at a ratio of at least 1 shower per 15 employees.

5.18.3 Change rooms

Some form of screened off changing facility must be provided separately for each sex.

5.18.4 Eating facility

Some form of eating facility sheltered from the sun, wind and rain must be provided.

5.18.5 Living accommodation

Where the site is in a remote location and transport to home is not readily available, reasonable and suitable living accommodation must be provided after obtaining of the necessary permission from authorities and adhering to requirements such as Bylaws of the local municipality.

5.19 Personal and other protective equipment (Sections 8, 15 and 23 of the OHSA)

The Consultant is required to proactively identify the hazards in the workplace and deal with them on an ongoing basis. He/she must either remove them or, where impracticable take steps to protect employees and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply re-engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered.

Where it is not possible to create an absolutely safe and healthy workplace the Consultant is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the Consultant maintain the said equipment that he/she instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s in a consistent and correct manner.

Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other valid reason, the employee cannot be allowed to continue working under the hazardous condition(s) for which the equipment was prescribed but an alternative solution has to be found that may include relocating the employee.

The Consultant may **not charge any fee** for protective equipment prescribed by him or her **but may charge for equipment under the following conditions**, following a disciplinary hearing:

- Where the employee requests additional issue in excess of what is prescribed;
- Where the employee has blatantly abused or neglected the equipment leading to early failure; and
- Where the employee has lost the equipment.

5.20 Portable electrical tools and equipment (Electrical Machinery Regulation 9)

Portable electrical tools and equipment includes every unit that takes electrical power from a 15 ampere plug point and is moved around for use in the workplace i.e. drills, saws, grindstones, portable lights, etcetera. In addition electrical appliances such as fridges, hotplates, heaters, and etcetera must be inspected regularly but at least on a weekly basis and maintained to the same standards as portable electrical tools and appliances.

The use, inspection and maintenance of portable electrical tools and equipment must be governed by the following:

- Regular inspections by a competent person appointed in writing;
- Inspection results must be recorded in a register;
- Only competent authorized persons are allowed to use portable electrical tools and equipment; and
- The correct protective equipment is worn/ used whilst operating portable electrical tools and equipment.

This equipment -

- Must be maintained in good condition at all times to prevent an electrical shock to the user;
- The main source should incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such; and
- All equipment must be fitted with a switch to allow for safe and easy starting and stopping.

5.21 Public health and safety (Section 9 of the OHSA)

The Consultant is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimize those dangers. This includes among others:

- a. Non- employees entering the site for whatever reason;
- b. The surrounding community; and
- c. Passers by the site.

Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times.

All non-employees entering the site must receive site applicable induction into the hazards and risks and the control measures for these.

5.22 Hazardous chemical substances

The Consultant must ensure that:

- a. Employees receive the necessary information and training to be able to use, handle and store hazardous chemical substances safely;
- b. Employees obey lawful instructions regarding:
 - The wearing and use of personal protective equipment
 - The use, handling and storage of hazardous chemical substances

- The prevention of the release of hazardous chemical substances
 - The wearing and using of exposure monitoring and measuring equipment
 - The cleaning up and disposal of materials containing hazardous chemical substances
 - Housekeeping, personal hygiene and the protection of the environment
- c. The risk assessments required in terms of Construction Regulation 9 include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace;
 - d. Suppliers provide the necessary information in the form of material safety data sheets regarding hazardous chemical substances required to ensure the safe use, handling and storage of these substances;
 - e. An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the said hazardous chemical substances;
 - f. Hazardous chemical substances containers be clearly marked as to the contents and main hazardous category e.g. “Flammable” or “Corrosive” and the reference number of the hazardous chemical substances on the list indicated above;
 - g. Hazardous chemical substances for example asbestos dust is not cleared by using compressed air but should be vacuumed;
 - h. No person eats or drinks in a hazardous chemical substances workplace; and
 - i. Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.

5.23 Excavations (including piling) (Construction Regulation 13)

Where excavations or any part thereof will exceed 1,5 meters in depth the Consultant will be required to submit a method statement which includes a risk assessment to TCTA for approval before commencing with the excavation and TCTA will issue a permit to proceed once the risk assessment and method statement is approved.

Regardless of the above, all excavation work has to comply with the following:

- 5.23.1 Excavation work must be carried out under the supervision of a competent person with at least two years practical experience in excavation work who has been appointed in writing.
- 5.23.2 Before excavation work begins the stability of the ground must be evaluated.
- 5.23.3 Whilst excavation work is being performed, the Consultant must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material.
- 5.23.4 No person may be required or permitted to work in an excavation that has not been adequately shored or braced.

- 2.23.5 Where the excavation is in stable material or where the sides of the excavation are sloped back to at least the maximum angle of repose measured relative to the horizontal plane, shoring or bracing may be left out **but only after** written permission has been obtained from the appointed competent person.
- 5.23.6 Shoring and bracing must be designed and constructed to safely support the sides of the excavation and prevent it from collapsing.
- 5.23.7 Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained, before excavation proceeds, whose opinion will be decisive. The opinion must be in writing and signed by TCTA or technologist as well as the appointed excavator.
- 5.23.8 No load or material may be placed near the edge of an excavation if it is likely to cause a collapse of the excavation, unless suitable shoring has been installed to be able to carry the additional load.
- 5.23.9 Neighbouring/adjoining buildings, structures or roads that may be affected or endangered by the excavation must be suitably protected.
- 5.23.10 Every excavation must be provided with means of access that must be within 6 metres of any employee within the excavation at any time.
- 5.23.11 The location and nature of any existing services such as water, electricity, gas, telecommunication etcetera must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for employees working in or near in the excavation.
- 5.23.12 Every excavation, including the shoring and bracing or any other method to prevent a possible collapse, must be inspected by the appointed competent person as follows:
- l. Daily before work commences
 - m. After every blasting operation
 - n. After an unexpected collapse of the excavation or part thereof
 - o. After substantial damage to any support
 - p. After rain
- 5.23.13 The results of any inspections must be recorded in a register kept on site in the health and safety file.
- 5.23.14 Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced off, on all sides, to at least one meter high and as close to the excavation perimeter as practicable.
- 5.23.15 Provided with warning lights or visible boundary indicators after dark or when visibility is poor.

5.23.16 Upon entering an excavation the requirements of General Safety Regulation 5 must be observed:

- Any confined space may only be entered after the air quality has been tested to ensure that it is safe to breathe and does not contain any flammable or noxious air mixture.
- The confined space must be purged and ventilated of any hazardous or flammable gas, vapour, dust or fumes.
- The safe atmosphere must be maintained.
- Employees are to be provided with breathing apparatus and wearing a safety harness with a rope with the free end of the rope being continuously attended to by a competent person outside the confined space.
- Furthermore, an additional person, trained in resuscitation, to be in full-time attendance immediately outside the confined space.
- Additional serviceable breathing and rescue apparatus is kept immediately outside the confined space for rescue purposes.
- All pipes, ducts etcetera that may leak into the confined space to be blanked off sufficiently to prevent any leakage or seepage.
- The employer must ensure that all employees have left the confined space after the completion of work.
- Where flammable gas is present on or in a confined space no work may be performed in close proximity to the flammable atmosphere that may ignite the flammable gas or vapour.

5.24 Blasting

The Consultant must ensure that:

- a. Blasting activities are carried out under the supervision of a competent person with at least five years practical experience in blasting who has been appointed in writing.
- b. A method statement is developed in accordance with all applicable explosives legislation, by an appointed person who is certified as a competent person in the use of explosives.
- c. The necessary permits are in place for the transportation of explosives to be used.
- d. Access to the blasting area is strictly restricted.
- e. No smoking or hot work is allowed close to explosives or the blasting areas.
- f. Reasonable steps are taken to prevent damage to structures in the vicinity of the blasting area.
- g. Any other industry required safety measures are considered and implemented specifically taking the construction site's specific requirements into account including the removal of any surplus explosives off the site.

5.25 Use of explosives

The Consultant shall comply with the requirements of the relevant Explosives Act for all requirements involving the use of explosives for the construction of the Works.

In addition to his compliance with the Explosives Act, the Consultant shall submit to TCTA, for his approval, a full and detailed Method Statement as to his proposals for the use of explosives in the construction of the Works. This shall be submitted at least 7 days before any blasting work is required, and shall include proposals for:

- a. The locations of blasting works;
- b. The location and size of storage magazines, explosives register, security fencing, earthing of building;
- c. Danger signs in English, Afrikaans and Xhosa that shall be prominently displayed at all areas where explosives are stored or used;
- d. Transportation of explosives to and from the magazine;
- e. Licenses required for the magazine(s);
- f. The storage at the place of use;
- g. The use of explosives and dealing with misfires;
- h. The types of explosive and detonators contemplated;
- i. Ensuring that all excavation spoil is free of undetonated caps;
- j. Fencing off excavation spoil dumps and preventing unauthorized entry; and
- k. The names, qualifications and experience of those people responsible for the handling and use of explosives. In addition to the blasting license referred to in the Explosives Act, the employees who shall be responsible for supervising the charging of drill holes with explosives and the blasting shall have documentary proof that they have at least five years experience in supervising the loading and firing of charges in surface works such as quarries or underground works such as tunnel excavation, depending on where it is proposed that they shall be employed.

Notwithstanding the provisions of the Explosives Act, any person who is licensed in the storage, handling and in the use of explosives must be literate, of good sight and hearing and well experienced in the work he is to carry out. TCTA shall have the right of access to storage areas and all registers.

Notwithstanding the provisions of the Explosives Act, the Consultant shall:

- a. Accept a decision of TCTA to suspend the holder of a blasting certificate for an act of negligence or a contravention of the Explosives Act, as if he, as the 'Employer' of the holder of the certificate had made that decision;
- b. Not permit the underground storage of explosives;
- c. Keep on site the originals of licenses for his own staff and acknowledged copies of licenses for any subcontracted works. All license holders will carry acknowledged copies on their person when at work. All blasting licenses or certificates should be valid for the period required on site; and
- d. Install and operate at each point where a blast is to take place a siren of sufficient volume to be easily heard above the general site noise from all points within a 1 km radius of any blast. Hand operated sirens may only be used in areas of restricted access such as a tunnel heading where access is fully controlled. Sirens will be sounded for at least 5 minutes before any blast takes place and will continue for one minute after the

blast has taken place. In addition to the above, the Consultant shall station men on roads and elsewhere with red flags to prevent persons, animals and traffic entering or remaining within the danger zone.

Care shall be taken to ensure that all possible approach routes to the danger zone are covered by these warning arrangements. Blasting shall not be carried out until occupants of any nearby buildings or working areas have been notified by the Consultant at least 24 hours in advance. After blasting, no person shall approach the area until it has been examined by the blasting supervisor or other responsible person and declared safe.

The Consultant shall provide for the approval of TCTA details of each and every blasting operation at least 24 hours before that operation is to be carried out. The details shall show the location of and the intended time of each blast, the number, size and length of each blast hole, the quantity and types of explosives and detonators to be used and the name of the licensed blaster and shift foreman responsible.

5.26 Working over or close to water

Where construction or other support work is undertaken over or in close proximity to water or similar liquids such as wastewater and sludge, the Consultant shall –

- a. Appoint a competent person in writing to supervise, control and inspect any work on or over or in close proximity of the water as well as the construction, installation, and dismantling of caissons and/or cofferdams and/or other support or safety structures;
- b. Ensure that written proof of the competence of above appointee is available on site;
- c. Ensure that risk assessments are carried out by the competent person before any work is undertaken, mitigation measures documented as well as implemented and thereafter evaluated on a daily basis;
- d. Undertake the necessary induction and refresher training;
- e. Ensure that measures for the timeous warning of flooding are in place;
- f. Ensure that provision is made to prevent employees from falling into the water and the rescuing of employees in danger of drowning;
- g. Ensure that where an employee is exposed to the risk of drowning by falling into the water, a lifejacket is provided to and worn by the employee; and
- h. Provide applicable personal protective equipment such as safety harnesses etcetera and enforce the utilization thereof.

5.27 Suspended Platforms

- 5.27.1 The Consultant shall ensure that all suspended platform work operations are carried out under the supervision of a competent person who has been appointed in writing, and that all suspended platform erectors, operators and inspectors are competent to carry out their work.
- 5.27.2 The Consultant shall not use or permit the use of a suspended platform, unless-
 - a. the design, stability and construction thereof comply with the applicable safety standards;

- b. he or she is in possession of a certificate of system design issued by a professional engineer, certificated engineer or a professional technologist for the use of the suspended platform system; and
 - c. he or she is, prior to the commencement of the work, in possession of an operational compliance plan developed by a competent person based on the certificate of system design and applicable to the environment in which the system is being used, this must include proof of the-
 - competent person who has been appointed for supervision;
 - competency of erectors, operators and inspectors;
 - operational design calculations which should comply with the requirements of the system design certificate;
 - performance test results;
 - sketches indicating the completed system with the operational loading capacity of the platform;
 - procedures for and records of inspections having been carried out; and
 - procedures for and records of maintenance work having been carried out.
- 5.27.3 The Consultant making use of a suspended platform system shall forward a copy of the certificate of system design issued by a professional engineer, certificated engineer or professional technologist including a copy of the design calculations, sketches and test results, to the provincial director of the Department of Labour before commencement of the use of the system and must further indicate the intended type of work the system would be used for.
- 5.27.4 The Consultant shall need not re-submit a copy of the certificate of system design for every new project, provided that the environment in which the system is being used does not change to such an extent that the system design certificate is no longer applicable and, should uncertainty exist of the applicability of the system design certificate, the decision of a professional engineer, certificated engineer or professional technologist will be decisive.
- 5.27.5 The Consultant shall ensure that the outriggers of each suspended platform-
- a. are constructed of steel or any other material of similar strength and have a safety factor of at least four in relation to the load it is to carry; and
 - b. have suspension points provided with stop devices or other effective devices at the outer ends to prevent the displacement of ropes.
- 5.27.6 The Consultant shall ensure that-
- a. the parts of the building or structure on which the outriggers are supported, are checked by means of calculations to ensure that the required safety factor is adhered to without risk of damage to the building or structure;
 - b. the suspension wire rope and the safety wire rope are separately connected to the outrigger;
 - c. each person on a suspended platform is provided with and wears a safety harness as a fall prevention device which must at all times, be attached to the suspended platform or to the

- anchorage points on the structure whilst on the suspended platform;
 - d. the hand or power driven machinery to be used for the lifting or lowering of the working platform of a suspended platform is constructed and maintained in such a manner that an uncontrolled movement of the working platform cannot occur;
 - e. the machinery referred to in paragraph (d) is so situated that it is easily accessible for inspection;
 - f. the rope connections to the outriggers are vertically above the connections to the working platform; and
 - g. where the working platform is suspended by two ropes only, the connections of the ropes to the working platform are of such height above the level of the working platform as to ensure the stability of the working platform.
- 5.27.7 The Consultant shall ensure that the suspended platform-
- a. is suspended as near as possible to the structure to which work is being done and, except when light work is being done, is secured at every working position to prevent horizontal movement between the suspended platform and the structure;
 - b. is fitted with anchorage points to which employees will attach the lanyards of the safety harnesses worn and used by the employees and such anchorage connections will have sufficient strength to withstand any potential load applied to it; and
 - c. is fitted with a conspicuous notice easily understandable by all employees working with the suspended platform, showing the maximum mass load which the suspended platform can carry.
- 5.27.8 The Consultant shall cause-
- a. the whole installation and all working parts of the suspended platform to be thoroughly examined in accordance with the manufacturer's specification;
 - b. the whole installation to be subjected to a performance test as determined by the standard to which the suspended platform was manufactured;
 - c. the performance test be undertaken by a competent person appointed in writing with the knowledge and experience of erection and maintenance of suspended platforms or similar machinery and who will determine the serviceability of the structures, ropes, machinery and safety devices before they are used, every time suspended platforms are erected; and
 - d. the performance test of the whole installation of the suspended platform to be subjected to a load equal to that prescribed by the manufacturer or, in the absence of such load, to a load of 110 per cent of the rated mass load, at intervals not exceeding 12 months and in such a manner that every part of the installation is stressed accordingly.
- 5.27.9 The Consultant shall cause every hoisting rope, hook or other load-attaching device which forms part of the suspended platform to be thoroughly examined in accordance with the manufacturer's specification by the competent person before they are used following every time they are assembled, and, in cases of continuous use, at intervals not exceeding three months.
- 5.27.10 The Consultant shall ensure that the suspended platform supervisor appointed, or the suspended platform inspector, carries out a daily inspection of all the equipment prior to use, including establishing whether-

- a. all connection bolts are secure;
 - b. all safety devices are functioning;
 - c. all safety devices are not tampered with or vandalized;
 - d. the maximum mass load of the platform is not exceeded;
 - e. the occupants in the suspended platform are using safety harnesses which have been properly attached;
 - f. there are no visible signs of damage to the equipment; and
 - g. all reported operating problems have been attended to.
- 5.27.11 The Consultant shall ensure that all inspection and performance test records are kept on the construction site at all times and made available to an inspector, TCTA, TCTA's agent or employee upon request.
- 5.27.12 The Consultant shall ensure that all employees required to work or to be supported on a suspended platform are-
- a. physically and psychologically fit to work safely in such an environment by being in possession of a valid medical certificate of fitness;
 - b. competent in conducting work related to suspended platforms safely;
 - c. trained or had received training which include at least-
 - how to access and egress the suspended platform safely;
 - how to correctly operate the controls and safety devices of the equipment;
 - information on the dangers related to the misuse of safety devices;
 - information on the procedures to be followed in the case of-
 - (i) an emergency;
 - (ii) the malfunctioning of equipment;
 - (iii) the discovery of a suspected defect in the equipment;
 and
 - instructions on the proper use of safety harnesses.
- 5.27.13 Where the outrigger is to be moved, the Consultant will ensure that only persons trained and competent to effect such move, perform this task and that an inspection be carried out and the results thereof be recorded by the competent person prior to re-use of the suspended platform.
- 5.27.14 The Consultant shall ensure that the suspended platform is properly isolated after use at the end of each working day such that no part of the suspended platform will present a danger to any person thereafter.

5.28 Transportation of employees

- 5.28.1 Any vehicle used to transport employees must have seats firmly secured and adequate for the number of employees to be carried.
- 5.28.2 The Consultant shall not allow employees to be transported in a goods vehicle unless the portion of the vehicle in which the employees are being conveyed is enclosed to a height of –
- a. at least 350 mm above the surface on which employees are seated; or
 - b. at least 900 mm above the surface on which employees are standing,

in a manner and with a material of sufficient strength to prevent employees from falling from such vehicle when it is in motion.

5.29 Epidemics

In the event of any outbreak of illness of a highly contagious or epidemic nature the Consultant shall comply with and carry out such regulations, orders and requirements as may be made by the relevant authorities.

5.30 Lightning

The Consultant shall take precautions against lightning by the use of lightning protection equipment and earthing mats, all of which shall be properly designed and installed to the satisfaction of TCTA. Metalwork and conductors on the site shall be properly earthed. No charging or blasting shall take place if the imminent approach of lightning to the site is forecast. All charged areas shall be immediately evacuated.

5.31 Health measures to address industrial hygiene

The Consultant shall institute and operate a medical screening and examination system for prospective employees. The screening system shall be established and monitored in consultation with TCTA, the Department of Health and the Department of Labour. Medical screening shall take place before employment, annually, and on termination of employment, for whatever reason.

Subject to the approval of TCTA, the Consultant shall establish a procedure for detecting and treating work related disorders, such as hearing defects or breathing disability. The procedures shall be a best working practice, and shall include for the medical examination of all people whom he proposes to employ on the works. Records of the prospective employee's history of employment and the results of similar examinations shall be required to be produced at this pre-employment examination and shall be duly recorded. The procedure shall also include for annual re-examination and a final one on completion of employment. In addition, further examinations at shorter intervals may be necessary due to the work environment of the employee. Medical examination records of all employees shall be kept by the Consultant on the site in a standard format approved by TCTA. These records shall be sent to TCTA on completion of the works, or sooner as requested by TCTA.

Work related disorders shall include, but not be limited to:

- a. The effect on hearing due to noise exposure. The Consultant shall not expose people to a noise level in excess of 85 dB(A) unless adequate hearing protection in the form of ear muffs or plugs, of a type approved by TCTA for the noise levels emitted, is supplied and worn. The medical examinations referred to above shall include audiometric measurement for air and bone conduction.
- b. The effects on the respiratory system due to dust exposure. The Consultant shall not expose people to dust levels in excess of those specified, unless adequate protection is provided by the use of dust masks or respiratory systems as approved by TCTA for the working

conditions prevailing. The examinations referred to above shall include radiographic testing for pneumoconiosis and other similar disorders.

- c. Chest diseases due to exposure to such contaminable diseases as tuberculosis. The examinations referred to above shall include tests by the use of radiographs and spirometry.
- d. Allergic symptoms due to exposure to conditions to which the person is allergic. Examinations shall include such tests as are appropriate, and will be carried out on demand only.
- e. Local or temporary disorders which may be due to poor sanitary conditions, lack of nutritional food value and the like. Examinations and testing shall be as appropriate and on demand only.

Where referral or rehabilitation is required, the Consultant shall obtain and keep recorded information as to the treatments given and the results achieved.

The Consultant shall identify and negotiate with locally based and operational HIV/Aids and tuberculoses NGOs to provide applicable HIV/Aids awareness training and counseling to the workforce. Suitable HIV/Aids referral facilities should also be identified.

6. Health and safety policy

The Consultant has to provide TCTA, as an annexure to the health and safety plan, with a detailed health and safety policy outlining the Consultant's stance on and principles adopted for health and safety.

7. Cost for health and safety measures during the construction process

To enable TCTA to comply with Construction Regulation 5(1) (g), all potential Consultants submitting tenders/bids have to demonstrate to TCTA that sufficient provision has been for the cost to implement and maintain the health and safety plan proposed by the Consultant to meet the requirements of this health and safety specification as well as that of the OHSA and its Regulations.

A detailed schedule of costs has to be included in the health and safety plan submitted as part of the potential Consultant's tender document. Failure by the Consultant to adhere to this requirement will force TCTA to reject the tender/bid in terms of Construction Regulation 5(1) (h).

8. Not Used

9. Overview of Attachments

Attachment 1: Specified framework for the Consultant's occupational health and safety plan.

Attachment 2: Legal compliance assessment.

Attachment 3: Measuring injury experience.

Attachment 4: A Sample SHE Risk Management Report.

Attachment 5: Not Used.

Attachment 6: Not Used.

Attachment 1: Health and Safety Plan

Specified framework for the principal contractor's occupational health and safety plan

1. Definitions

In this document the following expressions shall bear the meanings assigned to them below:

- 1.1 **Client** means any person for whom construction work is being performed and/or undertaken [i.e. Trans Caledon Tunnel Authority (TCTA) for purposes of this specification];
- 1.2 **Construction Regulations** means the Occupational Health and Safety Act's, No 85 of 1993, Construction Regulations that came into effect on 18 July 2003;
- 1.3 **Occupational health and safety plan** means a documented plan which addresses hazards identified and includes safe working procedures to mitigate, reduce or control the hazards identified;
- 1.4 **Occupational health and safety specification** means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons working and/or visiting the site;
- 1.5 **OHSACT** means the Occupational Health and Safety Act, No 85 of 1993, as amended; and
- 1.6 **Principal Contractor** means an employer, as defined by section 1 of the OHSACT who performs construction work and is appointed by the Client to be in overall control and management of the construction works.

2. Introduction

In terms of the Construction Regulations [Regulation 5 (1) (a)] of the OHSACT, the Client is required to compile an occupational health and safety specification for each of its projects and the principle contractor, appointed by the Client in terms of Regulation 5 (1) (k), is required to prepare an occupational health and safety plan.

This plan has to be prepared in terms of Regulation 5 (1) as well as the Client's occupational health and safety specification. In terms of Regulation 5 (1)(l), the Client and the principle contractor are required to agree on the occupational health and safety plan before any work may commence.

The principal contractor's health and safety plan has to follow the framework specified in this annexure a minimum guideline.

3. Specified framework for the Occupational Health and Safety Plan

3.1 Introduction

The principal contractor has to demonstrate to the Client that it has developed a suitable and sufficiently documented occupational health and safety plan for the specific project appointed as well as the necessary competencies, experience and resources to perform the construction work safely. The principle contractor should submit the following documentation for perusal and verification by the client:

- a. Management structure.
- b. Quality plan.
- c. Human resources plan.
- d. Registered workplace skills plan.
- e. "Letter of good standing" from the Compensation Commissioner or licensed compensation insurer.
- f. Proof of induction and other training of employees.
- g. Copy of minutes as an example of other project's occupational health and safety committee meetings and copies of incident investigation reports.

3.2 Contents of the occupational health and safety plan

3.2.1 Occupational health and safety management programme

The occupational health and safety management programme should at least provide a detailed overview of the following matters:

- a. Management of occupational health and safety risks.
- b. Occupational health and safety structures and appointments.
- c. Programme of occupational health and safety inspections.
- d. Occupational health and safety representatives.
- e. Occupational health and safety committee.

3.2.2 Communication principles and management of work

The communication and management principles to be applied should be in the format as illustrated in Attachment 4 herein and of the content to cover the minimum of the following:

- a. Management structure and responsibilities.
- b. Occupational health and safety goals for the project and arrangements for monitoring and reviewing occupational health and safety performance.
- c. Arrangements for:
 - Regular liaison between parties on site; and
 - Consultation with the workforce.
- d. The exchange of design information between the client, designers, supervisors and contractors on site.
- e. Handling of design changes during the project.
- f. Selection and control of contractors.
- g. The exchange of occupational health and safety information between all contractors on matter such as:
 - Security;
 - Site induction and onsite training;
 - Facilities and first-aid;
 - The reporting and investigation of accidents and incidents;
 - The production and approval of risk assessments and method statements;
 - OHSACT site rules; and
 - Fire and emergency procedures.

- h. Reporting to the client i.e. results of occupational health and safety inspections, incidents, incident investigations and committee meetings.
- i. Reporting of incidents to the Department of Labour and compensation insurer where appropriate.

3.2.3 Arrangements for controlling significant site risks and exposures

The following are some examples of the arrangements for controlling the most significant site risks/exposures:

3.2.3.1 Safety risks

- a. Services, including temporary electrical installations.
- b. Preventing employees from falling into excavations, from trucks etcetera.
- c. Work with, on or near fragile materials.
- d. Control of lifting operations.
- e. The maintenance of plant and equipment.
- f. Poor ground conditions.
- g. Traffic routes and segregation of vehicles and pedestrians.
- h. Storage of hazardous materials.
- i. Dealing with existing unstable structures and/or land.
- j. Accommodating adjacent land use.
- k. Other significant safety risks as and when identified.

3.2.3.2 Health risks

- a. Storage and use of hazardous chemical substances.
- b. Dealing with contaminated land or material.
- c. Manual handling.
- d. Reducing noise and vibration.
- e. Provision of adequate lighting.
- f. Ventilation considerations.
- g. Extreme heat and cold temperature considerations.
- h. Dealing with HIV/Aids and other illnesses.
- i. Provision of and maintaining ablution and eating facilities.
- j. Other significant health risks as and when identified.

3.3 Preparation of an occupational health and safety operational reference file and/or manual

The following are some of the minimum requirements to be addressed:

- a. Layout, format and content requirements.
- b. Arrangement for the collection and gathering of information.
- c. Storage and archiving of all the information.
- d. Copy to the client at completion of project.

3.3.1 Minimum contents of an occupational health and safety file and/or manual

- a. Occupational health and safety policy.

- b. Notice of new projects.
- c. Relevant site start-up documentation.
- d. Security measures.
- e. Copies of written designations and appointments.
- f. Arrangements with contractors and/or mandataries.
- g. Occupational health and safety rules and procedures.
- h. Induction training details.
- i. Occupational health and safety training.
- j. Occupational health and safety promotion.
- k. Occupational health and safety representatives.
- l. Occupational health and safety committees.
- m. Workplace facilities, for example ablution, sheltered eating areas etcetera.
- n. Personal protective equipment.
- o. Workplace inspections and assessments.
- p. Investigation and reporting of incidents and/or accidents.
- q. Mechanical safeguarding.
- r. Electrical safeguarding.
- s. Safeguarding against hazardous substances.
- t. Lifting machinery and equipment.
- u. Construction vehicles and mobile plant.
- v. Welding, heating and flame cutting.
- w. Excavations.
- x. Protection of the environment affected by construction activities.
- y. Keeping of records in terms of the OHSACT.

3.4 Risk assessments

Every principle contractor performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, ensure that a risk assessment is undertaken by a competent person, appointed in writing, and the risk assessment shall form part of the occupational health and safety plan and be implemented and maintained as contemplated in Construction Regulation 5 (1).

The risk assessment shall include, at least:

- a. The identification of the risks and hazards to which persons may be exposed to;
- b. The analysis and evaluation of the risks and hazards identified;
- c. A documented plan of safe working procedures (SWP) and any method statements to mitigate, reduce or control the risks and hazards that have been identified;
- d. A plan to monitor the application of the SWPs; and
- e. A plan to review the risk assessments as the work progresses and changes are introduced.

In order to ensure compliance with the Construction Regulations, the principal contractor will be required to carry out the following three forms of risk assessment:

3.4.1 Baseline or datum risk assessments

The principal contractor will be required carry out a risk assessment before the commencement of construction activities. This "baseline" or 'datum" risk assessment will form part of the principal contractor's health and safety plan. The risks and hazards to which persons, plant, vehicles and facilities may be exposed during the construction should be identified and evaluated. Measures to reduce or control these risks or hazards should be defined during this assessment. The effectiveness of the measures defined and the baseline risk assessment prepared shall be monitored and reviewed from time to time to ensure that it remains relevant and accurate

3.4.2 Issue based risk assessments

The Contractor will be required to carry out separate risk assessments during construction of the Works when methods and procedures are varied, for example when:

- a. Designs are amended,
- b. New machines are introduced,
- c. Plant is periodically cleaned and maintained,
- d. Plant is started-up or shut-down,
- e. Systems of work change or operations alter,
- f. Indents or near-misses occur, or
- g. Technological developments invalidate prior risk assessments

3.4.3 Continuous risk assessments

The OHSACT specifically requires that employers shall provide and maintain working environments that are safe and without risk to health. The general awareness of hazards needs to be raised as work ethic to maintain a safe and risk free environment on an ongoing basis. This is achieved by continuous risk assessments, the most important form of risk assessment that takes place as an integral part of day-to-day management. Examples of continuous risk assessments include:

- a. Regular audits,
- b. Maintaining general hazard awareness, and
- c. Pre-work risk assessment

The principal contractor's health and safety plan should include a comprehensive list (based on Annexure 7 of the client's occupational health and safety specification) to be carried out as well as the methodology to be followed. The plan should also include detailed site-specific occupational health and safety rules to be applied during the project.

3.5 Cost for health and safety measures during the construction process

To enable the Client to comply with Construction Regulation 4 (1) (h), all potential contractors submitting tenders have to demonstrate to the Client that sufficient provision has been for the cost to implement the health and health

and safety plan proposed by the principal contractor to meet the requirements of this health and safety specification as well as that of the OHSACT and its Regulations.

A detailed schedule of costs has to be included in the health and safety plan submitted as part of the potential principal contractor's tender document. Failure by the principal contractor to adhere to this requirement will force the Client to reject the tender in terms of Construction Regulation 4 (4).

Attachment 2: Legal Compliance Assessment

Occupational health, -safety and environment: Risk assessment checklist

(Based on the Construction Regulations of the Occupational Health and Safety Act)

** Denotes items applicable to both construction sites, contractor plant and storage yards*

ELEMENT	REMARKS
1. Administrative and legal requirements	
2. Education, training and promotion	
3. Public safety, security measures and emergency preparedness	
4. Personal protective equipment	
5. Housekeeping	
6. Working at heights (including roof work)	
7. Scaffolding, formwork and support work	
8. Ladders	
9. Electrical safeguarding	
10. Emergency, fire prevention and protection	
11. Excavations and demolition	
12. Tools	
13. Cranes	
14. Builder's hoist hoists	
15. Transport and materials handling equipment	
16. Site plant and machinery	
17. Plant and storage yard or site workshop specifics	
18. Workplace environment, health and hygiene	

1. Administrative and Legal Requirements

OHSA Section or Regulation	Subject	Requirements	Yes/N
Construction Regulation 4	Notice of carrying out Construction work	Department of Labour notified. Copy of notice available on site.	
General Admin. Regulation 4	*Copy of OHSA	Updated copy of the OHSA and Regulations on site. Readily available for perusal by all employees.	
COID Act Section 80	*Registration with Compensation Commissioner or other approved compensation insurer	Written proof of registration/Letter of good standing available on site.	
Construction Regulation 5 & 7(1)	OHSA specification, plans and programme	OHSA spec received from TCTA. OHSA plan developed. OHSA programme implemented. Plans and programme updated regularly.	
Section 8(2)(d) Construction Regulation 9	*Hazard identification and risk assessment	Hazard identification carried out and recorded. Risk assessment and –plan drawn up and updated. Employees and sub-contractors informed and trained.	
Section 16(2)	*Assigned duties (Managers)	Responsibility of complying with the OHSA assigned to other person/s by CEO.	
Construction Regulation 8(1)	Designation of person responsible on site	Competent person appointed in writing as construction supervisor.	
Construction Regulation 8(2)	Designation of assistant for responsible person	Competent person appointed in writing as assistant construction supervisor.	
Section 17 & 18 and General Administrative Regulations 6 & 7	*Election and designation of occupational health and safety representatives	More than 20 employees - one representative and one additional representative for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful reports. Reports actioned by management.	
Section 19 & 20 and General Administrative Regulations 5	*Occupational health and safety committee/s	Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by management.	
Section 37(1) & (2)	*Agreement with mandataries, contractors and sub-contractors	Written agreement with contractors and sub-contractors. List of contractors and sub-contractors displayed. Proof of Registration with Compensation Commissioner or Compensation Insurer as well as Letter of Good Standing. Construction Supervisor designated. Written arrangements regarding representatives and committee. Written arrangements regarding first-aid.	
Section 24 and General Administrative Regulation 8	*Reporting of incidents (Department of Labour)	Incident reporting procedure displayed. All incidents in terms of section 24 reported to the Provincial Director, Department of Labour, within 3 days (Annexure 1 and/or	

OHS Act Section or Regulation	Subject	Requirements	Yes/N
COIDA Act Section 38, 39 and 41		WCL 1 or 2). Cases of occupational disease reported. Copies of reports available on site. Record of first-aid injuries kept.	
General Administrative Regulation 9	*Investigation and recording of incidents	All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing. Copies of reports (Annexure 1) available on site. Tabled at committee meeting. Action taken by site management.	
Construction Regulation 10	Fall prevention and protection	Competent person appointed to draw up and supervise the fall protection plan. Proof of appointees' competence available on site. Risk assessment carried out for work at heights. Fall protection plan drawn up and updated. Plan available on site.	
Construction Regulation 10(5)	Roof work	Competent person appointed to plan & supervise roof work. Proof of appointees' competence available on site. Risk assessment carried out. Roof work plan drawn up and updated. Roof work inspected before each shift and inspection register kept. Employees medically examined for physical and psychological fitness and written proof on site.	
Construction Regulation 11	Structures	Information regarding the structure being erected received from the designer including: <ul style="list-style-type: none"> • geo-science technical report where relevant; • the design loading of the structure; • the methods and sequence of construction; and • anticipated dangers, hazards and/or special measures to construct safely. Risk assessment carried out. Method statement drawn up. All above available on site. Structures inspected before each shift. Inspection register kept.	
Construction Regulation 12	Temporary works	Competent person appointed in writing to supervise erection, maintenance, use and dismantling of support and formwork. Design drawings available on site. Risk assessment carried out. Support and formwork inspected: <ul style="list-style-type: none"> • before use and inspection; • before pouring of concrete; • weekly whilst in place; and • before stripping or dismantling and inspection register kept. 	

OHSA Section or Regulation	Subject	Requirements	Yes/N
Construction Regulation 16	Scaffolding	<p>Competent persons appointed in writing to:</p> <ul style="list-style-type: none"> • erect scaffolding (scaffold erector/s); • act as scaffold team leaders; and • inspect scaffolding weekly and after inclement weather (scaffold inspector/s). <p>Written proof of competence of above appointees. Appointees available on site. Copy of SABS 085 available on site. Risk assessment carried out. Inspected weekly and/or after bad weather. Inspection register/s kept.</p>	
Construction Regulation 17	Suspended platforms	<p>Competent persons appointed in writing to:</p> <ul style="list-style-type: none"> • control the erection of suspended platforms; • act as suspended platform team leaders; and • inspect suspended scaffolding weekly and after inclement weather. <p>Risk assessment conducted. Certificate of authorization issued by a registered professional engineer available on site and copy forwarded to the Department of Labour. The following inspections of the whole installation carried out by a competent person</p> <ul style="list-style-type: none"> • after erection and before use; • daily prior to use; and • inspection register kept. <p>The following tests to be conducted by a competent person:</p> <ul style="list-style-type: none"> • load test of whole installation and working parts every 12 months; and • hoisting ropes, hooks and load attaching devices quarterly; and • tests log book kept. <p>Employees working on suspended platforms should be medically examined for physical and psychological fitness. Written proof available.</p>	
Construction Regulation 13	Excavations	<p>Competent person/s appointed in writing to supervise and inspect excavation work. Written proof of competence of above appointee/s available on site. Risk assessment carried out. Excavations inspected:</p> <ul style="list-style-type: none"> • before every shift; • after any blasting; • after an unexpected fall of ground; • after any substantial damage to the shoring; and • after rain. <p>Inspections register kept.</p>	

OHSA Section or Regulation	Subject	Requirements	Yes/N
		Method statement developed where explosives will be and/or are used.	
Construction Regulation 14	Demolition work	Competent person/s appointed in writing to supervise and control demolition work. Written proof of competence of above appointee/s available on site. Risk assessment carried out. Engineering survey and method statement available on site. Inspections to prevent premature collapse carried out by competent person before each shift. Inspection register kept.	
Construction Regulation 19	Materials hoist	Competent person appointed in writing to inspect the material hoist. Written proof of competence of above appointee available on site. Materials hoist to be inspected weekly by a competent person. Inspection register kept.	
Construction Regulation 26	Water environments (including caissons and cofferdams)	Competent person appointed in writing to supervise, control and inspect work on or over water and the construction, installation, and dismantling of caissons and/or cofferdams. Written proof of competence of above appointee available on site. Risk assessment carried by a competent person on a daily basis. Inspection register kept.	
Construction Regulation 21	Explosive powered tools	Competent person appointed to control the issue of the explosive powered tools and cartridges as well as the service, maintenance and cleaning. Register kept of above. Empty cartridge cases, nails and fixing bolts returns recorded. Cleaned daily after use.	
Construction Regulation 20	Bulk Mixing plants	Competent person appointed to control the operation of the batch plant as well as the service, maintenance and cleaning of this plant. Register kept of above. Risk assessment carried out. Batch plant to be inspected weekly by a competent person and inspections register kept.	
Construction Regulation 15 and Mine Health and Safety Act	Tunneling	Complying with Mines Health and Safety Act (29 of 1996). Risk Assessment carried out.	
Construction Regulation 22 Driven Machinery Regulations 18 and 19	Cranes and lifting machines equipment	Competent person appointed in writing to inspect cranes, lifting machines and equipment. Written proof of competence of above appointee available on site. Cranes and lifting tackle identified and	

OHSA Section or Regulation	Subject	Requirements	Yes/N
		<p>numbered. Register kept for lifting tackle. Logbook kept for each individual crane. Inspection:</p> <ul style="list-style-type: none"> • All cranes: Daily by operator. • Tower cranes: After erection and thereafter 6 monthly. • Other cranes: Annually by competent person. • Lifting tackle (slings, ropes, chain slings etcetera): Three monthly. 	
<p>Construction Regulation 24 Electrical Machinery Regulations 9 and 10 Electrical Installation Regulations</p>	<p>*Inspection and maintenance of electrical installation and equipment (including portable electrical tools)</p>	<p>Competent person appointed in writing to inspect/test the installation and equipment. Written proof of competence of above appointee available on site. Inspections:</p> <ul style="list-style-type: none"> • Electrical installation and equipment inspected after installation, alterations and quarterly thereafter. Inspection registers kept. • Portable electric tools and -lights and extension leads identified/numbered. • Monthly visual inspection by user, issuer or storeman. Register kept. 	
<p>Diving Regulations</p>	<p>Diving operations</p>	<p>Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an approved inspection authority of equipment used. Written proof of competence of above appointee available on site. Proof of registration of all divers present on site available. Risk assessment carried out. Diving manual produced and available on site. Record of voice communications kept. Diving operations record kept. Each diver keeps a personal logbook and entries countersigned by the diving supervisor. Decompression tables available on site. Records of any decompression illness kept. Certificate of manufacture of any compression chamber or diving bell in use available on site.</p>	
<p>Construction Regulation 28 General Safety Regulation 8(1)(a)</p>	<p>*Designation of stacking and storage supervisor</p>	<p>Competent persons with specific knowledge and experience designated to supervise all stacking and storage. Written proof of competence of above</p>	

OHSA Section or Regulation	Subject	Requirements	Yes/N
		appointee available on site.	
Construction Regulation 29 Environmental Regulation 9	*Designation of a person to coordinate emergency planning and fire protection	<p>Person/s with specific knowledge and experience designated to coordinate emergency contingency planning and execution and fire prevention measures.</p> <p>Emergency evacuation plan:</p> <ul style="list-style-type: none"> • Developed and available on site; • Drilled and practiced; and • Records of drills and practices available on site. <p>Fire risk assessment carried out.</p> <p>All fire extinguishing equipment:</p> <ul style="list-style-type: none"> • Identified and on register; • Inspected weekly and inspection registers kept; • Replaced after use; and • Serviced annually. 	
General Safety Regulation 3	*First-aid	<p>Every workplace provided with sufficient number of first-aid boxes (required where 5 persons or more are employed).</p> <p>First-aid boxes freely available.</p> <p>Content of boxes as per the minimum requirements of the OHSA.</p> <p>One qualified First-aider appointed for every 50 employees (required where more than 10 persons are employed).</p> <p>List of First-aiders and competency certificates available on site.</p> <p>Name and contact details of person in charge of first-aid box clearly displayed.</p> <p>Location of first-aid boxes clearly demarcated.</p> <p>Signs instructing employees to report all injuries and/or illness including first-aid injuries.</p>	
General Safety Regulation 2	Personal protective equipment (PPE)	<p>PPE risk assessment carried out.</p> <p>Items of PPE prescribed and use enforced.</p> <p>Records of issue kept.</p> <p>Undertaking by employee to use and/or wear PPE.</p>	
General Safety Regulation 9	*Inspection and use of welding and/or flame cutting equipment	<p>Competent person/s with specific knowledge and experience designated to inspect electric arc, gas welding and flame cutting equipment.</p> <p>Written proof of competence of above appointee available on site.</p> <p>Equipment identified/numbered and entered into a register.</p> <p>Equipment inspected monthly.</p> <p>Inspection register kept.</p>	
Hazardous Chemical Substances (HCS) Regulations Construction Regulation 25	*Control of storage and usage of HCS and other flammables	<p>Competent person/s with specific knowledge and experience designated to control the storage and usage of HCS (including flammables).</p> <p>Written proof of competence of above appointee available on site.</p> <p>Risk assessment carried out.</p>	

OHSA Section or Regulation	Subject	Requirements	Yes/N
		Register of HCS kept and/or used on site.	
Vessels under Pressure Regulations	Vessels under pressure (VUP)	Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections and testing of VUPs. Written proof of competence of above appointee available on site. Risk assessment carried out. Certificates of manufacture available on site. Register of VUPs on site. Inspections and testing by approved inspection authority (AIA): <ul style="list-style-type: none"> • after installation, re-erection or repairs; • every 36 months; and • register or log kept of inspections, tests, modifications and repair on site. 	
Construction Regulation 23	Construction vehicles and earth moving equipment	Operators or drivers appointed to: <ul style="list-style-type: none"> • Carry out a daily inspection prior to use; and • Drive the vehicle or plant that he/she is competent to drive or operate. Written proof of competence of above appointee available on site. Record of daily inspections kept on site.	
General Safety Regulation 13A	*Inspection of Ladders	Competent person appointed in writing to inspect ladders. Ladders inspected at arrival on site and monthly thereafter. Inspections register kept on site.	
General Safety regulation 13B	Ramps	Competent person appointed in writing to supervise the erection and inspection of ramps. Inspection register kept on site.	

2. Education, training and promotion

Subject	Requirement	Yes/No
*Occupational Health and Safety Policy as per OHSA Section 7(1)	Policy signed by CEO and published and communicated to employees. Policy displayed on employee notice boards. Management and employees committed.	
*Company and site health and safety rules as per OHSA Section 13(a)	Rules published. Rules displayed on employee notice boards. Rules issued and explained to employees with written proof hereof. Follow-up to ensure employees understand and adhere to the rules.	
*Induction and task safety training as per OHSA Section 13(a)	All new employees receive health and safety induction training. Training includes task safety instructions. Employees acknowledge receipt of training. Follow-up to ensure employees understand and adhere to instructions.	
*General health and safety training as per OHSA Section 13(a)	All employees receive basic health and safety training. Written proof kept. Operators of plant and equipment receive specialized training. Follow-up to ensure employees understand and adhere to instructions.	
*Occupational	Incident experience board indicating among others -	

Subject	Requirement	Yes/No
health and safety promotion	<ul style="list-style-type: none"> Number of hours worked without an injury; and Number of days worked without an injury. Safety grading - Board kept up to date. Relevant safety posters displayed and changed regularly. Employee notice board for health and safety notices. Site health and safety competitions. Company health and safety competition. Participation in regional health and safety competitions. Suggestion scheme.	

3. Public safety, security measures and emergency preparedness

Subject	Requirement	Yes/No
*Notices and signs Site safeguarding *Security measures *Emergency preparedness *Emergency drill and evacuation	Notices and signs at entrances along perimeters indicating “ No unauthorized entry ” and “ Entry at own risk ”. Notices and signs at entrance instructing visitors and non-employees what to do, where to go and where to report on entering the site or yard with directional signs for example “ Visitors to report to office ”. Notices and signs posted to warn of overhead work and other hazardous activities for example General Warning Signs . Nets, canopies, stills, fans etcetera to protect members of the public passing and/or entering the site. Access control measures and register in operation. Security patrols after hours and weekends. Sufficient lighting after dark. Guard has access to telephone or other means of emergency communication. Emergency contact numbers displayed near telephone. Emergency evacuation instructions posted up on all notice boards (including employees' notice boards). Emergency contingency plan available on site or in yard. Doors open outwards and unobstructed. Emergency alarm audible all over (including in toilets). Adequate number of employees trained to use fire equipment. Emergency evacuation plan available, displayed and practiced. (See Section 1 for designation and register).	

4. Personal protective equipment (PPE)

Subject	Requirement	Yes/No
*PPE needs analysis	Need for PPE identified and prescribed in writing.	
*Head protection	It is compulsory for all persons on site to wear safety helmets including sub-contractors and visitors (where prescribed).	
*Foot protection	All persons on site have to wear safety footwear including gumboots for concrete or wet work and non-slip shoes for roof work.	
*Eye and face protection	Eye and face protection (such as goggles, face shields, welding helmets) to be used when operating the following: <ul style="list-style-type: none"> Jack or kango hammers; Angle or bench grinders; Electric drills (overhead work into concrete, cement and bricks); Explosive powered tools; Concrete vibrators or pokers; 	

Subject	Requirement	Yes/No
	<ul style="list-style-type: none"> Hammers and chisels; Cutting or welding torches; Arc welding equipment; Skill or bench saws; and Spray-painting equipment etcetera. 	
*Hearing protection	<p>Hearing Protectors (such as muffs, plugs) used when operating the following:</p> <ul style="list-style-type: none"> Jack or kango hammers; Explosive powered tools; and Wood or aluminum working machines such as saws, planers, routers. 	
*Hand protection	<p>Protective gloves to be worn by employees handling or using:</p> <ul style="list-style-type: none"> Cement, bricks, steel or chemicals; Welding equipment; Hammers and chisels; and Jack or kango hammers etcetera. 	
*Respiratory protection	<p>Suitable and efficient respirators to be worn correctly by employees handling or using:</p> <ul style="list-style-type: none"> Dry cement; Dusty areas; Hazardous chemicals; Angle grinders; and Spray-painting etcetera. 	
*Fall Prevention Equipment	<p>Suitable safety belts or fall arrest equipment correctly used by persons working on or in unguarded, elevated positions such as:</p> <ul style="list-style-type: none"> Scaffolding; Riggers; Lift shafts; Edge work; and Ring beam edges etcetera. <p>Other applicable methods of fall prevention should al be applied such as catch nets.</p>	
*Protective clothing	<p>All jobs requiring protective clothing (such as overalls, rain wear, welding aprons etcetera) to be identified and clothing worn.</p>	
*PPE issue and control	<p>Identified equipment to be issued free of charge.</p> <p>All PPE should be maintained in good condition (i.e. regular checks).</p> <p>Workers instructed in the proper use and maintenance of PPE.</p> <p>Commitment obtained from wearer accepting conditions and to wear the PPE.</p> <p>Record of PPE issued kept on file.</p>	

5. Housekeeping

Subject	Requirement	Yes/No
*Scrap removal system	<p>All items of scrap, unusable off cuts, rubble and redundant material removed from working areas on a regular basis.</p> <p>Scrap and/or waste removal from heights by chute, hoist or crane (i.e. nothing thrown or swept over sides).</p> <p>Scrap disposed of in designated containers or areas.</p> <p>Removal from site or yard on a regular basis.</p>	
Stacking and storage (See Section 1 for designation and register)	<p>Stacking:</p> <ul style="list-style-type: none"> Stable; On firm level surface or base; Not leaning and/or collapsing; Irregular shapes bonded; 	

Subject	Requirement	Yes/No
	<ul style="list-style-type: none"> Not exceeding 3 times the base; Stacks accessible; and Removal from top only. <p>Storage:</p> <ul style="list-style-type: none"> Adequate storage areas provided; Functional for example demarcated storage areas, racks, bins etcetera; Special areas identified and demarcated for example flammable gas, cement etcetera; Neat, safe, stable and square; Store and storage areas clear of superfluous material; Storage behind sheds etcetera should be neat and under control; and Storage areas free from weeds, litter etcetera. 	
*Waste control or reclamation	<p>Re-usable off cuts and other re-useable material removed daily and kept to a minimum in the work areas.</p> <p>All re-useable materials neatly stacked or stored in designated areas (i.e. nails removed or bent over in re-useable timber).</p> <p>Issue of hardware, nails, screws and cartridges etcetera should be controlled and return of unused items monitored.</p>	
Sub-contractors	Sub-contractors required to comply with the site or yard's housekeeping requirements.	

6. Working at heights (including roof work)

Subject	Requirement	Yes/No
Openings	<p>Unprotected openings adequately guarded, fenced and barricaded with catch nets installed where necessary.</p> <p>Covers over openings in roof of robust construction and secured against displacement.</p>	
General requirements	<p>Roof work discontinued when bad or hazardous weather prevails.</p> <p>Fall protection measures (including warning notices) when working close to edges or on fragile roofing material.</p>	

7. Scaffolding, formwork and support work

Subject	Requirement	Yes/No
Access and system scaffolding (See Section 1 for designation and register)	<p>Foundation firm and stable.</p> <p>Sufficient bracing.</p> <p>Tied to structure and secured from side or cross movement.</p> <p>Platform boards in good condition and secured.</p> <p>Sufficient platform boards to be used.</p> <p>Handrails and toe boards provided.</p> <p>Access ladders or stairs provided.</p> <p>Area/s under scaffolding tidy.</p> <p>Safe and unsafe for use signs to be used.</p> <p>Complying with OHSA and SABS 085.</p>	
Free Standing Scaffolding	<p>Foundation firm and stable.</p> <p>Sufficient bracing.</p> <p>Platform boards in good condition and secured.</p> <p>Sufficient platform boards to be used.</p>	

Subject	Requirement	Yes/No
	Handrails and toe boards provided. Access ladders or stairs provided. Area/s under scaffolding tidy. Safe or unsafe for use signs to be used. Height and base ratio correct. Outriggers used and tied to structure where necessary. Complying with OHSA and SABS 085.	
*Mobile scaffolding	Foundation firm and stable. Sufficient bracing. Platform boards in good condition and secured. Sufficient platform boards to be used. Handrails and toe boards provided. Access ladders or stairs provided. Area/s under scaffolding tidy. Safe and unsafe for use signs to be used. Wheels and swivels in good condition Brakes working and applied. Height to base ratio correct. Outriggers used where necessary. Complying with OHSA and SABS 085.	
Suspended scaffolding	Outriggers securely supported and anchored. Correct number of steel wire ropes used. Platform as close as possible to the structure. Handrails on all sides. All winches, ropes, cables and brakes inspected regularly. Inspection registers kept on site. Scaffolding complies with OHSA. Winches maintained by competent person.	
Formwork and support work	All components in good condition. Foundation firm and stable. Adequate bracing and stability ensured. Good workmanship, uprights straight and plum. Good cantilever construction. Safe access provided. Areas under support work tidy. Same standards as for system scaffolding.	
Special scaffolding	Special scaffolding for example cantilever, jib and truss-out scaffolds erected to an acceptable standard and inspected by specialists. Inspection registers to be kept on site.	
Edges and openings	Edges barricaded to acceptable standards. Manhole openings covered and/or barricaded. Openings in floor and other openings covered, barricaded or fenced. Stairs provided with handrails. Lift shafts barricaded or fenced off.	

8. Ladders

Subject	Requirement	Yes/No
*Physical condition, use and storage (See Section 1 for designation and register)	Stepladders – hinges, stays, braces and stiles in order. Extension ladders – ropes, rungs, stiles, safety latch and hook in order. Extension or straight ladders secured or tied at the bottom or top. No joined ladders used. All ladders stored on hooks or racks and not on ground. Ladders protrude 900 mm above landings, platforms or roof. Fixed ladders higher than 5 m have cages or fall arrest system.	

9. Electrical safeguarding

Subject	Requirement	Yes/No
*Electrical distribution boards and earth leakage	Colour coded, numbered and symbolic sign displayed. Area in front kept clear and unobstructed. Fitted with inside cover plate, openings blanked off and no exposed "live" conductors or terminals. Door kept close. Switches and/or circuit breakers identified. Earth leakage protection unit fitted and operating. Tested with instrument - test results within 15 – 30 milli-amps. Aperture openings provided for the plugging in and removal of extension leads without the need to open the door.	
*Electrical installations and wiring	Temporary wiring or extension leads in good condition with no bare or exposed wires. Earthing continuity and polarity correct: "Brown is live, Blue is neutral, Green and Yellow earth the lot" Cables protected from mechanical damage and moisture. Correct loading observed for example no heating appliance used from lighting circuit etcetera. Light fittings and lamps protected from mechanical damage/moisture.	
*Physical condition of electrical appliances and tools	Electrical Equipment and Tools (includes all items plugging in to a 15 Amp supply socket): <ul style="list-style-type: none"> • Insulation and casing in good condition. • Earth wire connected or intact where not of double insulated design. • Double insulation mark where no earth wire. • Cord in good condition/no bare wires/secured to machine & plug. • Plug in good condition, connected correctly and correct polarity. 	

10. Emergency, fire prevention and protection

Subject	Requirement	Yes/No
*Fire extinguishing equipment (See Section 1 for designation and register)	Fire Risks Identified and on record. Fire Extinguishing Equipment available for: <ul style="list-style-type: none"> • Offices; • General stores; • Flammable store; • Fuel storage tanks; • Gas welding or cutting operations; and • Where flammable substances are being used or applied. 	
*Maintenance	Fire equipment serviced minimum annually, but preferably 6 monthly.	
*Location & Signs	Fire Extinguishing Equipment: <ul style="list-style-type: none"> • Clearly visible; • Unobstructed; and • Sign posted including "No Smoking" and "No Naked Lights" where required i.e. (flammable store, gas store, fuel tanks etc.). 	
* Storage issue and control of flammables (incl. gas cylinders)	Storage area provided for flammables with suitable doors, ventilation, bund etcetera. Flammable store neat and tidy with no Class A combustibles. Decanting of flammable substances carried out in ignition free and	

Subject	Requirement	Yes/No
	adequately ventilated area. Container bonding principles applied. Only sufficient quantities issued for one day's use. Special gas cylinder store or storage area. Gas cylinders stored, used and transported upright and secured in trolley, cradle or structure that is well ventilated. Types of gas cylinders identified and stored separately. Full cylinders stored separately from empty cylinders.	
*Storage, issue and control of Hazardous Chemical Substances (HCS) (See Section 1 for designation and register)	HCS storage principles applied i.e. products segregated. Provision made for leakage and spillage containment. Emergency (serviceable) showers and eye wash facilities provided. HCS under lock and key as well as controlled by designated person. Decanted or issued in containers with information and warning labels. Disposal of unwanted HCS by recognized disposal agent.	

11. Excavations and demolition

Subject	Requirement	Yes/No
Excavations deeper than 1.5 m. (See Section 1 for designation and register)	Shored or braced to prevent caving or falling in. Provided with an access ladder. Excavations guarded, barricaded or lighted after dark in public areas. Soil dumped at least 1 m away from edge of excavation. On sloping ground soil dumped on lower side of excavation.	

12. Tools

Subject	Requirement	Yes/No
*Hand tools	Shovels, Spades and Picks: <ul style="list-style-type: none"> Handles free from cracks and splinters; Handles fit securely; and Working end sharp and true. Hammers: <ul style="list-style-type: none"> Good quality handles, no pipe or reinforcing steel handles; Handles free from cracks and splinters; and Handles fit securely. Chisels: <ul style="list-style-type: none"> No mushroomed heads or heads chamfered; Not hardened; and Cutting edge sharp and square. Saws: <ul style="list-style-type: none"> Teeth sharp and set correctly; and Correct saw used for the job. 	
*Explosive powered tools (See Section 1 for designation and register)	Only used by trained and authorised personnel. Prescribed warning signs placed or displayed where tool is in use. Inspected at least monthly by competent person and results recorded in on site register. Issue and return recorded including cartridges or nails and unused cartridges, nails, empty shells recorded. Cleaned daily after use in on site register.	

13. Cranes

Subject	Requirement	Yes/N
Tower crane (See Section 1 for designation and register)	<p>Only operated by trained authorized operator with valid certificate of training.</p> <p>Certificate available on site.</p> <p>Structure - no visible defects.</p> <p>Electrical installation good and safe.</p> <p>Crane hook - throat pop marked, safety latch fitted and functional.</p> <p>SWL/MML displayed.</p> <p>Limit switches fitted and operational.</p> <p>Access ladder fitted with backrests or fall arrest system installed.</p> <p>Lifting tackle in good condition and inspection colour coding current.</p>	
*Mobile crane (See Section 1 for designation and register)	<p>Only operated by trained authorized operator with valid certificate of training.</p> <p>Certificate available on site.</p> <p>Rear view mirrors and windscreen visibility good.</p> <p>Windscreen wipers operating effectively.</p> <p>Indicators operational.</p> <p>Hooter working.</p> <p>Tyres safe with sufficient tread and pressure visibly sufficient.</p> <p>No missing wheel nuts.</p> <p>Headlights, taillights operational.</p> <p>Grease nipples and grease on all joints.</p> <p>No visible oil leaks.</p> <p>Hydraulic pipes visibly sound with no leaks.</p> <p>No undue corrosion on battery terminals.</p> <p>Boom visibly in good condition with no apparent damage.</p> <p>Cable and sheaves greased with no visible damage, split wires or corrosion.</p> <p>Brakes working properly.</p> <p>Crane hook - throat pop marked, safety latch fitted and functional.</p> <p>SWL/MML displayed.</p> <p>By-pass valves operational.</p> <p>Deflection chart displayed and visible to operator or driver.</p> <p>Outriggers functional used.</p>	
*Gantry crane	<p>Only operated by trained authorized persons.</p> <p>Correct slinging techniques used.</p> <p>Recognized displayed on chart signals used.</p> <p>Log book kept up to date.</p> <p>Prescribed inspections conducted on crane and lifting tackle.</p> <p>"Crane overhead" signage, where applicable.</p> <p>Crane hook - throat pop marked, safety latch fitted and functional.</p> <p>SWL/MML displayed and load limiting switches fitted and operational.</p>	

14. Builder's hoist

Subject	Requirement	Yes/N
Builder's hoist (See Section 1 for designation and register)	<p>"Hoist in operation" - sign displayed.</p> <p>General construction strong and free from latent defects.</p> <p>Tower:</p> <ul style="list-style-type: none"> • Adequately secured and braced. • At least 900 mm available for over travel. • Barricaded at least 2 100 mm high at ground level and floors. • Landing place provided with gate at least 1 800 high. <p>Platform:</p>	

Subject	Requirement	Yes/N
	<ul style="list-style-type: none"> No persons conveyed on platform. Steel wire ropes with breaking strain of six times maximum weight. Signal systems used. Goods prevented from moving/falling off. Effective brake capable of holding maximum weight. 	

15. Transport and materials handling equipment

Subject	Requirement	Yes/N
*Site vehicles	<p>All site vehicles, dumpers, bobcats, loaders etcetera checked daily before used by driver or operator.</p> <p>Inventory of vehicles used/operated on site.</p> <p>Inspection by means of a checklist and results recorded.</p> <p>No persons will ride on equipment not designed for passengers.</p> <p>Site speed limit posted and not exceeded.</p> <p>Drivers and operators trained and licensed.</p> <p>Licenses available on site.</p> <p>No unauthorized persons allowed to drive or operate equipment.</p>	
Conveyors	<p>Conveyor belt nip points and drive guarded.</p> <p>Emergency stop and lever brake fitted, clearly marked and accessible.</p>	

16. Site plant and machinery

Subject	Requirement	Yes/N
Brick cutting machine	<p>Operator trained and only authorized persons use the machine.</p> <p>Emergency stop switch clearly marked and accessible.</p> <p>Area around the machine dry and slip or trip free as well as clear of off cuts.</p> <p>All moving drive parts guarded.</p> <p>Electrical supply cable protected.</p> <p>Operator using correct PPE i.e. eye, face, hearing, foot, hands and body.</p>	
*Electric arc welder	<p>Welder trained.</p> <p>Only authorized and trained persons use welder.</p> <p>Adequately earthed.</p> <p>Electrode holder in good condition and safe.</p> <p>Cables, clamps, lugs and connectors in good condition.</p> <p>Area in which welding machine is used is dry and protected from wet.</p> <p>Welder using correct PPE i.e. eye, face, foot, body and respiratory.</p> <p>Screens and warning signs placed.</p>	
*Woodworking machines	<p>Operator's trained and only authorized persons use machines.</p> <p>Provided with guards and guards used.</p> <p>Operators using correct PPE i.e. eye, face, foot and hearing.</p>	
*Compressors	<p>Relief valves set, locked and sealed.</p> <p>Maximum safe working pressure (MSWP) indicated on face of pressure gauge face and not on glass cover.</p> <p>All drives adequately guarded.</p> <p>Receiver and lines drained daily.</p> <p>Hoses good condition and clamped, not wired.</p>	
Concrete mixer and batch plant	<p>Top platform provided with guardrails.</p> <p>Dust abatement methods in use.</p> <p>Operators using correct PPE i.e. eye, hands and respiratory.</p>	

Subject	Requirement	Yes/N
	All moving drive parts guarded. Emergency stops identified, indicated and accessible. Area kept clean, dry and free from tripping and slipping hazards. Banksman identified and crane signals displayed and used.	
*Gas welding and flame cutting equipment	Only authorized and trained persons use the equipment. Torches and gauges in good condition. Flashback arrestors fitted at cylinders and gauges. Hoses in good condition, correct type and all connections with clamps. Cylinders stored, used and transported in upright position, secured in trolley or cradle. Fire prevention control methods applied. Hot work permits.	

17. Plant and storage yard or site workshop specifics

Subject	Requirement	Yes/N
OHSA, Section 8(2)(1) General Machinery Regulation 2(1) Supervision of the use and maintenance of machinery	Persons with specific knowledge and experience designated to supervise the use and maintenance of machinery. Critical items of machinery identified, numbered and placed on register or inventory. Inspection or maintenance schedules for abovementioned. Inspections or maintenance carried out to above schedules. Results recorded.	
General Machinery Regulation 9(2) Notices regarding operation of machinery	Schedule D notice posted in work areas.	
Vessels under Pressure Regulation 13(1)(b) Supervision of the use and maintenance of vessels under pressure (VUP)	Persons with specific knowledge and experience designated to Supervise the use and maintenance of VUPs. VUPs identified, numbered and placed on register. Manufacturers plate intact. Inspection or maintenance schedules for abovementioned. Inspections or maintenance carried out to above schedules. Results recorded and test certificates available.	
Lock-out procedure	Lock-out procedure in operation.	
Ergonomics	Ergonomics survey conducted. Results on record. Survey results applied.	
Demarcation and colour coding	Demarcation principles applied. All services, pipes, electrical installation, stop-start controls, emergency controls etcetera colour coded to own published or SABS standard. Employees trained to identify colour coding.	
Portable and bench grinders	Area around grinder clear and trip/slip free. Bench grinders mounted securely and grinder generally in good condition. No excessive vibration. On and off switch or button clearly demarcated and accessible. Adequate guards in place. Tool rest – secure, square and maximum 2 mm gap. Stone or disk - correct type and size, mounted correctly and dressed. Use of eye protection enforced.	
Ancillary lifting equipment	Chain blocks, tirsors, jacks and mobile gantries etcetera identified and numbered on register.	

Subject	Requirement	Yes/N
	Chains in good condition and links no excessive wear. Lifting hooks – throat pop marked and safety latch fitted. SWL/MML marked or displayed.	
Presses, guillotines and shears	Only operated by trained and authorized persons. PPE used by operators Interlocks or lockouts fitted.	

18. Workplace environment, health and hygiene

Subject	Requirement	Yes/No
*Lighting	Adequate lighting in places where work is being executed for example stairwells and basements or after sunset. Light fittings placed and installed causing no irritating or blinding glare.	
*Ventilation	Adequate ventilation, extraction and exhausting in hazardous areas for example where chemicals and adhesives are stored, welding takes place and where petrol or diesel motors are running in confined spaces or basements.	
*Noise	Tasks identified where noise exceeds 85 dBa. All reasonable steps taken to reduce noise levels at the source. Hearing protection used where noise levels could not be reduced to below 85 dBa.	
*Heat stress	Measures in place to prevent heat exhaustion in heat stress problem areas e.g. steel decks, when the WBGT index reaches 30 (see Environmental Regulation 4). Cold drinking water readily available when extreme temperatures are experienced.	
*Ablution facilities	Sufficient toilets provided for men and women separately i.e. 1 per 30 employees (National Building Regulations prescribe chemical toilets for Construction sites). Toilet paper available. Sufficient showers provided for men and women separately. Facilities for washing hands provided. Soap available for washing hands. Means of drying hands available. Changing facilities or area provided for men and women separately. Ablution facilities hygienic and clean.	
*Eating and cooking facilities	Adequate storage facilities provided. Weather protected eating area provided, separate from changing area. Refuse bins with lids provided. Facilities clean and hygienic.	
*Pollution of environment	Measures in place to minimize dust generation. Accumulation of empty cement pockets, plastic wrapping or bags, packing materials etcetera prevented. Spillage or discarding of oil, chemicals and diesel into storm water and other drains prevented.	

Subject	Requirement	Yes/No
*Hazardous chemical substances (See Section 1 for designation and register)	All substances identified and list available e.g. acids, flammables, poisons etc. Material Safety Data Sheets (MSDS) indicating hazardous properties and emergency procedures in case of incident on file and readily available. Substances stored safely.	

Name of person who have undertaken the assessment
Signature

Date

Received by

Designation

Date

Tabled at health and safety committee

Attachment 3: Measuring Injury Experience

Measuring injury experience

1. Background

Injury experience has moved from measuring injury by the use of a disabling injury frequency rate, the so-called “DIFR”. The DIFR was calculated by multiplying the number of disabling injuries by 1 million and dividing by the number of person-hours worked.

The DIFR has been replaced internationally with a Recordable Case Rate (RCR). The only difference between the two rates is that the 1 million in the calculation is replaced with 200 000 (200 000 purported to be the number of hours and average person works in a lifetime).

In using of the two rates with manipulation of disabling injuries to hide the facts by returning the injured employee to the workplace so as not to lose a shift and therefore having not to register a disabling injury will not be tolerated.

This Attachment provides guidance in the use of RCR rate based on the number of compensation injury claims, which are found not to be easy to manipulate because the reporting of compensational injuries is a legal requirement.

Measure of the RCR rate shall include professional staff on the project.

2. Recordable Case Rate (RCR)

2.1 Formula

$$\frac{\text{No of Recordable Cases X 200 000}}{\text{*220 person hours X No of employees}}$$

2.2 Definitions

No of compensation claims: The number of recordable cases for the period under review which, while being inclusive shall cover disabling and compensation claims. The Consultants shall keep his own register of cases regardless of their submission for compensation and use for reporting.

200 000: The fixed factor to align the rate with other rates used internationally.

Person hours worked Include: The denominator of the equation covers the total hours worked on the project to date of the report. The monthly data for the person hours shall be obtained from labour returns kept by the Consultant. Should an alternative calculation method be applicable to obtain hours for the daily paid employees the employee number is

multiplied by a common factor of 220 (No of employees X *220 each) for construction workers and
(No of employees X *168 hours each) for professional staff

220 and 168 person-hours:

The *average number of hours worked by one construction employee in one month in the construction industry and by one professional in construction industry.

Note: * Overtime, absence on leave or sick leave, unrecorded after hours time worked by senior and middle management factored into this average. The total worked hours is always available from the contractor's labour data.

No of employees:

The actual or average number of employees employed for the period under review.

Monthly Health and Safety Report

[illegible]

$$RCR = \frac{[\text{recordable cases}] \times 200\,000}{[\text{total hours}]}$$

Attachment 4: Sample SHE Management Report

Sample Safety, Health and Environment (SHE): Risk management report

Please note that this is an example only and all information is fictitious.

XYZ Construction

SHE risk management report for the period January 2004 to March 2004

1. Introduction

We trust that this quarterly SHE Risk Management report will provide a clear picture of the company's performance as far as occupational health, safety and environment is concerned.

The first quarter of 2004 generally reflected an improvement in injury experience and indicates a decline in the number of injuries. Although Building was the only division where there was an increase in compensation claims, figures are still well down from the average 2003 figures. A sub-contractor experienced one fatality.

All divisions are eagerly awaiting the final implementation during May 2004 of the new electronic SHE Management system that will provide the tools to implement the SHE programme and make it available to all management and supervisory staff.

2. Incident statistics

2.1 Recordable Case Rate (RCR)

See a sample report provided as Attachment 3: Measuring Injury
Experience

2.2. Other major incidents

Three other major incidents were experienced in the period under review:

- 2.3.1. A major trench collapsed at Job. 00123: XYZ Head Office, Braamfontein: No personnel injured, extensive damage to foundations: 3 days delay.
- 2.3.2. A concrete dumper ran away when its brakes failed. It smashed into the glass façade of the building on Job 00332: McDonalds, Randburg. The driver jumped off and was not injured. Cost of damage to façade: R45 000.
- 2.3.3. A storage hut on Job 00567: BP Petrol Station, Swartruggens was demolished by fire when the night watchman made a fire inside the storage hut which contained concrete vibrators and leveling machines. Cost of replacing the hut and machines: R30 000.

3. Risk areas

The following items of concern need priority consideration by management:

- 3.1. New employees must undergo pre-employment medical examinations to:
- protect XYZ from possible claims at a later stage
 - ensure that only capable persons are employed
 - prevent injuries and illness in the workplace
 - enhance XYZ image
- 3.2. Vehicle drivers and plant operators must be instructed to inspect their vehicles daily before start-up using the prescribed checklists to ensure that these are safe to operate and in good condition.

4. Risk assessments

Three SHE risk assessments were conducted in February and March:

Job 00432:	Gillooly's Mall	Compliance: 56%
Job 00786:	Cullinan Head Office	Compliance: 83%
Job 00589:	Cleveland Station	Compliance: 76%

5. Training

One hundred and forty two employees, representing 7% of employees, attended nine training courses. *Our objective is to train 5,5% of employees on a quarterly basis.

Month	No. of Employees Trained	Course	Source
January	26 15 3	Induction OH&S Reps Crane Drivers	Internal Consultant External
February	23 17	Induction OH&S Reps	Internal Consultant
March	43 9 3 3	Induction OH&S Reps Bomag Rollers First Aiders	Internal Consultant Supplier St. John's

6. Legal matters

- 6.1. An inspector of the Department of Labour issued an improvement notice on Job 00987: Gillooley's Mall. The notice requires that all scaffolding comply with the SABS standards for the Erection and Maintenance of Access Scaffolding (SANS 085). This is currently being attended to and the inspector will return on 15 April 2004 to ascertain if the notice has been complied with.

7. Occupational health matters

7.1 HIV Aids

The proposed clinic will soon be operational and we will then be able to send our employees who have tested positive for HIV/Aids to the clinic for counseling and eventual treatment when necessary.

The mobile clinic attended to and tested fifty employees on a voluntary basis at 3 sites this month. Eighteen of them tested positive.

7.2 Tuberculosis (TB)

The mobile clinic will be calling at Gillooly's Mall and Cleveland Station on 15 and 16 April 2004 respectively to screen employees for TB.

7.3 Noise

All suspected noise pollution areas have been identified and tested and the results are awaited. Employees working in areas testing over 85dBa will be issued with suitable hearing protectors.

8. Environmental measures

Inspectors from the Botswana Department of Environment visited Djwaneng and inspected the site and yard. They gave it a "clean bill of health" and advised that we should increase the dust control measures by spraying roads three times per day with water instead of the present twice per day.

9. Achievements and awards

- 9.1 The client at Djwaneng (Job 00786) awarded the XYZ site first position in the housekeeping competition conducted bi-monthly by the client's SHE managers. The project manager and his team are to be congratulated for this sterling effort.
- 9.2 Job 0987: Refurbishment of Pretoria Main Railway Station has just completed 1 million compensation claim free days. This was no easy achievement if we consider the conditions being worked under after the extensive fire that caused major damage.

Source: SAFCEC Occupational Health and Safety Committee

Attachment 5: -

Not Used

Attachment 6: -

Not Used

AGREEMENT

APPENDIX 6: ENVIRONMENTAL AUTHORISATIONS AND PRE-CONSTRUCTION MANAGEMENT PROGRAMME



environment, forestry & fisheries

Department:
Environment, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA ·0001· Environment House ·473 Steve Biko Road, Arcadia· PRETORIA

DEA Reference: 14/12/16/3/3/94

Enquiries: Ms Masina Litscane

Telephone: (012) 399 9375 E-mail: MLitscane@environment.gov.za

Mr Kobus Bester
Department of Water and Sanitation
Private Bag X313
PRETORIA
0001

Telephone Number: (012) 336 8071
Email Address: besterk@dws.gov.za

PER EMAIL / MAIL

Dear Mr Bester

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, ACT NO. 107 OF 1998, AS AMENDED: FOR THE UMKHOMAZI WATER PROJECT PHASE 1: RAW WATER COMPONENT – CONSTRUCTION OF SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE WITHIN DR NKOSAZANA DLAMINI ZUMA, IMPENDLE AND MSUNDUZI LOCAL MUNICIPALITIES IN THE KWAZULU-NATAL PROVINCE

With reference to the above application, please be advised that the Department has decided to grant authorisation. The Environmental Authorisation (EA) and reasons for the decision are attached herewith.

In terms of Regulation 4(2) of the Environmental Impact Assessment Regulations, 2014, as amended (the EIA Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 14 (fourteen) days of the date of the decision as well as the provisions regarding the submission of appeals that are contained in the Regulations.

In terms of the Promotion of Administrative Justice Act, Act No. 3 of 2000, you are entitled to the right to fair, lawful and reasonable administrative action; and to written reasons for administrative action that affects you negatively. Further your attention is drawn to the provisions of the Protection of Personal Information Act, Act No. 4 of 2013 which stipulates that the Department should conduct itself in a responsible manner when collecting, processing, storing and sharing an individual or another entity's personal information by holding the Department accountable should the Department abuse or compromise your personal information in any way.

Your attention is drawn to Chapter 2 of National Environmental Management Act, Act No. 107 of 1998 National Appeal Regulations published under Government Notice R993 in Government Gazette No. 38303 dated 08 December 2014 (National Appeal Regulations, 2014), which prescribe the appeal procedure to be followed. Kindly include a copy of this document (National Appeal Regulations, 2014) with the letter of notification to interested and affected parties in this matter.

Should any person wish to lodge an appeal against this decision, he/she must submit the appeal to the appeal administrator, and a copy of the appeal to the applicant, any registered interested and affected party, and any organ of state with interest in the matter within 20 days from the date that the notification of the decision was

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sent to the registered interested and affected parties by the applicant; or the date that the notification of the decision was sent to the applicant by the Department, whichever is applicable.

Appeals must be submitted in writing in the prescribed form to:

The Director: Appeals and Legal Review of this Department at the below mentioned addresses.

By email: appeals@environment.gov.za;

By hand: Environment House
473 Steve Biko
Arcadia
Pretoria
0083; or

By post: Private Bag X447
Pretoria
0001

Please note that in terms of Section 43(7) of the National Environmental Management Act, Act No. 107 of 1998, as amended, the lodging of an appeal will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged, you may not commence with the activity until such time that the appeal is finalised.

To obtain the prescribed appeal form and for guidance on the submission of appeals, please visit the Department's website at https://www.environment.gov.za/documents/forms#legal_authorisations or request a copy of the documents at appeals@environment.gov.za.

Yours faithfully



Mr Sabelo Malaza
Chief Director Integrated Environmental Authorisations
Department of Environment, Forestry and Fisheries

Date: 18/11/2020

cc:	Donavan Henning	Nemai Consulting (Pty) Ltd	Email: donavanh@nemai.co.za
	Ian Felton	KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA)	Email: Ian.Felton@kznedtea.gov.za
	Ashantia Nerissa Pillay	Ezemvelo KZN Wildlife	Email: Nerissa.Pillay@kznwildlife.com



Environmental Authorisation

In terms of Regulation 25 of the Environmental Impact Assessment Regulations, 2014

**The uMkhomazi Water Project Phase 1: Raw Water Component – Construction of the Smithfield Dam
and its associated infrastructure**

Harry Gwala and uMgungundlovu District Municipalities

Authorisation register number:	<i>14/12/16/3/3/3/94</i>
Last amended:	<i>First issue</i>
Holder of authorisation:	<i>Department of Water and Sanitation</i>
Location of activity:	<i>Portion 5 of the Farm The Rest 2142; Portions 2,3 28 and 29 of the Farm 16615; Portion 1 of the Farm Camden 1824; Portions 1,3,and 0 of the Farm Lot 93 1821; Portion 0, 1, and 2 of the Farm Lot 85 1815; Portions 0, 1, 3, and 4 of the Farm Crowle 2260; Portion o of the Farm Smithfield 14746; Portions 0, 3, and 7 of the Farm Nooitgedacht 1026, The Mzunduzi, Impendle and Dr Nkozazana Dlamini Zuma Local Municipalities; Harry Gwala and uMgungundlovu District Municipalities; Kwa-Zulu Natal Province.</i>

This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

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Decision

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this Environmental Authorisation, that the applicant should be authorised to undertake the activities specified below.

Non-compliance with a condition of this Environmental Authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, Act No. 107 of 1998, as amended and the EIA Regulations, 2014, as amended.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment Regulations, 2014, as amended, the Department hereby authorises –

DEPARTMENT OF WATER AND SANITATION

(hereafter referred to as the **holder of the authorisation**)

with the following contact details –

Mr Kobus Bester

Department of Water and Sanitation

Private Bag X313

PRETORIA

0001

Tel: (012) 336 8071

Cell: (083) 419 1976

E-mail: besterk@dws.gov.za

to undertake the following activities (hereafter referred to as "the activity") indicated in Listing Notice 1, Listing Notice 2 and Listing Notice 3 as amended (GN R. 983, 984 and 985 as amended):

Activity number	Activity description
<p><u>Listing Notice 1 Item 9:</u></p> <p><i>"The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water-</i></p> <p><i>(i) with an internal diameter of 0,36 metres or more;</i></p> <p><i>or</i></p> <p><i>(ii) with a peak throughput of 120 litres per second or more;</i></p> <p><i>excluding where-</i></p> <p><i>(a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve; or</i></p> <p><i>(b) where such development will occur within an urban area.</i></p>	<p>Bulk water infrastructure associated with Smithfield Dam.</p>
<p><u>Listing Notice 1 Item 11:</u></p> <p><i>"The development of facilities or infrastructure for the transmission and distribution of electricity—</i></p> <p><i>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or</i></p> <p><i>(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more;</i></p> <p><i>excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is —</i></p> <p><i>(a) temporarily required to allow for maintenance of existing infrastructure;</i></p> <p><i>(b) 2 kilometres or shorter in length;</i></p> <p><i>(c) within an existing transmission line servitude;</i></p> <p><i>and</i></p>	<p>A section (approximately 700m) of an existing high voltage Eskom transmission line, known as the Bulwer/Elandskop 88kV line, will become inundated by the Smithfield Dam. This power line will need to be relocated.</p>

<p><i>(d) will be removed within 18 months of the commencement of development.</i></p>	
<p><u>Listing Notice 1 Item 12:</u></p> <p><i>"The development of -</i> <i>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</i> <i>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</i> <i>where such development occurs -</i> <i>(a) within a watercourse;</i> <i>(b) in front of a development setback; or</i> <i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</i></p>	<ul style="list-style-type: none"> • The uMkhomazi River will be affected by Smithfield Dam. • A flow gauging station is proposed on the uMkhomazi River, downstream of the dam wall. • Tributaries of the uMkhomazi River will be affected by (a) inundation from the dam, (b) crossings for associated infrastructure (e.g. access road crossings, power lines, culverts, footprints of infrastructure intruding into the floodplain / 32 m buffer area along watercourses, etc.).
<p><u>Listing Notice 1 Item 14</u></p> <p><i>(ii) "The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.</i></p>	<p>"Dangerous goods" that are likely to be associated with the greater project, are fuel stores used during the construction and operational phases.</p>
<p><u>Listing Notice 1 Item 19:</u></p> <p><i>"The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</i> <i>but excluding where such infilling, depositing, dredging, excavation, removal or moving -</i> <i>(a) will occur behind a development setback;</i> <i>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</i></p>	<p>The uMkhomazi River and its tributaries will be affected during the construction of various dam related infrastructure, gauging weir, linking pipelines, access roads and relocated of existing infrastructure.</p>

<p><i>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</i></p> <p><i>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</i></p> <p><i>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</i></p>	
<p><u>Listing Notice 1 Item 24:</u></p> <p><i>"The development of a road -</i></p> <p><i>(i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or</i></p> <p><i>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres</i></p>	<p>Access roads to the various sites (dam wall, outlet structure, etc.) as well as relocation of roads that will be inundated..</p>
<p><u>Listing Notice 1 Item 27:</u></p> <p><i>"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-</i></p> <p><i>(i) the undertaking of a linear activity; or</i></p> <p><i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>	<p>Smithfield Dam's inundation footprint and clearance of areas associated with the construction footprint.</p>
<p><u>Listing Notice 1 Item 28:</u></p> <p><i>"Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:</i></p> <p><i>(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or</i></p>	<p>Parts of project footprint were historically used for agricultural purposes. Operators' housing and offices to be built.</p>

<p><i>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</i></p>	
<p><u>Listing Notice 1 Item 30:</u> <i>'Any process or activity identified in terms of section 53(1) of the National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004).'</i></p>	<p>The proposed project impacts on biodiversity, as documented in the Final EIA Report, as well as in the First and Second Addenda.</p>
<p><u>Listing Notice 1 Item 31:</u> <i>"The decommissioning of existing facilities, structures or infrastructure for -</i> <i>(i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;</i> <i>(ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;</i> <i>(iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or</i> <i>(v) any activity regardless the time the activity was commenced with, where such activity:</i> <i>(a) is similarly listed to an activity in (i) or (ii) above;</i> <i>and</i> <i>(b) is still in operation or development is still in progress;</i></p>	<p>Decommissioning of fuel storage areas after construction.</p>
<p><u>Listing Notice 1 Item 48:</u> <i>"The expansion of -</i> <i>(i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or</i></p>	<p>Expansion of infrastructure associated with the development with a physical footprint of 100 square metres or more within watercourse(s) / within 32 m from watercourse(s), including existing access roads.</p>

<p><i>(ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more;</i> <i>where such expansion occurs -</i> <i>(a) within a watercourse;</i> <i>(b) in front of a development setback; or</i> <i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p>	
<p><u>Listing Notice 1 Item 56:</u> <i>"The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre-</i> <i>(i) where the existing reserve is wider than 13,5 meters; or</i> <i>(ii) where no reserve exists, where the existing road is wider than 8 metres;</i> <i>excluding where widening or lengthening occur inside urban areas.</i></p>	<p>Widening or lengthening of existing roads to create access roads, and for the relocation of roads that will be inundated.</p>
<p><u>Listing Notice 1 Item 67:</u> <i>"Phased activities for all activities—</i> <i>(i) listed in this Notice, which commenced on or after the effective date of this Notice or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices</i> <i>ii) listed as activities 5, 7, 8(ii), 11, 13, 16, 27(i) or 27(ii) in Listing Notice 2 of 2014 or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices; where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.</i></p>	<p>Possible phased activities that may collectively trigger this listed activity.</p>

<p><u>Listing Notice 2 Item 11:</u></p> <p><i>"The development of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day, from and to or between any combination of the following -</i></p> <p><i>(i) water catchments;</i></p> <p><i>(ii) water treatment works; or</i></p> <p><i>(iii) impoundments;</i></p> <p><i>excluding treatment works where water is to be treated for drinking purposes.</i></p>	<p>Water is transferred from the uMkhomazi River (from Smithfield Dam) to the Western Aqueduct at a rate of 8.65m³/s.</p>
<p><u>Listing Notice 2 Item 15:</u></p> <p><i>"The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-</i></p> <p><i>(i) the undertaking of a linear activity; or</i></p> <p><i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>	<p>Cumulative area to be cleared of indigenous vegetation (except linear components) exceeds 20 hectares.</p> <p>The water surface area at full supply level (FSL) for Smithfield Dam is 953 Ha.</p>
<p><u>Listing Notice 2 Item 16:</u></p> <p><i>"The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.</i></p>	<p>Dam wall height for Smithfield Dam will exceed this threshold. The wall height above river level (max. height) is 81 m for the main dam wall and 26 m for the saddle dam wall.</p>
<p><u>Listing Notice 2 Item 27:</u></p> <p><i>"The development of a road -</i></p> <p><i>(iii) with a reserve wider than 30 metres; or</i></p> <p><i>(iv) catering for more than one lane of traffic in both directions;</i></p>	<p>Relocation of existing road R617, which is administered by the Kwazulu-Natal Department of Transport, due to the inundation footprint of the Smithfield Dam.</p>
<p><u>Listing Notice 3 Item 4(d)(viii), (xi) and (xii):</u></p> <p><i>"The development of a road wider than 4 metres with a reserve less than 13,5 metres.</i></p> <p><i>(d) In KwaZulu-Natal:</i></p>	<p>Access roads to the various sites (dam wall, outlet structure, etc.) as well as relocation of roads that will be inundated, which are located in areas that are deemed to be important from a biodiversity perspective.</p>

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<p><i>(viii) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(xi) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p> <p><i>(xii) Outside urban areas:</i></p> <p><i>(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or</i></p> <p><i>(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined;</i></p>	
<p><u>Listing Notice 3 Item 10(d)(ix), (xii) and (xiii):</u></p> <p><i>The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</i></p> <p><i>(d) In KwaZulu-Natal:</i></p> <p><i>(ix) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(xii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p> <p><i>(xiii) Outside urban areas:</i></p> <p><i>(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any</i></p>	<p>Temporary storage of dangerous goods (e.g. fuel) during the construction phase. Possible occurrence of sensitive biodiversity features in the project area.</p>

<p><i>other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</i> <i>(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or</i> <i>(cc) Areas within 100 metres from the edge of a watercourse;</i></p>	
<p><u>Listing Notice 3 Item 12(b)(iv), (v) and (xii):</u> <i>"The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan:</i> <i>(b) In KwaZulu-Natal:</i> <i>(iv) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i> <i>(v) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i> <i>(xii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority."</i></p>	<p>Construction activities will involve clearance of indigenous vegetation in areas designated to be sensitive.</p>
<p><u>Listing Notice 3 Item 14(d)(vii), (viii) and (x)(aa)</u> <i>"The development of -</i> <i>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or</i></p>	<p>Development of dam wall and associated infrastructure in watercourses, within areas designated to be sensitive.</p>

<p>(ii) <i>infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs -</i></p> <p>(a) <i>within a watercourse; -</i></p> <p>(b) <i>in front of a development setback; or</i></p> <p>(c) <i>if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p> <p>(d) <i>In KwaZulu-Natal:</i></p> <p>(vii) <i>Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p>(viii) <i>Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p> <p>(x) <i>Outside urban areas:</i></p> <p>(aa) <i>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve</i></p>	
<p><u>Listing Notice 3 Item 18(d)(viii), (xi) and (xii):</u></p> <p><i>"The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre:</i></p> <p>(d) <u><i>In KwaZulu-Natal:</i></u></p> <p>(viii) <i>Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</i></p> <p>(xi) <i>Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p> <p>(xii) <i>Outside urban areas:</i></p>	<p>Widening or lengthening access roads as well as relocation of roads that will be inundated, within areas designated to be sensitive.</p>

<p><i>(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or</i></p> <p><i>(bb) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is Determined."</i></p>	
<p><u>Listing Notice 3 Item 23(d)(viii) and (x)</u></p> <p><i>"The expansion of -</i></p> <p><i>(i) dams or weirs where the dam or weir is expanded by 10 square metres or more; or</i></p> <p><i>(ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more; where such expansion occurs -</i></p> <p><i>(a) within a watercourse;</i></p> <p><i>(b) in front of a development setback adopted in the prescribed manner; or</i></p> <p><i>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse:</i></p> <p><i>(d) In KwaZulu-Natal:</i></p> <p><i>(viii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p> <p><i>(x) Outside urban areas:</i></p> <p><i>(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve.</i></p>	<p>Expansion of infrastructure associated with the development by 10 square metres or more within watercourse(s) / within 32 m from watercourse(s), including existing access roads, within areas designated to be sensitive.</p>
<p><u>Listing Notice 3 Item 26</u></p> <p><i>"Phased activities for all activities -</i></p>	<p>Possible phased activities that may collectively trigger this listed activity.</p>

(i). listed in this Notice and as it applies to a specific geographical area, which commenced on or after the effective date of this Notice; or
(ii) similarly listed in any of the previous NEMA notices, and as it applies to a specific geographical area, which commenced on or after the effective date of such previous NEMA Notices—
where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold;.”

as described in the Environmental Impact Assessment Report (EIAR) dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively at:

SG 21 Code

SG Code	Farm	Portion
N0FS00000000214200005	The Rest 2142	5
N0FS00000001661500002	16615	2
N0FS00000001661500003	16615	3
N0FS00000001661500028	16615	28
N0FS00000001661500029	16615	29
N0FS00000000182400001	Camden 1824	1
N0FS00000000182100001	Lot 93 1821	1
N0FS00000000182100003	Lot 93 1821	3
N0FS00000000182100000	Lot 93 1821	0
N0FS00000000181500000	Lot 85 1815	0
N0FS00000000181500001	Lot 85 1815	1
N0FS00000000181500002	Lot 85 1815	2
N0FS00000000226000003	Crowle 2260	3
N0FS00000000226000001	Crowle 2260	1
N0FS00000000226000004	Crowle 2260	4
N0FS00000000226000000	Crowle 2260	0

MS

N0FS00000001479600000	Smithfield 14796	0
N0FS00000000102600003	Nooitgedacht 1026	3
N0FS00000000102600007	Nooitgedacht 1026	7
N0FS00000000102600000	Nooitgedacht 1026	0

- for the construction of the Smithfield Dam and its associated infrastructure within the Msunduzi, Impendle and Dr Nkosazana Dlamini Zuma Local Municipalities in the Kwa-Zulu Natal Province, hereafter referred to as "the property".

UMWP-1 Raw Water Component: Smithfield Dam and its associated infrastructure:

Raw Water Component	Associated Infrastructure
Smithfield Dam	<ol style="list-style-type: none"> 1. Dam embankment 2. Saddle dam embankment 3. Spillway (including approach area and plunge pool) 4. Tunnel intake tower 5. Dam outlet works (including dam intake tower, tunnel and outlet valve house) 6. Deviation of the R617 7. Access road to Nonguqa 8. Access road to intake tower 9. Access road to tunnel inlet portal 10. Access road to damwall 11. Construction roads 12. Relocation of power line 13. Relocation of telephone lines 14. Quarries and earthfill borrow areas 15. Substation 16. Operator's offices 17. Gauging weir 18. Access road to gauging weir 19. Hydropower plant 20. Spoil site - Inlet 21. Construction and permanent housing

Technical details of the Smithfield Dam:

Parameter	Description
General	
Name	Smithfield Dam
Purpose	Bulk water supply
River	uMkhomazi River
Nearest town	Richmond
District	KwaZulu-Natal
Location	29°46'33.36" S; 29°56'26.62" E
Classification: Category	III
Size class	Large

Hazard potential	High	
Non-overspill crest level	RL 936 masl	
Full supply level (FSL)	RL 930 m	
Gross storage capacity at FSL	220 million m³	
Water surface area at FSL	953 Ha	
	Main wall	Saddle wall
Wall height above river level (Max. height)	81 m (855 masl to 936 masl)	26 m (910 masl to 936 masl)
Type of dam wall	Earth core rockfill	Zoned earth fill
Crest length	1 200 m	1 090 m
Spillway type	Side channel	Fuse plug
Spillway form	Ogee	Broad crested
Spillway length	150 m	100 m
Freeboard	6 m	2 m
Hydrology and floods		
Catchment area	2 058 km²	
Safety evaluation flood	5 650 m³/s	
Regional maximum flood	4 540 m³/s	
Q1:100	2 389 m³/s	
Q1:200	2 620 m³/s	
Outlet works		
Dam Outlet	Dual pipe system of ND 1.8 m 6 intakes Butterfly and gate valves	
Tunnel Inlet	Tri pipe system of ND 2m 6 Intakes Butterfly and gate valves	
Description of dam wall foundations	The site comprises of shales (mudrocks) with sub-ordinate sandstones and intrusions of dolerite. Three near-horizontal dolerite sills have intruded mainly concordantly into the sedimentary strata and are responsible for the narrow river valley at the dam site and the presence of good quality rock for concrete aggregate and rockfill.	

Conditions of this Environmental Authorisation

Scope of authorisation

1. Authorisation is granted for the construction of the Smithfield Dam without balancing dam and its associated infrastructure within the Msunduzi, Impendle and Dr Nkosazana Dlamini Zuma Local Municipalities in the Kwa-Zulu Natal Province. Developmental Alternative B with the selection of Option 1B as the preferred realignment of the R617 is hereby approved.
2. Authorisation of the activity is subject to the conditions contained in this Environmental Authorisation, which form part of the Environmental Authorisation and are binding on the holder of the authorisation.
3. The holder of the authorisation is responsible for ensuring compliance with the conditions contained in this Environmental Authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.
4. The activities authorised may only be carried out at the property as described above.
5. Any changes to, or deviations from, the project description set out in this Environmental Authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further Environmental Authorisation in terms of the regulations.
6. The holder of an Environmental Authorisation must apply for an amendment of the Environmental Authorisation with the Competent Authority for any alienation, transfer or change of ownership rights in the property on which the activity is to take place.
7. This activity must commence within a period of ten (10) years from the date of issue of this Environmental Authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for Environmental Authorisation must be made in order for the activity to be undertaken.
8. Construction must be completed within five (05) years of the commencement of the activity on site.
9. Commencement with one activity listed in terms of this Environmental Authorisation constitutes commencement of all authorised activities.

Notification of authorisation and right to appeal

10. The holder of the authorisation must notify every registered interested and affected party, in writing and within 14 (fourteen) calendar days of the date of this Environmental Authorisation, of the decision to authorise the activity.
11. The notification referred to must –
 - 11.1. specify the date on which the authorisation was issued;
 - 11.2. inform the interested and affected party of the appeal procedure provided for in the National Appeal Regulations, 2014;
 - 11.3. advise the interested and affected party that a copy of the authorisation will be furnished on request; and
 - 11.4. give the reasons of the Competent Authority for the decision.

Commencement of the activity

12. The authorised activity shall not commence until the period for the submission of appeals has lapsed as per the National Appeal Regulations, 2014, and no appeal has been lodged against the decision. In terms of Section 43(7), an appeal under Section 43 of the National Environmental Management Act, Act No. 107 of 1998, as amended will suspend the Environmental Authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged you may not commence with the activity until such time that the appeal has been finalised.

Management of the activity

13. A copy of the final site layout map must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g. roads. The layout map must indicate the following:
 - 13.1.1. Position of the entire dam and associated infrastructure;
 - 13.1.2. Foundation footprint;
 - 13.1.3. Internal roads indicating width;

- 13.1.4. Wetlands, drainage lines, rivers, stream and water crossing of the dam's associated infrastructure;
 - 13.1.5. All sensitive features e.g. heritage sites, wetlands, pans and drainage channels that will be affected by the dam and associated infrastructure;
 - 13.1.6. All existing infrastructure on the site, especially roads;
 - 13.1.7. Soil heaps (temporary for topsoil and subsoil and permanently for excess material);
 - 13.1.8. Temporary construction laydown areas;
 - 13.1.9. Heritage sites that will be affected by the new dam and associated infrastructure;
 - 13.1.10. Borrow pits;
 - 13.1.11. Buildings, including accommodation; and,
 - 13.1.12. All "no-go" and buffer areas.; and
 - 13.1.13. A map combining the final layout plan superimposed (overlain) on the environmental sensitivity map with the co-ordinates of all associated infrastructure.
14. The Environmental Management Programme (EMPr) submitted as part of the EIAr is hereby NOT approved and it must be amended to incorporate all the details that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan; and must also include measures as dictated by the final dam designs, and the provisions of this environmental authorisation. The amended EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity. Once approved the EMPr must be implemented and adhered to.
15. The amended EMPr must include the following:
- 15.1. The detailed final Biodiversity Offset and Compensation Plan developed in consultation with relevant stakeholders including *inter alia*, EDTEA and Ezemvelo KZN Wildlife. The plan must include the following:
 - 15.1.1. Finalised site selection.
 - 15.1.2. Landowner engagement and agreement regarding suitable legal, financial and stewardship mechanism for the offsets.
 - 15.1.3. Detailed design and planning of rehabilitation action and restoration plan.
 - 15.1.4. Necessary authorisation, licences and permits needed to implement rehabilitation structures where necessary.
 - 15.1.5. Defined budgets for offsets implementation based on the finalisation of the details of all of the above.

- 15.1.6. Binding agreements and Terms of Reference between role-players for the implementation of the biodiversity offsets.
- 15.1.7. Drawn programme of work for implementation of offsets on particular sites.
- 15.2. The Catchment and Ecological Infrastructure Management Plan for the upper uMkhomazi catchment. The plan must:
 - 15.2.1. Identify and map degraded and declining ecological infrastructure in the upper uMkhomazi catchment.
 - 15.2.2. Identify appropriate interventions aimed in restoring, improving and maintaining identified areas.
 - 15.2.3. Include detailed design and plan for rehabilitation, restoration and maintenance actions.
- 15.3. A rescue and relocation plan for the floral species of conservation significance that cannot be accommodated within the development footprint.
- 16. An environmental Monitoring Committee (EMC) must be established by the holder of the authorisation before commencement of construction activities.
 - 16.1. The EMC must meet before the commencement of construction activities (to appoint a chairperson and to discuss terms of reference); from then on the EMC must sit once every two months and /or on a quarterly basis (depending on the circumstances and in agreement with this Department).
 - 16.2. The EMC shall consists of, *inter alia*, representatives from all Departments that have jurisdiction over the area, relevant organs of state and key stakeholders identified during the public participation process including the ECO.
 - 16.3. The EMC shall be responsible for:
 - 16.4. The on-going and continuous development of the EMPr applicable to the development.
 - 16.5. Monitoring adherence and compliance to the approved EMPr.
 - 16.6. Making necessary amendments to the operational EMPr as and when required.
 - 16.7. The recommendations and mitigation measures proposed by the EMC shall be submitted to the Department for approval. Once approved, the EMPr must be implemented and adhered to.

Frequency and process of updating the EMPr

- 17. The EMPr must be updated where the findings of the environmental audit reports, contemplated in Condition 25 below, indicate insufficient mitigation of environmental impacts associated with the undertaking of the activity, or insufficient levels of compliance with the environmental authorisation or EMPr.

18. The updated EMPr must contain recommendations to rectify the shortcomings identified in the environmental audit report.
19. The updated EMPr must be submitted to the Department for approval together with the environmental audit report, as per Regulation 34 of the EIA Regulations, 2014 as amended. The updated EMPr must have been subjected to a public participation process, which process has been agreed to by the Department, prior to submission of the updated EMPr to the Department for approval.
20. In assessing whether to grant approval of an EMPr which has been updated as a result of an audit, the Department will consider the processes prescribed in Regulation 35 of the EIA Regulations, 2014 as amended. Prior to approving an amended EMPr, the Department may request such amendments to the EMPr as it deems appropriate to ensure that the EMPr sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.
21. The holder of the authorisation must apply for an amendment of an EMPr, if such amendment is required before an audit is required. The amendment process is prescribed in Regulation 37 of the EIA Regulations, 2014, as amended. The holder of the authorisation must request comments on the proposed amendments to the impact management outcomes of the EMPr or amendments to the closure objectives of the closure plan from potentially interested and affected parties, including the competent authority, by using any of the methods provided for in the Act for a period of at least 30 days.

Monitoring

22. The holder of the authorisation must appoint an experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in this environmental authorisation are implemented and to ensure compliance with the provisions of the approved EMPr.
 - 22.1. The ECO must be appointed before commencement of any authorised activities.
 - 22.2. Once appointed, the name and contact details of the ECO must be submitted to the *Director: Compliance Monitoring* of the Department.
 - 22.3. The ECO must keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.
 - 22.4. The ECO must remain employed until all rehabilitation measures outlined in the implementation and restoration plans are fully implemented.

Recording and reporting to the Department

23. All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of this environmental authorisation, must be submitted to the *Director: Compliance Monitoring* of the Department.
24. The holder of the environmental authorisation must, for the period during which the environmental authorisation and EMPr remain valid, ensure that project compliance with the conditions of the environmental authorisation and the EMPr are audited, and that the audit reports are submitted to the *Director: Compliance Monitoring* of the Department.
25. The frequency of auditing and of submission of the environmental audit reports must be as per the frequency indicated in the EMPr, taking into account the processes for such auditing as prescribed in Regulation 34 of the EIA Regulations, 2014 as amended.
26. The holder of the authorisation must, in addition, submit environmental audit reports to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and a final environmental audit report within 30 days of completion of rehabilitation activities.
27. The environmental audit reports must be compiled in accordance with Appendix 7 of the EIA Regulations, 2014 as amended and must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the approved EMPr.
28. Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Notification to authorities

29. A written notification of commencement must be given to the Department no later than fourteen (14) days prior to the commencement of the activity. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number.

Operation of the activity

30. A written notification of operation must be given to the Department no later than fourteen (14) days prior to the commencement of the activity operational phase.

Site closure and decommissioning

31. Should the activity ever cease or become redundant, the holder of the authorisation must undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and Competent Authority at that time.

Specific conditions

Conditions for Non-operational aspects

32. The final detailed dam designs and outlet works must be approved by Registered Professional Engineers and submitted to the Department for record keeping prior to commencement of construction activities.
33. The detailed final Biodiversity Offset and Compensation Plan must be developed in consultation with relevant stakeholders including inter alia, EDTEA and Ezemvelo KZN Wildlife and must be approved by this Department prior to construction commencing on any part or aspect of the development.
- (i) The Biodiversity Offset and Compensation plan submitted for approval must be accompanied by a binding Memorandum of Agreement between the Applicant and Ezemvelo KZN Wildlife and the MoA must be clearly define the roles and responsibilities of each party.
- (ii) The EA holder is not allowed to deviate from any requirements of the Biodiversity Offset plan during the implementation stage of the plan.
- (iii) The implementation process of Biodiversity Offset must coincide and run concurrently with the commencement process for the construction of the dam and its associated infrastructure which, will draw its guidance from the EMPr.
- (iv) A specialist must be appointed to evaluate progress in relation to the implementation and management of the Biodiversity Offset Plan requirements and they must submit reports every six months to be tabled for discussions at the EMC meetings.
34. A Catchment and Ecological Infrastructure Management Plan must be developed for the upper uMkhomazi catchment to address the issues of land degradation that will affect the dam functionality and must be submitted to this Department for approval prior to construction commencing on any part or aspect of the development.
35. A pre-construction survey of the final development footprint must be conducted to ascertain the identity and exact number of individual protected species affected by the proposed development prior to the commencement of construction.
36. All relevant permits must be obtained from EKZNW's Permits Office; for rescue and relocation of floral species of conservation significance; the removal or destruction of indigenous, protected or endangered plant or animal species that cannot be accommodated within the development footprint. Copies of the

permit/s must also be included in the final EMPr to be submitted to this Department for approval before commencement of construction activities.

37. A comprehensive habitat rehabilitation and restoration plan must be developed for the site and must be submitted to the Department for approval prior to construction commencing on any part or aspect of the development. Restoration must be undertaken as soon as possible after completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats
38. The tunnelling and blasting activities must be undertaken during the migration period of the Blue Swallows, (April – September).
39. No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area may be utilised.
40. Construction must include design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.
41. Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction, work in the immediate vicinity of the find must be stopped, SAHRA must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources to be made.
42. An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste must be disposed of at a landfill licensed in terms of Section 20 (b) of the National Environment Management Waste Act, 2008 (Act No.59 of 2008).

General

43. A copy of this Environmental Authorisation, the audit and compliance monitoring reports, and the approved EMPr, must be made available for inspection and copying-
 - 43.1. at the site of the authorised activity;
 - 43.2. to anyone on request; and
 - 43.3. where the holder of the Environmental Authorisation has a website, on such publicly accessible website.
44. National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the holder of the authorisation or his/her successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons

of non-compliance by the holder of the authorisation with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.

Date of Environmental Authorisation: 18/11/2020



Mr Sabelo Mafaza

Chief Director: Integrated Environmental Authorisations

Department of Environment, Forestry and Fisheries

Annexure 1: Reasons for Decision

1. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration -

- a) The listed activities as applied for in the application form received on 10 October 2018.
- b) The information contained in the EIAr dated November 2016; First and Second Addenda dated August 2018 and September 2020 respectively.
- c) The comments received from KZN: Department of Economic Development, Tourism and Environmental Affairs, the Ezemvelo KZN Wildlife and interested and affected parties as included in the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively
- d) Mitigation measures as proposed in the EIAr and the EMPr.
- e) The information contained in the specialist studies contained within the appendices of the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively and as appears below:

Title	Prepared by	Date
Terrestrial Fauna and Flora Assessment Report	Avhafarei Ronald Phamphe: Nema Consulting Scientific Aquatic Services CC	October 2016 March 2020
Aquatic Impact Assessment	Dr Mathew Ross: EnviRoss CC Scientific Aquatic Services	January 2016 March 2020
Biodiversity Offset Study	Scientific Aquatic Services	July 2018 March 2020
Avifaunal Impact Assessment	WildSkies Ecological Services	September 2015
Vibration Impact Assessment	JH CONSULTING: Acoustics, Noise & Vibration Control	September 2016
Noise Impact Assessment	ENVIRO-ACOUSTIC RESEARCH	December 2019
Agricultural and Soils Impact Assessment	Dr A Gouws and Dr E Gouws: INDEX	May 2015
Socio-Economic impact assessment	Sameera Munshi: Nema Consulting	February 2016
Sediment Impact Assessment	AK Theron and GR Basson	November 2015

Social Impact Assessment	Dr Neville Bews & Associates	February 2016
Visual Impact Assessment	AXIS LANDSCAPE ARCHITECTS (CC)	September 2015
Traffic Impact Assessment	AECOM SA (Pty) Ltd	June 2015
Heritage Impact Assessment	Jean Beater & Frans Prins	May 2015
EMPr	Aurecon SA	April 2019

2. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below.

- a) The findings of all the specialist studies conducted and their recommended mitigation measures.
- b) The need for the proposed project is to meet the long-term water requirements of the Mgeni Water Supply System.
- c) The EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively identified all legislation and guidelines that have been considered in the preparation of the EIAr.
- d) The methodology used in assessing the potential impacts identified in the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively and the specialist studies have been adequately indicated.
- e) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA Regulations, 2014 as amended for public involvement.

3. Findings

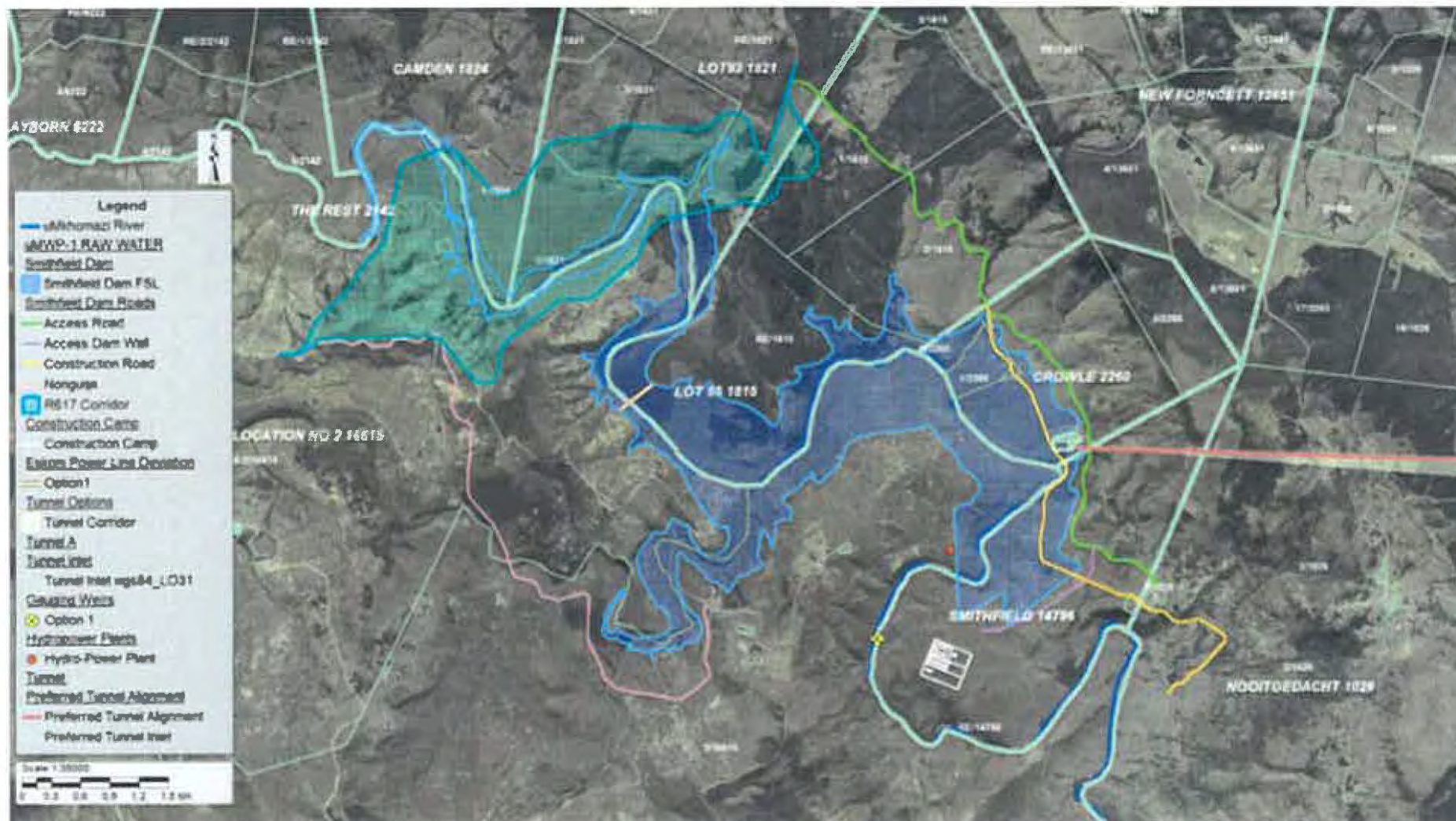
After consideration of the information and factors listed above, the Department made the following findings -

- a) The identification and assessment of impacts are detailed in the EIAr dated November 2016, First and Second Addenda dated August 2018 and September 2020 respectively and sufficient assessment of the key identified issues and impacts have been completed.
- b) The procedure followed for impact assessment is adequate for the decision-making process.
- c) The information contained in the EIAr dated November 2016; First and Second Addenda dated August 2018 and September 2020 respectively is deemed to be accurate and credible.
- d) The proposed mitigation of impacts identified and assessed adequately curtails the identified impacts.

- e) EMPr measures for the pre-construction, construction and rehabilitation phases of the development were proposed and included in the EIAr and will be implemented to manage the identified environmental impacts during the construction phase.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the authorised activities will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the authorised activities can be mitigated to acceptable levels. The environmental authorisation is accordingly granted.

Annexure 2: Locality Plan



UMKHOMAZI WATER PROJECT PHASE 1: RAW WATER COMPONENT Smithfield Dam and associated infrastructure



forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA 0001· Environment House 473 Steve Biko Road, Arcadia· PRETORIA

DFFE Reference: 14/12/16/3/3/3/94/AM2

Enquiries: Masina Litsoane

Telephone: (012) 399 9375 E-mail: MLitsoane@environment.gov.za

Mr Kobus Bester
Department of Water and Sanitation
Private Bag X313
PRETORIA
0001

Telephone Number: (012) 336 8071
Email Address: besterk@dws.gov.za

PER EMAIL / MAIL

Dear Mr Bester

AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION ISSUED ON 18 NOVEMBER 2020 FOR THE UMKHOMAZI WATER PROJECT PHASE 1: RAW WATER COMPONENT – CONSTRUCTION OF SMITHFIELD DAM AND ASSOCIATED INFRASTRUCTURE WITHIN DR NKOSAZANA DLAMINI ZUMA, IMPENDLE AND MSUNDUZI LOCAL MUNICIPALITIES IN THE KWAZULU-NATAL PROVINCE

The Environmental Authorisation (EA) issued for the abovementioned application by this Department on 18 November 2020 and your application for amendment of the EA received by the Department on 26 July 2021, and the acknowledgement letter dated 05 August 2021, refer.

Based on a review of the reason for requesting an amendment to the above EA, this Department, in terms of Chapter 5 of the Environmental Impact Assessment Regulations, 2014 as amended, has decided to amend the EA dated 18 November 2020, as follows:

Amendment 1: Extension of project construction completion by 5 years:

Condition 8 on page 16 of the EA:

"Construction must be completed within five (05) years of the commencement of the activity on site."

Is amended to:

*"Construction must be completed within **ten (10) years** of the commencement of the activity on site."*

Reason for amendment:

This condition is impractical, based on the project programme and the nature and scale of the construction activities. The main activities will take at least 5 years which exclude preparatory work and scheme commissioning.

MJ

Amendment 2: Rewording of Condition 13 of the EA:

"A copy of the final site layout map must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map."

Is amended to:

"A copy of the detailed site layout map must be made available for comments by registered Interested and Affected Parties for a period of 30 days and the holder of this environmental authorisation must consider such comments. Once amended, the development layout map must be submitted to the Department for written approval prior to commencement of construction activities. All available biodiversity information, baseline studies, and pre-construction surveys must be used in the finalisation of the layout map. The Department will provide written response within a period of 30 days."

Reason for amendment:

It is proposed that this condition be amended to specify the abovementioned timeframes to avoid any ambiguity and to allow for project planning. It must be noted also that the final site layout map will be informed by the baseline studies to be undertaken and/or pre-construction surveys, therefore these activities will take place prior to the submission of the final site layout map for approval – usually progressive and throughout tender/construction period. It is therefore possible that certain information will not be available at a certain point in time during the project life-cycle.

Amendment 3: Rewording of Condition 14 of the EA:

"The Environmental Management Programme (EMPr) submitted as part of the EIAR is hereby not approved and it must be amended to incorporate all the details that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan; and must also include measures as dictated by the final dam designs, and the provisions of this environmental authorisation. The amended EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity."

Is amended to:

"The Environmental Management Programme (EMPr) submitted as part of the EIAR is hereby approved for preparatory construction work only, however, it must be amended to incorporate the requirements for site-specific plans and the that are to be part of the finalised detailed Biodiversity Offset and Compensation Plan. The amended EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity.

The following site-specific plans must be prepared with the incorporation of a phased approach and be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final plans must be submitted to the Department for written approval prior to commencement of the activity. The Department will provide written response within a period of 30 days. These plans include inter alia:

- Search, Rescue and Relocation Plan;
- Storm Water Management Plan;
- Habitat Rehabilitation and Restoration Plan

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Reason for amendment:

The Biodiversity Offset and Compensation Plan, which needs to form part of the amended EMPr according to the EA, will take a considerable time to complete. This requirement will hold up the baseline work that needs to be undertaken, such as the detailed geotechnical investigations, fauna and flora assessments, ground truthing and other preparatory work that will inform the design work. It is proposed that the amended EMPr provide the requirements for the Biodiversity Offset and Compensation Plan, and other site-specific plans such as Search, Rescue and Relocation Plan, Storm water Management Plan etc. as some of these site-specific plans can only be compiled when the consultant and contractor are appointed. The detailed Plans will then be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 4: Rewording of Condition 15 of the EA:

"The amended EMPr must include the following....."

Is amended to:

"The following plans must be submitted to this Department for approval....."

Reason for amendment:

The detailed Plans will be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 5: Rewording of Condition 15.2 of the EA:

"The Catchment and Ecological Infrastructure Management Plan for the upper uMkhomazi catchment:

- *Identify and map degraded and declining ecological features.*
- *Identify interventions to restore, improve and maintain the above,*
- *Detailed design and plan for rehabilitation, restoration, and maintenance."*

Is amended to:

"The Catchment and Ecological Infrastructure Management Plan for the upper uMkhomazi catchment must:

- *Identify and map degraded and declining ecological features in the uMkhomazi Catchment above the Smithfield Dam;*
- *Identify interventions to restore, improve and maintain the ecological features in the uMkhomazi catchment above the Smithfield Dam; and;*
- *Develop a strategic framework plan to guide, coordinate and direct interventions aimed at the rehabilitation, restoration, and maintenance of ecological infrastructure in the uMkhomazi catchment above the Smithfield Dam."*
- *Provide a Framework for funding and implementation."*

Reason for amendment:

The uMkhomazi River has an enormous catchment (in excess of 200 000 ha) and substantial and lengthy work would be required as part of the Catchment and Ecological Infrastructure Management Plan. It is noted that Umgeni Water is already undertaking the work, however, due the size of upper catchment, the study is focussed on micro-catchments, i.e. key focal areas. Furthermore, the Institute of Natural Resources (INR) with input from Umgeni Water recently completed a Scoping study on behalf of the Nature Conservancy that investigated

opportunities to establish a Water Fund to improve water security through Ecological Infrastructure (EI). The Upper uMkhomazi Catchment was identified as having high potential to benefit from these EI investments.

Firstly, and considering work by Umgeni Water and the INR, it is proposed that the amended EMPr provide a strategic Catchment and Ecological Infrastructure Management Plan. The strategic Plan will then be compiled separately from the EMPr. This will prevent delaying the baseline work required for the project, considering that the aforementioned catchment is above the dam basin.

Secondly, it should also be noted that this Condition may be ambiguous. The current interpretation is that the cost of the planning, design and implementation of the EI be borne by the Applicant as part of the dam project. It is assumed however, that the intention of this condition is that a framework be prepared whereby strategic interventions be directed or developed so that all parties undertaking EI restoration and rehabilitation can be directed in the Catchment to be more efficient and effective. As the INR and Umgeni Water is already involved in such initiatives and the feasibility study as indicated above is planned for this Catchment, it proposed that this condition be amended such that the requirement is to contribute to the existing initiatives such that a strategic plan is prepared for the Catchment.

Amendment 6: Amendment to include Condition 16.8 to the EA:

The inclusion of 16.8 is as follows:

"The EMC must remain e functional until all rehabilitation measures outlined in and habitat rehabilitation and plans are fully implemented. The EMC will not be functional during the long-term operation and maintenance of the ecosystems and biodiversity offsets."

Reason for amendment:

This condition is silent on the period of establishment of the EMC.

Amendment 7: Rewording of Condition 32 of the EA:

"The final detailed dam designs and outlet works must be approved by Registered Professional Engineers and submitted to the Department for record keeping prior to commencement of construction activities."

Is amended to:

*"The **Tender Design Report for the** dam and outlet works must be approved by Registered Professional Engineers and submitted to the Department for record keeping prior to commencement of construction activities."*

Reason for amendment:

The approval of the dam designs is a function of DWS under the National Water Act (Act No. 36 of 1998), which requires that all designs must be done by Approved Professional Persons (who must also be a registered professional engineer) and submitted to the DWS Dam Safety Office. A substantial volume of documents is generated for the approval process. Furthermore, design work is also undertaken during construction and in a progressive manner, e.g. the final designs for the foundations can only be determined during the excavations. In order to satisfy this condition, it is proposed that this condition be amended to specify that the Tender Design Report be provided to DEFF.

Amendment 8: Rewording of Condition 33 of the EA:

"The detailed final Biodiversity Offset and Compensation Plan must be developed in consultation with relevant stakeholders including inter alia, EDTEA and Ezemvelo KZN Wildlife and must be approved by this Department prior to construction commencing on any part or aspect of the development."

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Is amended to:

"The detailed Biodiversity Offset and Compensation Plan must be developed in consultation with relevant stakeholders including inter alia, EDTEA and Ezemvelo KZN Wildlife and must be approved by this Department prior to construction commencing on any part or aspect of the development. **The Department will provide written response within a period of 30 days.**"

Reason for amendment:

The EA condition is amended to specify the abovementioned timeframes to avoid any ambiguity and to allow for project planning.

Amendment 9: Rewording of Condition 33 (iii) of the EA:

"The implementation process of Biodiversity Offset must coincide and run concurrently with the commencement process for the construction of the dam and its associated infrastructure which, will draw guidance from the EMPr."

Is amended to:

"The preparation of the detailed Biodiversity Offset Plan must coincide and run concurrently with the preparation of the designs for the Smithfield Dam and its associated infrastructure. Implementation, excluding the long-term management, of the Biodiversity Offsets Plan must coincide and run concurrently with the construction of the dam and its associated infrastructure."

Reason for amendment:

The Biodiversity Offset and Compensation Plan, which needs to form part of the amended EMPr according to the EA, will take a considerable time to complete. This requirement will hold up the baseline work that needs to be undertaken, such as the detailed geotechnical investigations, fauna and flora assessments, ground truthing and other preparatory work that will inform the design work. It is proposed that the amended EMPr provide the requirements for the Biodiversity Offset and Compensation Plan, and other site-specific plans such as Search, Rescue and Relocation Plan, Storm water Management Plan etc. as some of these site-specific plans can only be compiled when the consultant and contractor are appointed. The detailed Plans will then be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 10: Rewording of Condition 34 of the EA:

"A Catchment and Ecological Infrastructure Management Plan must be developed for the upper uMkhomazi catchment to address the issues of land degradation that will affect the dam functionality and must be submitted to this Department for approval prior to construction commencing on any part or aspect of the development."

Is amended to:

"A **strategic** Catchment and Ecological Infrastructure Management Plan must be developed for the upper uMkhomazi catchment to address the issues of land degradation that will affect the dam functionality and must be submitted to this Department for approval."

Reason for amendment:

The uMkhomazi River has an enormous catchment (in excess of 200 000 ha) and substantial and lengthy work would be required as part of the Catchment and Ecological Infrastructure Management Plan. It is noted that

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Umgeni Water is already undertaking the work, however, due the size of upper catchment, the study is focussed on micro-catchments, i.e. key focal areas. Furthermore, the Institute of Natural Resources (INR) with input from Umgeni Water recently completed a Scoping study on behalf of the Nature Conservancy that investigated opportunities to establish a Water Fund to improve water security through Ecological Infrastructure (EI). The Upper uMkhomazi Catchment was identified as having high potential to benefit from these EI investments.

Firstly, and considering work by Umgeni Water and the INR, it is proposed that the amended EMPr provide a strategic Catchment and Ecological Infrastructure Management Plan. The strategic Plan will then be compiled separately from the EMPr. This will prevent delaying the baseline work required for the project, considering that the aforementioned catchment is above the dam basin.

Secondly, it should also be noted that this Condition may be ambiguous. The current interpretation is that the cost of the planning, design and implementation of the EI be borne by the Applicant as part of the dam project. It is assumed however, that the intention of this condition is that a framework be prepared whereby strategic interventions be directed or developed so that all parties undertaking EI restoration and rehabilitation can be directed in the Catchment to be more efficient and effective. As the INR and Umgeni Water is already involved in such initiatives and the feasibility study as indicated above is planned for this Catchment, it proposed that this condition be amended such that the requirement is to contribute to the existing initiatives such that a strategic plan is prepared for the Catchment.

Amendment 11: Rewording of Condition 35 of the EA:

"A pre-construction survey of the final development footprint must be concluded to ascertain the identity and exact number of individual protected species affected by the proposed development prior to the commencement of construction."

Is amended to:

"A preconstruction survey of the final development footprint must be undertaken to ascertain the identity and the exact number of individual protected species affected by the proposed development prior to the commencement of construction. The pre-construction survey must be used to inform the plant search, rescue and relocation plan. The timing of the implementation of the plant rescue and relocation within the development footprints must be aligned with the construction programme and as far as it is practically possible incorporating a phased approach and allow for multiple season plant rescue and relocation."

Reason for amendment:

A pre-construction survey is required for the preparation of the Rescue and Relocation Plan. To produce this Plan the pre-construction survey of the final development footprint must be undertaken, however, due to the extent and nature of project, landowners are sometimes allowed to continue with activities on their land for as long as possible to allow for e.g. the completion of crop cycles, relocation of infrastructure, etc. The main construction area will be at the dam wall, whilst other areas to be inundated will not be required immediately. A pre-construction survey of the entire development footprint will therefore not be possible prior to the commencement of construction activities and may occur in a phased approach. Site-specific plans will then be prepared prior to the relevant construction activity.

Amendment 12: Rewording of Condition 36 of the EA:

"All relevant permits must be obtained from EKZNW's Permits Office; for rescue and relocation of floral species of conservation significance; the removal or destruction of indigenous, protected or endangered plant, and animal species that cannot be accommodated within the development footprint. Copies of the permits must also be included in the final EMPr to be submitted to the Department for approval before commencement of construction activities."

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Is amended to:

"Prior to removal, relocation or destruction of any protected or endangered plant and animal species that cannot be accommodated within the development footprint, all relevant permits must be obtained from **the relevant competent authority**. Copies of the permits must also be submitted to the Department for record keeping."

Reason for amendment:

It is proposed that the EMPr provide the requirements for the other site-specific plans such as Search, Rescue and Relocation Plan, Storm water Management Plan etc. as some of these site-specific plans can only be compiled when the consultant and contractor are appointed. The detailed Plans will then be compiled separately from the EMPr, but will take cognisance of the requirements of the EMPr due to overlapping biodiversity and conservation targets.

Amendment 13: Rewording of Condition 37 of the EA:

"A comprehensive habitat rehabilitation and restoration plan must be developed for the site and must be submitted to the Department for approval prior to construction commencing on any part or aspect of the development."

Is amended to:

"A comprehensive habitat rehabilitation and restoration plan must be developed for all construction and work sites and must be submitted to the Department for approval. This Plan must be informed by the available biodiversity information, baseline studies, and pre-construction surveys. The plan must be reviewed by EDTEA and EKZNW prior to submission to the Department. The Department will provide a written response within a period of 30 days."

Reason for amendment:

It is proposed that this condition be amended to specify the timeframe required by DEFF to review and decide on the Habitat Rehabilitation and Restoration Plan, in order to avoid any ambiguity and to allow for project planning.

Amendment 14 Amendment to remove Condition 38 from the EA:

Condition 38 is hereby removed from the EA dated 18 November 2020.

Reason for amendment:

Based on the findings of the Vibration Impact Assessment, which were contained in the first and second Addenda to the Final EIA Report, this condition is only applicable to the EA for the uMWP-1 Raw Water: Water Conveyance Infrastructure (DEFF reference no.: 14/12/16/3/3/94/1), based on the tunnel boring machine's (TBM) vibration radius of influence. Hence, this condition must be removed from the EA for the uMWP-1 Raw Water: Smithfield Dam and associated infrastructure (DEFF reference no.: 14/12/16/3/3/94).

Amendment 15: Rewording of Condition 39 of the EA:

"No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area may be utilised."

Is amended to:

"All areas affected by construction should be rehabilitated upon completion of the construction phase of the development to its pre-construction state where possible in line with good practice and the principle of duty of care."

Reason for amendment:

Rehabilitation needs to consider the status of the vegetation prior to construction, such as cultivated areas or kikuyu pastures. Thus, the pre-existing environment will be re-instated except for areas that had indigenous plants.

This proposed amendment letter must be read in conjunction with the EA dated 18 November 2020.

In terms of the Promotion of Administrative Justice Act, 2000 (Act No 3 of 2000), you are entitled to the right to fair, lawful and reasonable administrative action; and to written reasons for administrative action that affects you negatively. Further your attention is drawn to the provisions of the Protection of Personal Information Act, 2013 (Act no. 4 of 2013) which stipulate that the Department should conduct itself in a responsible manner when collecting, processing, storing and sharing an individual or another entity's personal information by holding the Department accountable should the Department abuse or compromise your personal information in any way.

In terms of Regulation 4(2) of the Environmental Impact Assessment Regulations, 2014, as amended (the EIA Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 14 (fourteen) days of the date of the EA, of the Department's decision as well as the provisions regarding the submission of appeals that are contained in the Regulations.

Your attention is drawn to Chapter 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) National Appeal Regulations published under Government Notice R993 in Government Gazette No. 38303 dated 08 December 2014 (National Appeal Regulations, 2014), which prescribes the appeal procedure to be followed. Kindly include a copy of this document (National Appeal Regulations, 2014) with the letter of notification to interested and affected parties in this matter.

Should any person wish to lodge an appeal against this decision, he/she must submit the appeal to the appeal administrator, and a copy of the appeal to the applicant, any registered interested and affected party, and any organ of state with interest in the matter within 20 days from the date that the notification of the decision was sent to the registered interested and affected parties by the applicant; or the date that the notification of the decision was sent to the applicant by the Department, whichever is applicable.

Appeals must be submitted in writing in the prescribed form to:

The Director: Appeals and Legal Review of this Department at the below mentioned addresses.

By email: appeals@environment.gov.za;

By hand: Environment House
473 Steve Biko Road,
Arcadia,
Pretoria,
0083; or

By post: Private Bag X447,
Pretoria,

0001;

Please note that in terms of Section 43(7) of the National Environmental Management Act, Act No. 107 of 1998, as amended, the lodging of an appeal will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged, you may not commence with the activity until such time that the appeal is finalised.

To obtain the prescribed appeal form and for guidance on the submission of appeals, please visit the Department's website at https://www.environment.gov.za/documents/forms#legal_authorisations or request a copy of the documents at appeals@environment.gov.za.

Yours faithfully


Mr Sabelo Malaza
Chief Director: Integrated Environmental Authorisations
Department of Forestry, Fisheries and the Environment
Date: 03/09/2021

cc:	Donavan Henning	Nemai Consulting (Pty) Ltd	Email: donavanh@nemai.co.za
	Ian Felton	KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA)	Email: Ian.Felton@kznedtea.gov.za
	Ashantia Nerissa Pillay	Ezemvelo KZN Wildlife	Email: Nerissa.Pillay@kznwildlife.com

M.S



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DMR 10

Private Bag X 54307, DURBAN, 4000, 333 Anton Lembede Street, 3rd Floor Durban Bay House, DURBAN

Tel: (031) 335 9600

Fax: (031) 305 5801

Email:

karoon.moodley@dmr.gov.za

Reference: KZN30/5/1/1/2/00142BP

Enquiries:

Mr. K. G. Moodley

BY HAND

THE CHIEF ENGINEER

DEPARTMENT OF WATER AND SANITATION

PRIVATE BAG X313

PRETORIA

0001

Attention: Mr J.A Bester

Email: BesterK@dws.gov.za

ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (NEMA) AS AMENDED, AND THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, 2014 (AS AMENDED) FOR QUARRIES AND BORROW PITS IN RESPECT OF THE UMKHOMAZI WATER PROJECT - PHASE 1 WITHIN THE HARRY GWALA AND UMGUNGUNDLOVU DISTRICT MUNICIPALITIES IN KWAZULU NATAL.

With reference to the abovementioned application for an environmental authorisation, please be advised that the Department of Mineral Resources as Competent Authority has decided to **grant** an environmental authorisation in terms of the National Environmental Management Act (Act 107 of 1998, as amended) and the associated Environmental Impact Assessment Regulations, 2014 (as amended) to the Department of Water and Sanitation (DWS) .

In terms of Regulation 15 of the NEMA EIA Regulations, 2014 an Environmental Assessment Practitioner (EAP) must identify whether a basic assessment or scoping & EIR process must be applied to the application taking into account any notices published in terms of section 24D of the Act. As per the application form received on 11th October 2017, your EAP (Nemai Consulting has identified that a Scoping and EIR process must be applied.

The following listed activities in Listing Notice 1 (GNR 983) and Listing Notice 2 (GNR 984) of the EIA Regulations were identified and applied for

NEMA: Listed Activities:

Activity 21 of GNR 983

Activity 17 of GNR 984

The following activities were applied for but are not authorized as they are not triggered by the proposed project:

Activity 18 of GNR 984

Activity 19 of GNR 984

Activity 21 of GNR 984

In terms of regulation 4 (2) of the Environmental Impact Assessment Regulations of 2014, you are instructed to notify all registered interested and affected parties, in writing within 14 (Fourteen) calendar days, from the date of the Department's decision in respect of your application and the relevant information regarding the lodgement of an appeal must be provided as per the provisions of the National Appeal Regulations of 2014.

Should you wish to appeal any aspect of the decision, you must submit the appeal to the Minister of Environmental Affairs and a copy of such appeal to the Department of Mineral Resources (KwaZulu Natal Regional Office), within 20 days from the date of notification, and such appeal must be lodged as prescribed by Chapter 2 of the National Appeal Regulations of 2014, by means of the methods as prescribed below:

Appeal to the Department of Environmental Affairs:

Attention : Directorate Appeals and Legal Review

Email : appeals@environment.gov.za

By post : Private Bag X 447,
Pretoria
0001

By hand : Environmental House,
473 Steve Biko Road
Arcadia,
Pretoria,
0083

Copy of the lodged appeal to the Department of Mineral Resources:

Attention : Regional Manager: KwaZulu Natal Region

By facsimile : (031) 301 6950

E-mail : Shonisani.Manyaga@dmr.gov.za

By post : Private Bag X54307, **Durban**, 4000

By hand : 333 Anton Lembede Street, 3rd Floor Durban Bay House,
Durban, 4000

In the event that you decide to appeal the decision, you must comply with the National Appeal Regulations of 2014 in relation to notification of all registered interested and affected parties. A copy of the official appeal form can be obtained from the Department of Environmental Affairs.

Yours Sincerely


REGIONAL MANAGER: MINERAL REGULATION
KWAZULU NATAL REGIONAL OFFICE
DATE: 25/01/2019



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DMR 10

Private Bag X 54307, DURBAN, 4000, 333 Anton Lembede Street, 3rd Floor Durban Bay House, DURBAN

Tel:	(031) 335 9600,	Fax:	(031) 305 5801	Email:	karoon.moodley@dmr.gov.za
Reference:	KZN30/5/1/1/2/00142BP			Enquiries:	Mr. K.G Moodley

ENVIRONMENTAL AUTHORISATION

Reference number:	KZN 30/5/1/1/2/00142BP
Last amended:	First issue
Holder of authorisation:	Department of Water and Sanitation
Location of activity:	uMkhomazi Water Project Phase 1

DECISION

ACRONYMS:

NEMA:	The National Environmental Management Act, 1998 (Act 107 of 1998, as amended),
DEPARTMENT:	Department of Mineral Resources.
EA:	Environmental Authorisation.
IEA	Integrated Environmental Authorisation.
EMPr:	Environmental Management Programme
BAR:	Basic Assessment Report
S&EIR:	Scoping and Environmental Impact Report
I&AP:	Interested and Affected Parties
ECO:	Environmental Control Officer
SAHRA:	South African Heritage Resources Agency
EIA REGULATIONS:	EIA Regulations, 2014
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), as amended
NEMWA:	National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended
EIA:	Environmental Impact Assessment.

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this EA, that the applicant be authorised to undertake the NEMA EIA listed activity (ies) specified below. Details regarding the basis on which the Department reached this granting decision are set out in **Annexure "1"** of this EA.

ACTIVITY APPLIED FOR:

By virtue of the powers conferred on it by the Minister of Environmental Affairs in terms of the provisions of NEMA, the Department hereby grants an EA to Department of Water and Sanitation Limited with the following contact details –

Mr J.A Bester
185 Frances Baard Street
Sedibeng Building
Pretoria
0001

Tel no: (012 336 8071

Email: BesterK@dws.gov.za

,to undertake the following activity listed in the NEMA EIA Regulations.

NEMA: LISTED ACTIVITIES: Listed in the EIA Regulations as:-

Activity 21 of GNR 983

Activity 17 of GNR 984

The following activities are not authorized as they are not triggered by the proposed project:

Activity 18 of GNR 984

Activity 19 of GNR 984

Activity 21 of GNR 984

Detailed spatial locality of the activity is attached as Appendix 1

The granting of this EA is subject to the conditions set out in **Annexure 2** (Site Specific Conditions and Departmental standard conditions). The Environmental Management Programme (EMPr) submitted as part of the application for an EA is hereby approved and must be adhered to throughout the life cycle of the operation.

Only listed activities that are expressly specified in this EA and the associated EMPr that forms part of this EA may be conducted, and any additional or new activities not specified herein must be applied for by the holder and authorised by the competent authority in the form of an amendment to the aforesaid EA and EMPr before the commencement of such activities. This condition is also applicable in the case of an amendment, addition, substitution, correction, and removal or updating of any detail in the EA and EMPr.

ANNEXURE 1: REASONS FOR THE DECISION

1. Background

The Department of Water and Sanitation submitted an application for an EA for activities directly related to the extraction and primary processing of a mineral resource.

The applicant appointed Nema Consulting to undertake the Scoping and EIR process as required by Regulation 21 of the EIA Regulations, 2014 (as amended)

2. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration -

- a) The information contained in the Scoping Report and the EIA and EMPr received by the Department on 11th October 2017.
- b) The objectives and requirements of the applicable and relevant legislation, policies and guidelines and the EIA Regulations of 2014;
- c) Public Participation Process (PPP) in Section 14 and the supporting documents for the main dam application, which included the borrow pits.

- d) The project plan, maps and diagrams and the position of the borrow pits within the final dam footprint.
- e) The following studies undertaken as part of the dam assessment inclusive of the borrow pit areas include:
 - Terrestrial Ecological Impact assessment
 - Aquatic Impact Assessment
 - Agricultural Impact Assessment
 - Heritage Impact Assessment
 - Socio-Economic Impact Assessment
 - Social Impact Assessment
 - Visual Impact assessment
 - Avifauna Study

3. Key factors considered in making the decision

All the information presented to the Department was taken into account upon the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance are set out below.

- a) A sufficient (PPP) was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA Regulations for public involvement;
- b) The proposed mitigation measures outlined in the EMPr compiled by D Henning of Nemai Consulting.
- c) The planned borrow pits are all within the dam footprint and as such no rehabilitation in the traditional sense is required.
- d) The borrow pits were included in the original 2010 application to Department of Environmental Affairs for the dam project.

4. Findings

After consideration of the information and factors listed above, the Department made the following findings –

- a) The potential impacts on the proposed site were clearly investigated,
- b) Public Participation Process complied with Chapter 6 of the EIA Regulations R982. The PPP which started in 2013 has been ongoing throughout the project included, *inter-alia*, the following:
 - Newspaper advertisements was placed in the Star, Witness and Isolezwe.
 - Notices were placed at the project site.
 - The BID, BAR, and EMP was made available for comment as per the legislation and I & AP's were informed accordingly of their availability. The documents were available online and in hard copy at strategic locations.
 - A BID was circulated to all key stakeholders and the registered interested and affected parties including organs of state.
 - A comments and responses report was developed and forms part of the BAR.
 - A stakeholder database in compliance with Regulation 42 was developed.
 - 7 Public Meetings were held at both traditional councils and other community areas and the reports were presented.
 - Organs of state were given an opportunity to comment on the draft reports.
- c). Department of Water and Sanitation have complied with the objectives and requirements of the applicable and relevant legislation, policies and guidelines and the EIA Regulations of 2014;

d). The Regional Manager in consideration of the aspects below as well as this Annexure and Annexure 2 i.e.

- Section 66 of the Public Finance Management Act (Act 1 of 1999) relating to issuing of guarantees by a public entity;
- The exemption granted on the 25th June 2004 by the Minister to the Department of Water Affairs in terms of section 106 of the Mineral & Petroleum Resources Development Act 28 of 2002 (Act 28 of 2002);
- Chapter 5 of National Environmental Management Act (Act 107 of 1998) as amended;
- Section 24P of the National Environmental Management Act (act 107 of 1998) read with the Financial Provisioning Regulations 2015,

and has concluded that financial provision in this instance was not applicable and that the controls put in place by the Department of Water and Sanitation as well as the conditions of the Environmental Authorisation in Annexure 2 were sufficient to provide for the remediation of environmental impacts as and when they occurred.

ANNEXURE 2:

EA SITE SPECIFIC CONDITIONS

1. Access to the borrow pit and quarry sites must be controlled and there must be adequate signage and measures to prevent injuries to both community members and their livestock (if applicable)
2. A copy of the EA, BAR and EMP must be readily available and accessible by employees, I & AP's and Organs of State during operations.
3. The environmental awareness training must occur prior to employees going onto site and must continue during the life of the operation. This will include general environmental awareness and job specific environmental awareness training.
4. There must be proactive and reactive management measures in relation to handling, storage, prevention, clean-up of spillages and disposal of polluted materials which may be polluted by petrochemicals and other materials with a potential to pollute.
5. There must be easily accessible ablution facilities for employees.

STANDARD DEPARTMENTAL CONDITIONS:

1. SCOPE OF AUTHORISATION

- 1.1. The holder of EA is responsible for ensuring compliance with the conditions contained in the EA. This includes any person acting on the holder's behalf, including but not limited to an agent, servant, contractor, subcontractor, employee, consultant or any person rendering a service to the holder of the EA.
- 1.2. Any changes to, or deviation from the project description set out in this EA must be approved in writing by this Department before such changes or deviation may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts

of such changes or deviation and it may be necessary for the holder of the EA to apply for further environmental authorisation in terms of the EIA Regulations.

- 1.3. The activities, which are authorised, may only be carried out at the property (ies) indicated in the EA and the approved EMPr.
- 1.4. Where any of the contact details of the holder of the EA change, including the name of the responsible person, physical or postal address or telephonic details, the holder of the EA must notify the Department within 5 days of such change.
- 1.5. The EA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to the undertaking of such activity (ies).
- 1.6. The holder of EA must ensure that all areas where the authorised activities occur have controlled access to ensure safety of people and animals.

2 APPEAL OF AUTHORISATION

- 2.1. The holder of the EA must in writing, within 14 (fourteen) calendar days from the date of this decision and in accordance with EIA Regulation 4(2) do the following:
 - 2.1.1 Notify all identified and registered I&APs of –
 - (a). The outcome of the application;
 - (b). The date of the decision;
 - (c). The date of issue of the decision and;
 - (d). The reasons for the decision as included in Annexure 1 and Departmental Standard Conditions in Annexure 2.
 - 2.1.2. Draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeals Regulations.
 - 2.1.3. Draw the attention of all registered I&APs to the manner in which they may access the decision.

2.1.4. Provide the registered I&APs with:

- (a). Name of the holder (entity) of this EA
- (b). Name of the responsible person for this EA
- (c). Postal address of the holder;
- (d). Telephonic and fax details of the holder and
- (e). E-mail address of the holder if available.

3. COMMENCEMENT OF THE ACTIVITY (IES)

- 3.1. In order to ensure safety, all employees must be given the necessary personnel protective equipment (PPE).
- 3.2. This EA must be provided to the site operator and the requirements thereof must be made fully known to him or her.
- 3.3. The movement of vehicles and machinery must be restricted to areas assessed by specialists.
- 3.4. Appropriate signage must be erected at the construction site, warning the public (residents, visitors etc.) about the hazard around the construction site and the presence of possible heavy vehicles and machinery.
- 3.7. The holder of EA must note that in terms of the National Forest Act (Act No.84 of 1998) protected plant species must not be cut, disturbed, damaged, destroyed and their products must not be possessed, collected, removed, transported, exported, donated, purchased or sold unless permission is granted by the Department of Agriculture, Forestry and Fisheries.
- 3.8. Construction areas (e.g. material lay down areas), topsoil and subsoil must be protected from contamination or pollution. Stockpiling must not take place in drainage lines or areas where it will impede surface water runoff.

- 3.9. If any soil contamination is noted at any phase of the proposed activity (ies), the contaminated soil must be remediated on site or removed to a licensed waste disposal facility and the site must be rehabilitated to the satisfaction of this Department and the Department of Water and Sanitation. The opportunity for the onsite remediation and re-use of contaminated soil must be investigated prior to the disposal and this Department must be informed in this regard.
- 3.10. An integrated waste management approach must be implemented that is based on waste minimization and must incorporate avoidance, reduction, recycling, treatment, reuse and disposal where appropriate. Any uncontaminated rubble generated on the premises can be re-used as back filling material on site. No refuse or rubble generated on the premises must be placed, dumped or deposited on the adjacent properties or public places and open space.
- 3.11. In terms of sections 28 and 30 of NEMA, and sections 19 and 20 of the National Water Act, 1998 (Act No. 36 of 1998), any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the holder of the EA reads through and understand the legislative requirements pertaining to the project. It is the responsibility of the holder of the EA to take reasonable measures which include informing and educating contractors and employees about environmental risks of their work and training them to operate in an environmentally acceptable manner.
- 3.12. Construction vehicles must be serviced and maintained in such a manner that no excessive fumes are emitted, noise is reduced to acceptable levels and petro-chemical leaks are prevented. Contaminated soil must be remediated on site or removed to an authorised landfill site.
- 3.13. Residents (if any) on the property (ies) and immediately adjacent areas must be informed if any unusually noisy activities are planned and this must be done at a minimum of two days in advance of such an activity.
- 3.14. Dust suppression measures must be implemented on all exposed surface to minimize and control airborne dust.

- 3.15. Should any heritage remains be exposed during operation or any actions on the site, these must immediately be reported to the South African Heritage Resource Agency (SAHRA) and AMAFA - KZN (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be disturbed further until the necessary approval has been obtained from the South African Heritage Resource Agency (SAHRA) and or AMAFA – KZN. Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; middens, indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artefacts and bone remains; structures and other built features; rock art and rock engravings; shipwrecks; and graves or unmarked human burials. A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.
- 3.16. Care must be taken to ensure that the material and excavated soil required for backfilling are free of contamination from hydrocarbons.
- 3.17. Hydraulic fluid or chemicals required during construction must be stored on and in facilities and infrastructure designed in such a manner that any spillage will be contained and reclaimed without any impact on the surrounding environment. The storage areas/facilities for hydrocarbons must have bund walls with adequate capacity to contain 110% of the maximum volume that is stored in the area. Should any spills occur it must be cleaned immediately by removing spillage together with the polluted solids and dispose it in the authorised disposal site permitted of such waste. The regional office of the Department of Water and Sanitation must be notified within 24 hours of an incident that may pollute surface and underground water resources.
- 3.18. Chemical sanitation facilities or system such as toilets that do not rely on the seepage of liquids must be provided with a ratio of 1 for every 15 workers. These must be placed such that they prevent spills or leaks to the environment and must be maintained according to the operating instructions and the content thereof must be disposed of at an authorised waste water treatment works.

- 3.19. The holder of the EA must ensure that any water uses listed in terms of Section 21 of National Water Act must be authorized by the Department of Water and Sanitation prior to the commencement of such activity (ies).
- 3.21. This EA does not purport to absolve the holder of the EA from its common law obligations towards the owner of the surface of land affected.
- 3.22. The holder of EA must ensure that rehabilitation of the disturbed areas caused by the operation complies with the approved EMPr at all times.
- 3.23. This EA may be amended or withdrawn at any stage for non-compliance and provides no relief from the provisions of any other relevant statutory or contractual obligations.
- 3.24. The holder of the EA must note that in terms Section 43A of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), residue deposits must be deposited and managed in a prescribed manner on any site demarcated for that purpose in the Environmental Management Plan or Environmental Management Programme. No person may temporarily or permanently deposit residue stockpiles or residue deposits on any area or site other than on the site indicated in the Environmental Management Programme.
- 3.25. The holder of EA must note that in terms Section 20 of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), no person may commence, undertake or conduct a waste management activity, except in accordance, with the requirements of norms and standards determined in terms of Section 19 (3) for that activity or a waste management licence is issued in respect of that activity if licence is required.
- 3.26. An appeal under Section 43 (7) of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended) suspends an EA or exemption or any provisions of conditions attached hereto, or any directive unless the Minister directs otherwise.

- 3.27. Should you be notified by the Minister of a suspension of the EA pending appeal procedure, you may not commence with the activity (ies) until such time that the Minister allows you to commence with such activity (ies) in writing.
- 3.28. The Department reserves the right to audit and/or inspect the activity (ies) without prior notification at any reasonable time and at such frequency as may be determined by the Regional Manager.
- 3.29. Any waste storage site must have a firm, impermeable, chemical resistant floors and a roof/cover to prevent direct sunlight and rain water from getting in contact with the waste.
- 3.30. Uncontaminated storm water must be prevented from coming into contact with the waste and must be diverted away from the storage site.
- 3.31. The listed activity (ies), including site preparation, must not commence within 20 (twenty) calendar days of the date of the notification of the decision being sent to the registered I&APs. In the event that an appeal is lodged with the appeal administrator, the EA is suspended until such time as the appeal is decided.
- 3.32. Should there be any conflicting conditions between this EA and other approval granted by other authorities, the responsibility rests with the holder of EA to bring it to the attention of the Department for resolution.

4. MANAGEMENT OF ACTIVITY (IES)

- 4.1. A copy of the EA and EMPr must be kept at the site office / or be readily available electronically. The EA and EMPr must be produced to any authorised officials of the Department who request to see it and must be made available for inspection by any employee or agent of the holder of the EA who works or undertakes work at the property (ies).
- 4.2. The content of the EMPr and its objectives must be made known to all contractors, subcontractors, agents and any other people working on the site, and in the event of the need to update or amend the EMPr, these must be submitted to the Department for approval.

- 4.3. Regular monitoring and maintenance of storm water control facilities must be conducted at all times and if damaged, must be rectified as directed by the Department or any other relevant authority.
- 4.4. A buffer zone between the activity (ies) and any residential area, cemeteries or burial grounds must be clearly demarcated and maintained or in line with a recommendation/s from a qualified specialist.
- 4.5. The holder of the EA must prevent nuisance conditions or health hazards, or the potential creation of any nuisance conditions or health hazards.
- 4.6. The holder of the EA must ensure that all non-recyclable wastes are disposed of at waste management facilities licenced to handle such wastes and also ensure that all recyclable wastes are collected by licenced waste management facilities for recycling, reuse or treatment.
- 4.7. The holder of the EA must ensure that all liquid wastes, whose disposal onto water or land have the potential to cause pollution are only diverted to the sewer after testing water quality and receiving written approval from the relevant local authority.
- 4.8. Non-compliance with any condition of this EA and associated EMPr may result in the issuing of a directive in terms of section 28 and or a compliance notice in terms of section 31L of NEMA.
- 4.9. Any rehabilitation of disturbed surfaces caused by the operation must comply with the approved EMPr.
- 4.10. The holder of EA must ensure that the name and contact details of the ECO is made available to the Regional Manager 30 days prior to the commencement of the mining activity. The holder of EA must also ensure that an ECO is always available on site to ensure that activity (ies) comply with the issued EA and approved EMPr.

4.11. The ECO must:

- 4.11.1. Keep and maintain a detailed incidents register (including any spillages of fuels, chemicals or any other material.
- 4.11.2. Keep a complaint register on site indicating the complaint and how the issues were addressed, what measures were taken and what the preventative measures were implemented to avoid re-occurrence of complaints.
- 4.11.3. Keep records relating to monitoring and auditing on site and avail them for inspection to any relevant authorised officials.
- 4.11.4. Keep copies of all environmental reports submitted to the Department.
- 4.11.5. Keep the records of all permits, licences and authorisations required by the operation.
- 4.11.6. Compile a monthly monitoring report and make it available to the Department if requested.

4.12. The duties and responsibility of the ECO should not be seen as exempting the holder of the EA from the legal obligations in terms of the NEMA.

4.14. Erosion and soil loss must be prevented by minimizing the size of the area exposed to surface water run-off. Where necessary erosion stabilizing measures such as gabions, earthen berms or re-vegetation must be implemented to prevent further environmental degradation.

4.15. The holder of the EA must ensure that all personnel who work with hazardous waste are trained to deal with any potentially hazardous situations so as to minimise the risk involved. Records of training and verification of competence must be kept by the holder of the EA.

- 4.16. In order to prevent nuisance conditions, the holder of the EA must ensure that all storage skips and bins are not overfilled and properly demarcated.

5 REPORTING TO THE DEPARTMENT

5.1. The holder of EA must:

- 5.1.1. submit an Environmental Audit Report to this Department every two years from the date of commencement of activities and such report must be done by a qualified Environmental Assessment Practitioner and the audit report must specify whether conditions of this EA, EMPr and where applicable closure plan were and are adhered to;
- 5.1.2. identify and assess any new impacts and risks as a result of undertaking the activity/ies, if applicable;
- 5.1.3. identify shortcomings in the EMPr and closure plan, if applicable;
- 5.1.4. identify the need, if any, for any changes to the management, avoidance and mitigation measures provided for in the EMPr and closure plan;
- 5.1.5. if applicable, specify whether the corrective action/s taken for the previous audit's non-conformities, were adequate;
- 5.1.6. specify the name of the auditor and
- 5.1.7. be submitted by the holder to the competent authority within 30 days from the date on which the auditor finalised the audit.

- 5.2. Should any shortcomings in terms of Regulation 34(4) be identified, the holder must submit recommendations to amend the EMPr in order to rectify the identified in the aforementioned audit report.

- 5.3. All complaints received from I&AP's during any of the phases of the operation must be acknowledged and addressed within a reasonable time frame. All complaints must be recorded and a report must be forwarded to the competent authority with all relevant details of the complaint and complainant/s and another relevant information including how the complaint was resolved within 45 days of receipt.
- 5.4. The holder of the EA must, within 24 hours of incidents occurring, notify the Competent Authority of the occurrence or detection of any incident on the site, or incidental to the operation of the site, which has the potential to cause, has caused or may cause pollution of the environment, health risks, nuisance conditions or water pollution.
- 5.5 The holder of the EA must, within 14 days, or a shorter period of time, if specified by the Competent Authority from the occurrence or detection of any incident referred to in condition 5.4, submit an action plan, which must include a detailed time schedule, and resource allocation signed off by top management, to the satisfaction of the Competent Authority in respect of measures taken to –
- 5.5.1. Correct the impact resulting from the incident;
- 5.5.2. Prevent the incident from causing any further impact; and
- 5.5.3. Prevent a recurrence of a similar incident.
- 5.6. In the event that measures have not been implemented within 21 days of the incident referred to in condition 5.4 & 5.5, or if measures which have been implemented are inadequate, the Competent Authority may implement the necessary measures at the cost of the holder of the EA.

6. SITE SECURITY AND ACCESS CONTROL

- 6.1 The holder of the EA must ensure effective access control on the site to reasonably prevent unauthorised entry. Signs indicating the risks involved in unauthorised entry must be displayed at each entrance.

- 6.2 Weather proof, durable and legible notices in at least two official languages applicable in the area must be displayed at each entrance to the Site. These notices must prohibit unauthorised entry and state the hours of operation, the name, address and telephone number of the holder of the EA and the person responsible for the operation of the site.

7. EMERGENCY PREPAREDNESS PLAN

- 7.1 The holder of the EA must maintain and implement an emergency preparedness plan and review it biennially when conducting the audit and after each emergency and or major accident. The plan must, amongst others, include:

7.1.1. Site Fires

7.1.2. Spillages

7.1.3. Natural disasters such as floods

7.1.4. Industrial action

7.1.5. Contact details of police, ambulances and any emergency centres closest to the site.

- 7.2. The holder of EA must ensure that an up to date emergency register is kept during all phases of the operation. This register must be made available upon request by the department.

8. INVESTIGATIONS

- 8.1 If, in the opinion of the Competent Authority, nuisances or health risks may be or are occurring on the site, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem.

- 8.2 If, in the opinion of the Competent Authority, pollution may be or is occurring, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem. If applicable, such investigation must include the monitoring of the water quality variables, at those monitoring points and such frequency as may be specified by the Competent Authority.
- 8.3 Investigations carried out in terms of conditions 8.1 and 8.2 above must include the monitoring of the relevant environmental pollution, nuisance and health risk variables, at those monitoring points and such frequency to be determined in consultation with the Competent Authority.
- 8.4. Should the investigation carried out as per conditions 8.1 and 8.2 above reveal any unacceptable levels of pollution, the holder of the EA must submit mitigation measures to the satisfaction of the Competent Authority.

9. NEMA PRINCIPLES

- 9.1. The principles set out in Section 2 in Chapter 1 of the National Environmental Management Act, 1998 (Act No.107 of 1998) must be applied to this operation and any matter relating to this operation; and must serve as a guideline for the interpretation, administration and implementation of all environmental requirements.
- 9.2. This operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of this operation in order to ensure that the exploitation of mineral resources serves present and future generations.
- 9.3. The holder of this EA must at all times give effect to the general objectives of integrated environmental management as laid down in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and must
- manage all environmental impacts as an integral part of the mining operation and must as far as it is reasonably practicable, rehabilitate the environment affected by the mining operations to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable

development; and is responsible for any environmental damage, pollution or ecological degradation as a result of his or her mining operations and which may occur inside and outside the boundaries of the area to which the EA relates.

10. DISCLAIMER


The Department of Mineral Resources in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

11. DECISION:

In view of the above and the management and mitigation measures proposed in the EMP, the competent authority is satisfied that the proposed activities will not conflict with the general objectives of Integrated Environmental Management stipulated in Chapter 5 of NEMA, and that any potentially detrimental environmental impacts resulting from the activities can be mitigated to acceptable levels.

The environmental authorisation is accordingly **GRANTED to Department of Water and Sanitation.**

Yours Sincerely


REGIONAL MANAGER: MINERAL REGULATION
KWAZULU NATAL REGIONAL OFFICE
DATE: 23/01/2019

APPENDIX 1

A. SMITHFIELD DAM

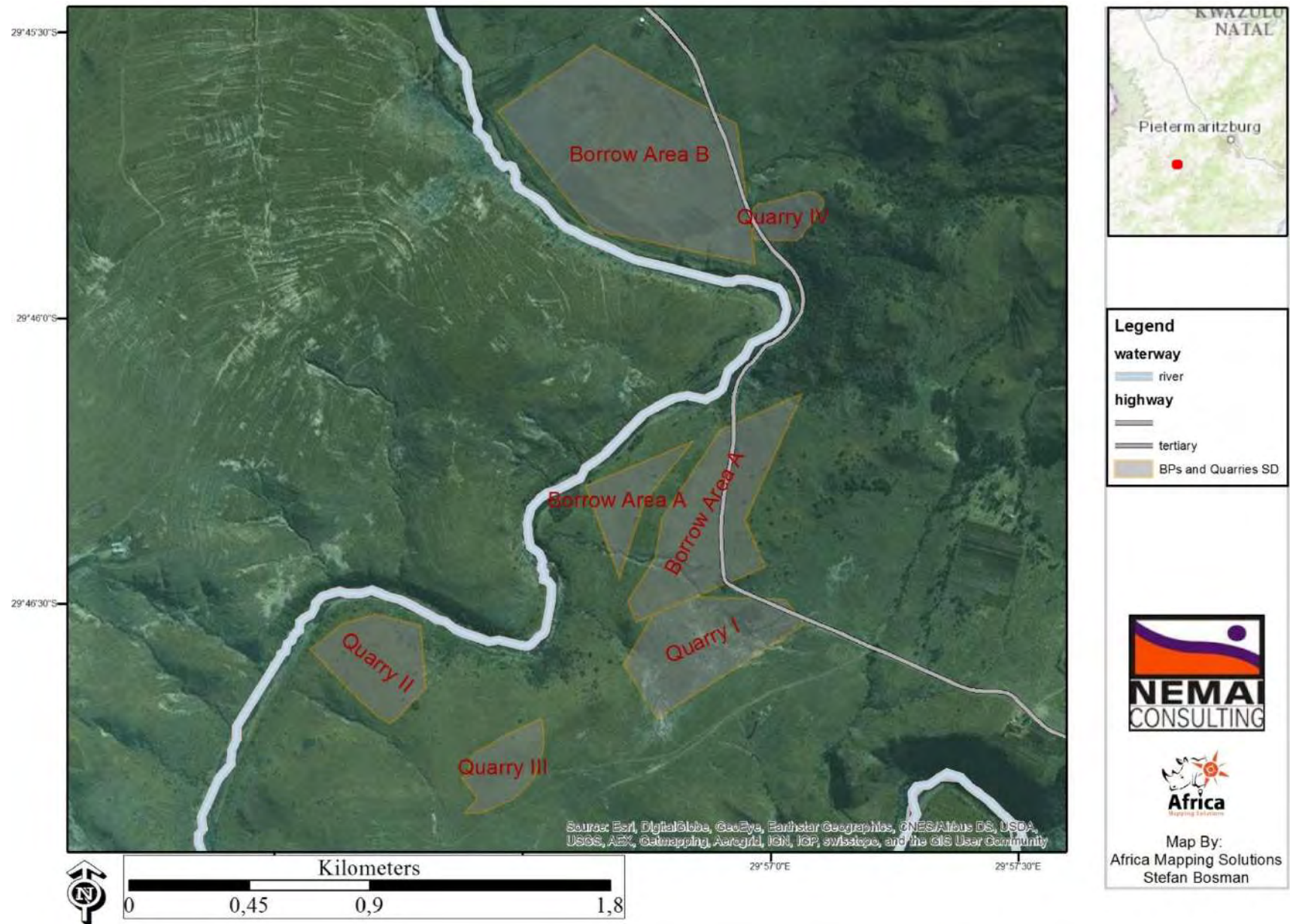


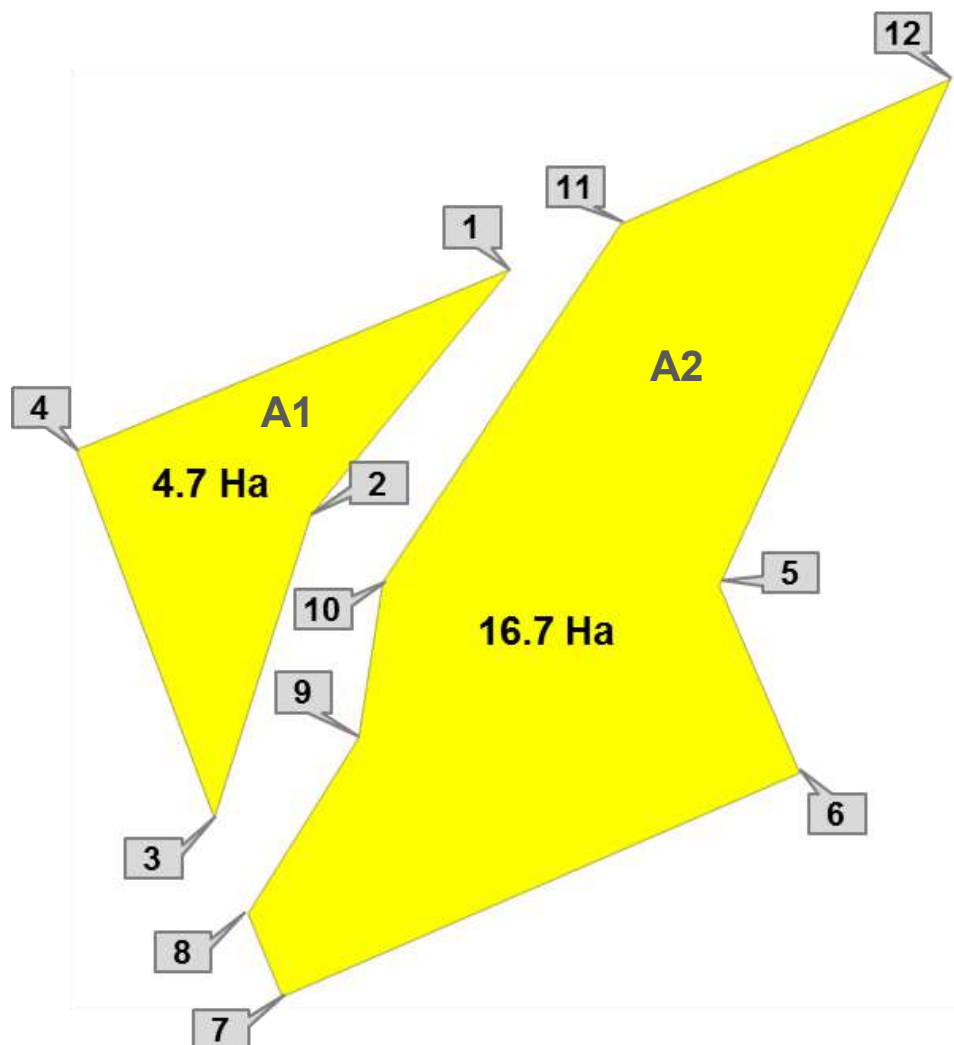
Figure A1: Aerial view – Smithfield Dam Borrow Pits and Quarries

A1) Borrow Pit A1 & A2

Description of Land

Farm name:	Smithfield
Farm number and registration division:	14796 FS
Magisterial district:	PIETERMARITZBURG
Farm subdivision name:	REMAINING EXTENT
Farm subdivision number:	0
SG 21-digit code (if known)	N0FS00000001479600000
Offshore area (if applicable):	N/A

Coordinates (Hartebeesthoek 94)



Borrow Pit A1

1	Longitude	29° 56 ' 50,64725724"	E
	Latitude	29° 46 ' 12,90373464"	S
2	Longitude	29° 56 ' 44,65798691964"	E
	Latitude	29° 46 ' 19,34509907964"	S
3	Longitude	29° 56 ' 41,75784024"	E
	Latitude	29° 46 ' 27,23863511964"	S
4	Longitude	29° 56 ' 37,61182212"	E
	Latitude	29° 46 ' 17,62626468"	S
Close	Longitude	29° 56 ' 50,64725724"	E
	Latitude	29° 46 ' 12,90373464"	S

Borrow Pit A2

5	Longitude	29° 56 ' 56,91431471964"	E
	Latitude	29° 46 ' 21,18060551964"	S
6	Longitude	29° 56 ' 59,33229827964"	E
	Latitude	29° 46 ' 26,0660118"	S
7	Longitude	29° 56 ' 43,79589059964"	E
	Latitude	29° 46 ' 31,91236643964"	S
8	Longitude	29° 56 ' 42,76148315964"	E
	Latitude	29° 46 ' 29,73778571964"	S
9	Longitude	29° 56 ' 46,09208399964"	E
	Latitude	29° 46 ' 25,13710848"	S
10	Longitude	29° 56 ' 46,80600756"	E
	Latitude	29° 46 ' 21,08000639964"	S
11	Longitude	29° 56 ' 53,94837515964"	E
	Latitude	29° 46 ' 11,7301152"	S
12	Longitude	29° 57 ' 3,84909047964"	E
	Latitude	29° 46 ' 7,94376552"	S
Close	Longitude	29° 56 ' 56,91431471964"	E
	Latitude	29° 46 ' 21,18060551964"	S

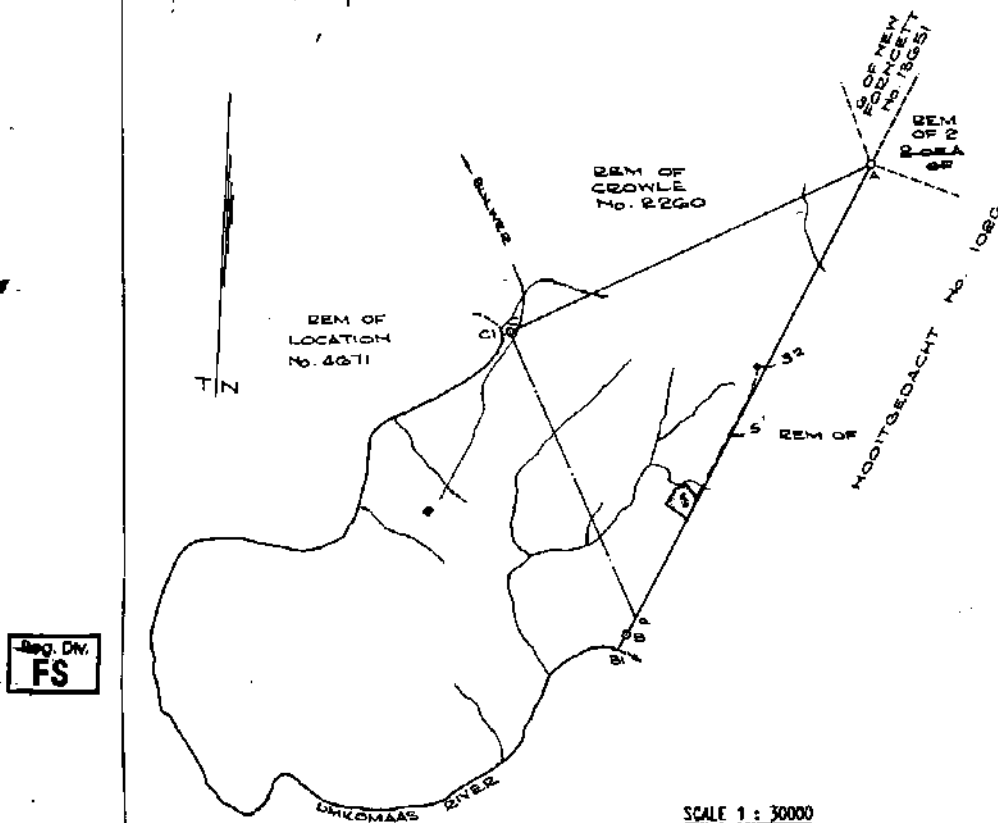
SG Diagram

S.G. No. **130/1968**

SIDES ENGLISH FEET		DIRECTIONS ARCS		CO-ORDINATES Y SYSTEM X		OFF. Desig.
AB	9102.72	A	37.38.00			
CA	6860.70	ABB1	180.00.00			
BB1	326.70	C1CA	180.00.00			

Approved

K. A. West
for Surveyor-General.
- 4. 9. 1968



Reg. Div.
FS

The figure represents A.B. Unknowns River C1. 1382.3625 Acres of land being THE FARM SMITHFIELD No. 14296

and comprises :-

- 1) The figure A.s.C. representing Sub 2 of the farm Crowle No. 2260 vide diagram Sub Vol 114 Fol 57 and Deed of Transfer No. 886/1893.
- 2) The figure C.s.B1. Unknowns River C1. representing the farm Smithfield No. 5352 vide diagram Grant Vol 104 Fol 5 and Deed of Grant No. 5352

situate in the

County of Pietermaritzburg

Province of Natal.

Compiled in January 1968

by me

Land Surveyor.

This diagram relates to CCT
No. 7374/1960
Registrar of Deeds.

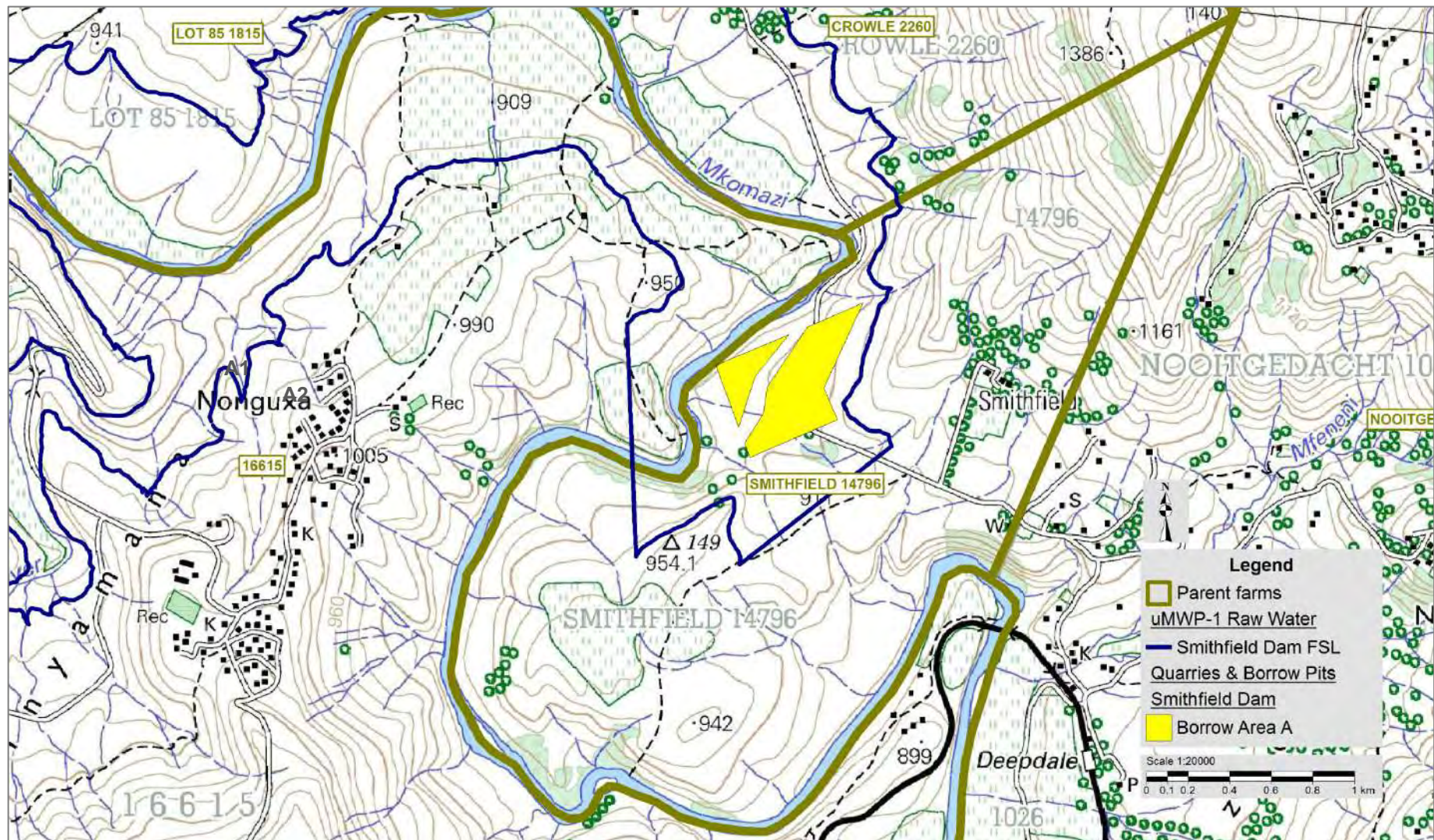
The original diagrams are
as quoted above




File No. 14722
S.R. No. 70/1968
Comp. ~~15-68~~
Degree Sheet 57

FSSP

TARBOTON & MITCHELL, PIETERMARITZBURG CON.051-E-00

FOR ENDORSEMENTS, etc., SEE BACK



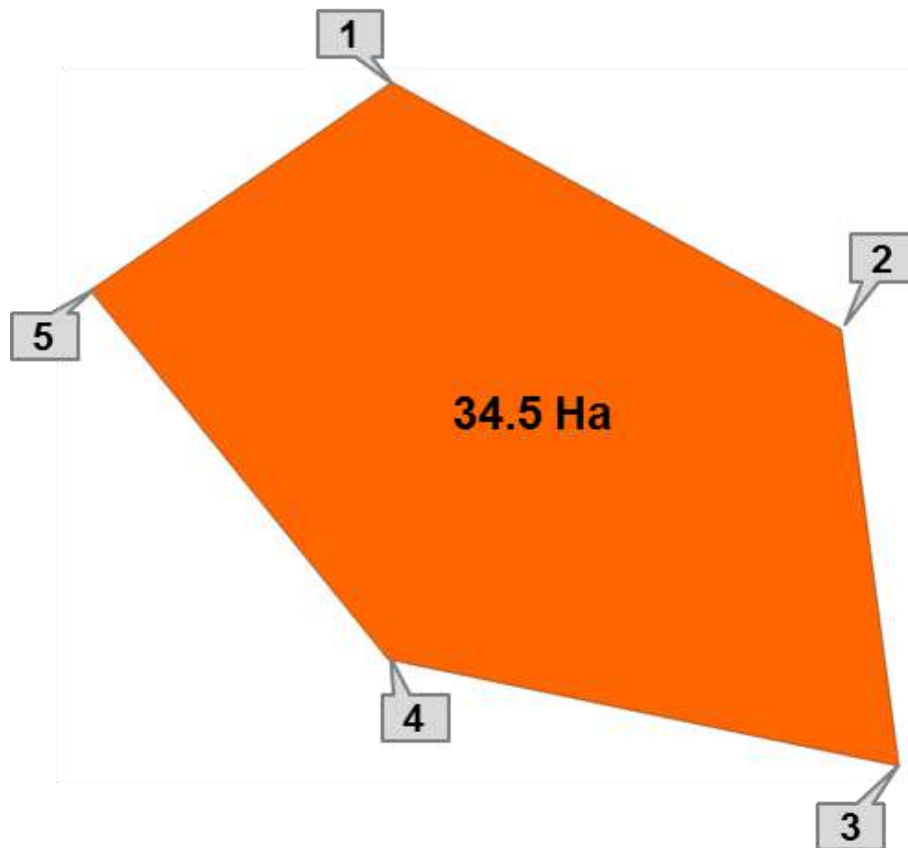
PREPARED FOR:  water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA	PROPOSED UMKHOMAZI WATER PROJECT PHASE 1 – RAW WATER COMPONENT: BORROW PITS & QUARRIES	DATE:	SIGNATURE:
PREPARED BY:  NEMA CONSULTING	MAP SMITHFIELD DAM - BORROW PIT A1 & A2	10 August 2016	

A2) Borrow Pit B

Description of Land

Farm name:	Crowle
Farm number and registration division:	2260 FS
Magisterial district:	PIETERMARITZBURG
Farm subdivision name:	REMAINING EXTENT
Farm subdivision number:	0
SG 21-digit code (if known)	N0FS00000000226000000
Offshore area (if applicable):	N/A

Coordinates (Hartebeesthoek 94)



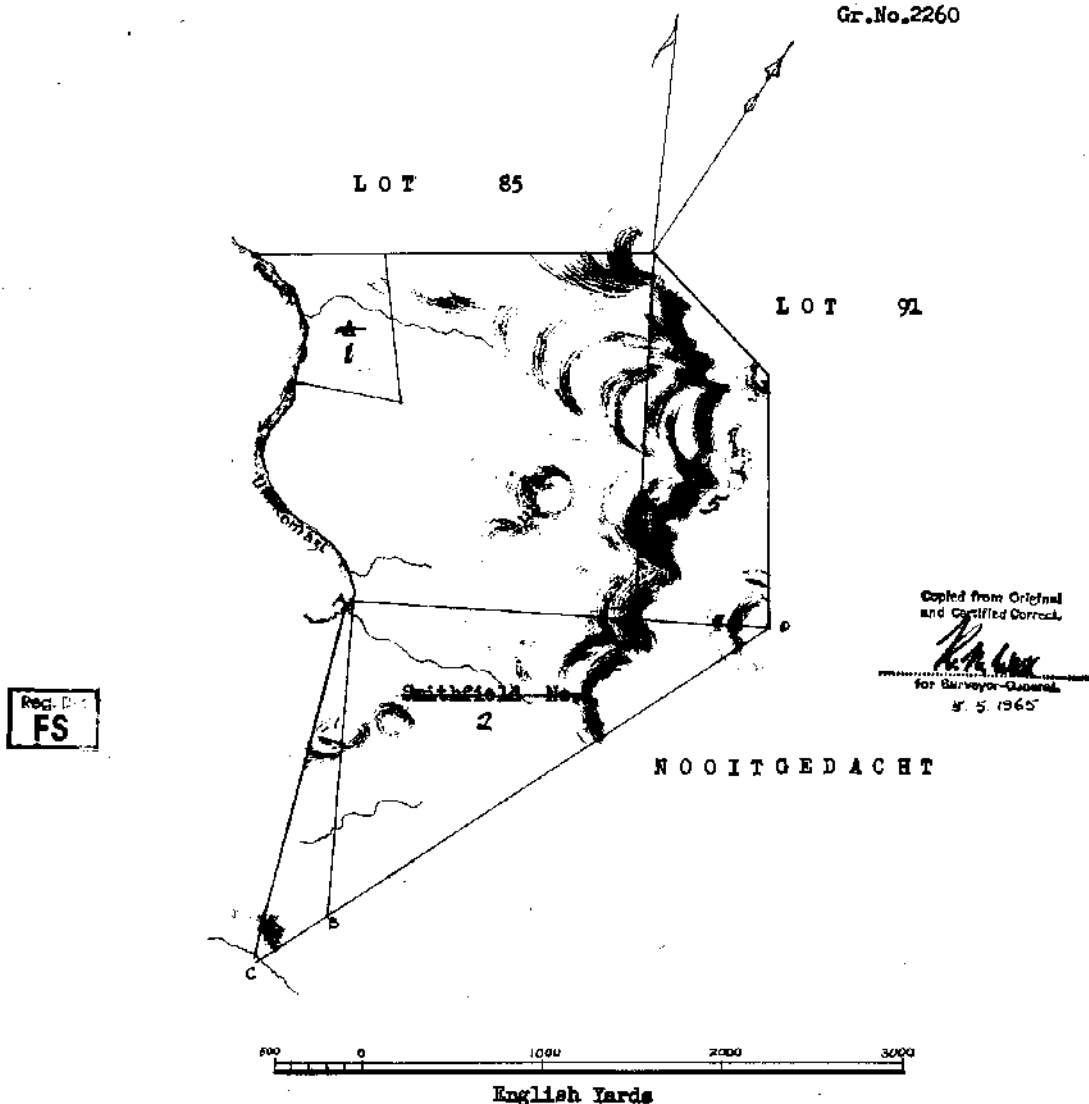
1	Longitude	29° 56 ' 38,61072456"	E
	Latitude	29° 45 ' 31,31184599964"	S
2	Longitude	29° 56 ' 55,8919968"	E
	Latitude	29° 45 ' 39,60859572"	S
3	Longitude	29° 56 ' 58,13041884"	E
	Latitude	29° 45 ' 54,27738828"	S
4	Longitude	29° 56 ' 38,46223536	E
	Latitude	29° 45 ' 50,69526984"	S
5	Longitude	29° 56 ' 27,00339827964"	E
	Latitude	29° 45 ' 38,29857228"	S
Close	Longitude	29° 56 ' 38,61072456"	E
	Latitude	29° 45 ' 31,31184599964"	S

SG Diagram

GV. 49 F28.

Gr.Vol.49 Fol.28

Gr.No.2260



Now known as:-

The farm CROWLE No. 2260

(Intd) E.G.P.
30/11/49

The above Diagram represents the Extent of 1500 Acres of land, being portion of Lot No. 86, situated on the river Umkomazi, in the Division of Pietermaritzburg, District of Natal.

Bounded on the N.Ed. and S.Ed. by the farm "Nooitgedacht" Northward by Lots Nos. 81 & 91 and S.Wd by the River Umkomazi and remaining portion of Lot 86.

Copied from Diagram by

G.D.Greaves

Govt. Surveyor

by me

Sept. 19, 1860

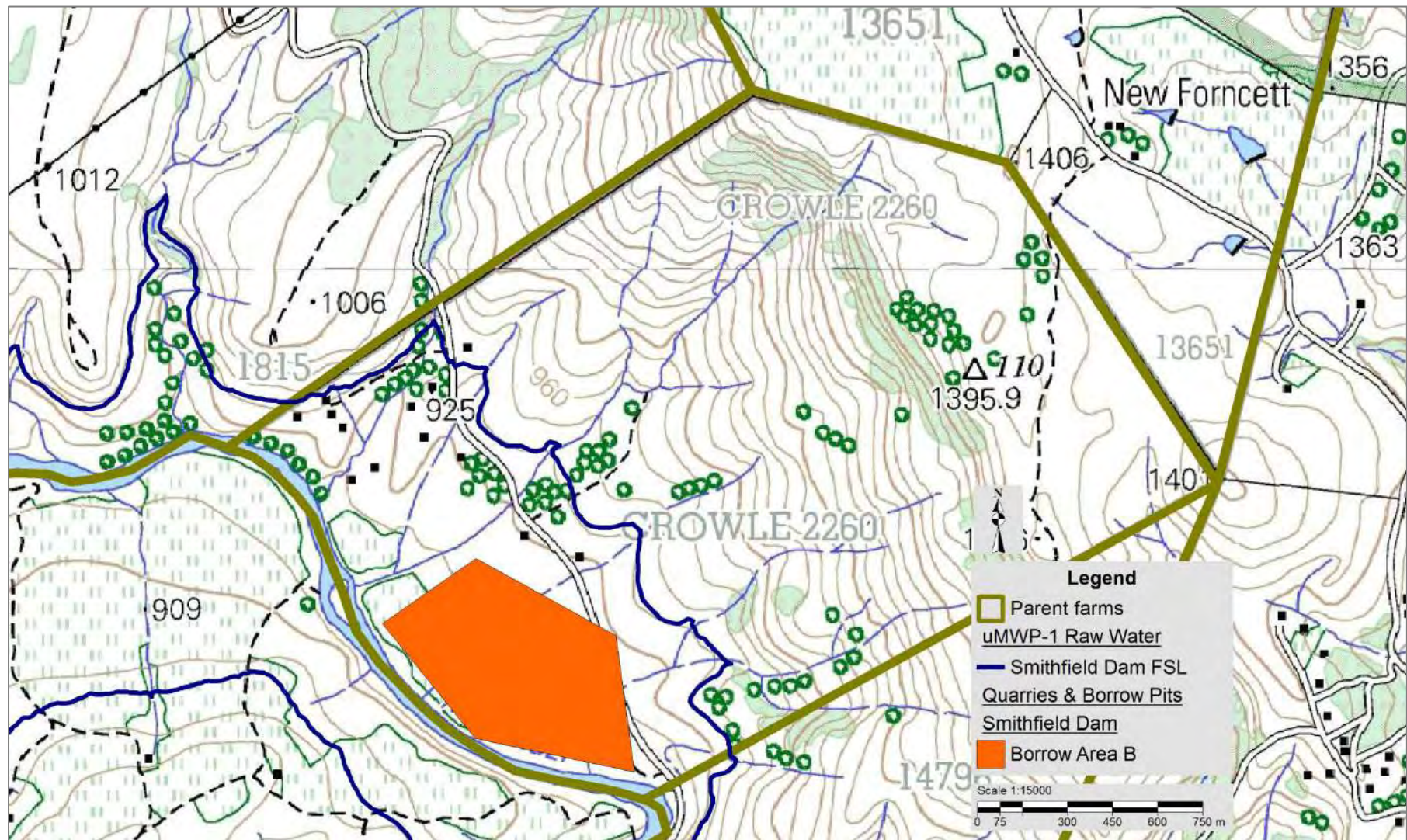
(Sgd) Albert B. Allison




D/Sh. 57

Govt. Draughtsman

FOR RETURN TO THE SURVEYOR-GENERAL

FSSP



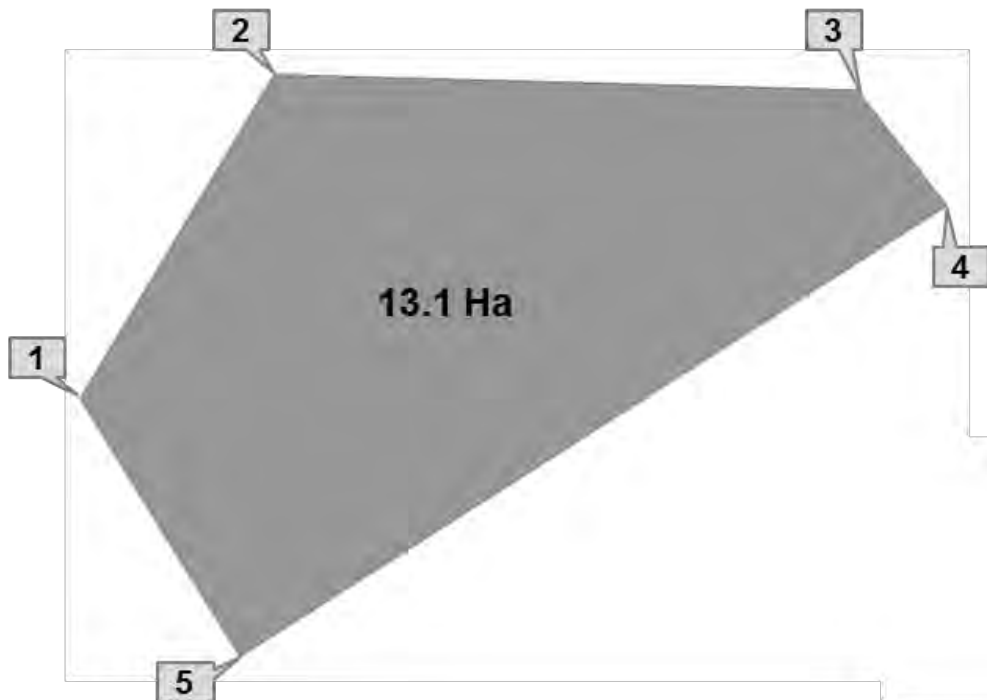
PREPARED FOR:  water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA	PROPOSED UMKHOMAZI WATER PROJECT PHASE 1 – RAW WATER COMPONENT: BORROW PITS & QUARRIES	DATE:	SIGNATURE:
PREPARED BY:  NEMAI CONSULTING	MAP SMITHFIELD DAM - BORROW PIT B	10 August 2016	

A3) Quarry I

Description of Land

Farm name:	Smithfield
Farm number and registration division:	14796 FS
Magisterial district:	PIETERMARITZBURG
Farm subdivision name:	REMAINING EXTENT
Farm subdivision number:	0
SG 21-digit code (if known)	N0FS00000001479600000
Offshore area (if applicable):	N/A

Coordinates (Hartebeesthoek 94)



1	Longitude	29° 56 ' 42,26639964"	E
	Latitude	29° 46 ' 36,34485851964"	S
2	Longitude	29° 56 ' 47,16478896"	E
	Latitude	29° 46 ' 29,22766931964"	S
3	Longitude	29° 57 ' 1,84894416"	E
	Latitude	29° 46 ' 29,56853531964"	S
4	Longitude	29° 57 ' 4,11931295964"	E
	Latitude	29° 46 ' 32,11545539964"	S
5	Longitude	29° 56 ' 46,3018578"	E
	Latitude	29° 46 ' 42,02483124"	S
Close	Longitude	29° 56 ' 42,26639964"	E
	Latitude	29° 46 ' 36,34485851964"	S

SG Diagram

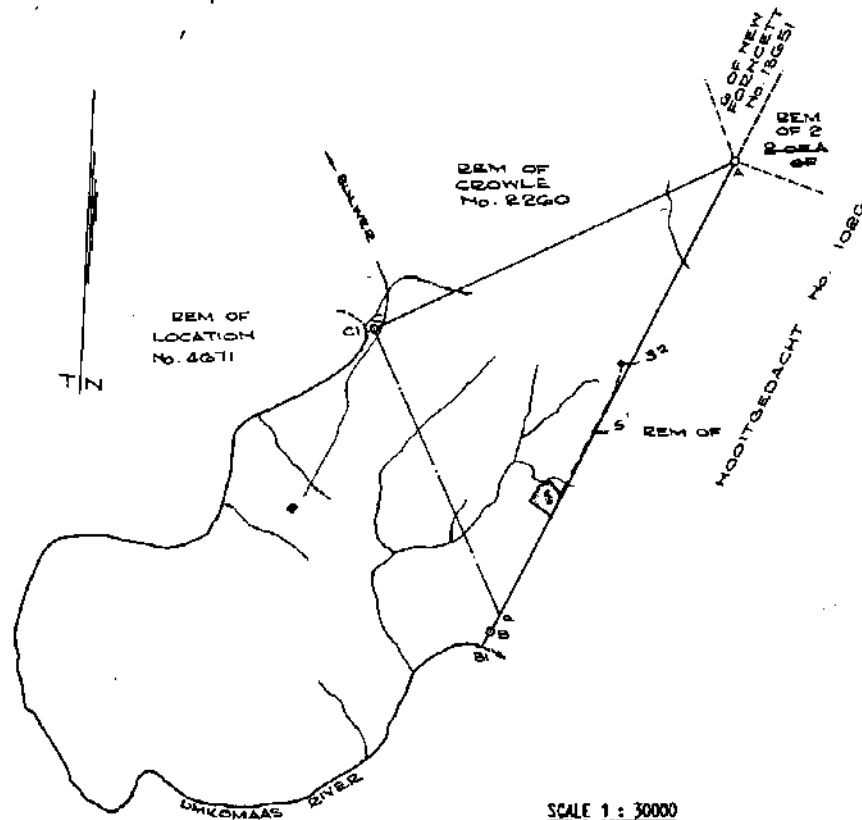
S.G. No. **130/1968**

SIDES ENGLISH FEET	CO-ORDINATES Y SYSTEM	CO-ORDINATES X	Off. Desig.
AB	9102.72	A 37.38.00	
CA	6860.70	ABB1 180.00.00	
BB1	326.70	C1CA 180.00.00	

Approved

R. A. L. K.
Surveyor-General.
- 4. 9. 1968

Reg. Div.
FS



The figure A.B1. Unkomaas River C1.
represents 1382.3625 Acres of land being
THE FARM SMITHFIELD No. 14796

and comprises :-

- 1) The figure A.a.C. representing Sub 2 of the farm Crowle No. 2260 vide diagram Sub Vol 114 Fol 57 and Deed of Transfer No. 886/1893.
- 2) The figure C.a.B1. Unkomaas River C1. representing the farm Smithfield No. 5352 vide diagram Grant Vol 104 Fol 5 and Deed of GRANT No. 5352

situate in the

County of Pietermaritzburg

Province of Natal.

Compiled in January 1968

by me

R. A. L. K.
Land Surveyor.

This diagram relates to CCT
No. **7374/1965**
Registrar of Deeds.

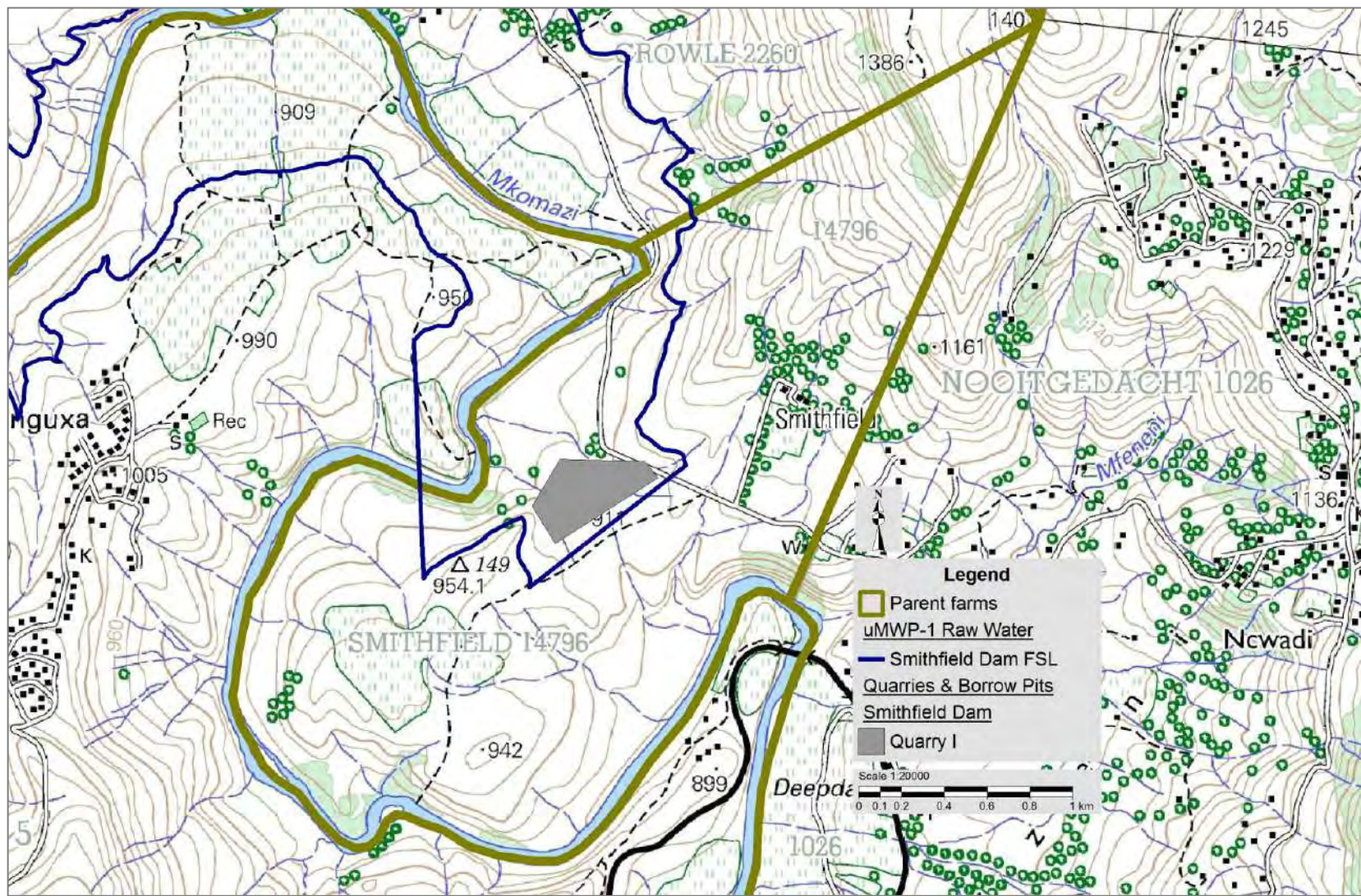
The original diagrams are
as quoted above




File No. 14796
S.R. No. 70/1968
Comp. 13-68
Degree Sheet 57

F55P

TARBOTON & MITCHELL, PIETERMARITZBURG CON. 001-2-68

FOR ENDORSEMENTS, SEE BACK



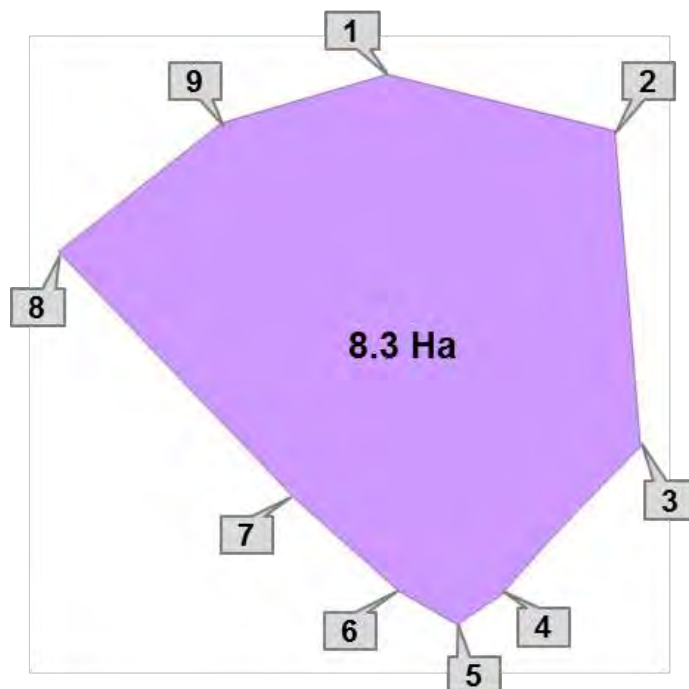
PREPARED FOR:	 water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA	PROPOSED UMKHOMAZI WATER PROJECT PHASE 1 – RAW WATER COMPONENT: BORROW PITS & QUARRIES	DATE:	SIGNATURE:
PREPARED BY:	 NEMA CONSULTING	MAP SMITHFIELD DAM - QUARRY I	10 August 2016	

A4) Quarry II

Description of Land

Farm name:	Smithfield
Farm number and registration division:	14796 FS
Magisterial district:	PIETERMARITZBURG
Farm subdivision name:	REMAINING EXTENT
Farm subdivision number:	0
SG 21-digit code (if known)	N0FS00000001479600000
Offshore area (if applicable):	N/A

Coordinates (Hartebeesthoek 94)



1	Longitude	29° 56 ' 12,20053812"	E
	Latitude	29° 46 ' 31,08859284"	S
2	Longitude	29° 56 ' 17,67413543964"	E
	Latitude	29° 46 ' 32,26515815964"	S
3	Longitude	29° 56 ' 18,28546079964"	E
	Latitude	29° 46 ' 38,8493958"	S
4	Longitude	29° 56 ' 14,94131496"	E
	Latitude	29° 46 ' 41,94351984"	S
5	Longitude	29° 56 ' 13,88381603964"	E
	Latitude	29° 46 ' 42,55870008"	S
6	Longitude	29° 56 ' 12,48416052"	E
	Latitude	29° 46 ' 41,86498368"	S
7	Longitude	29° 56 ' 9,96259452"	E
	Latitude	29° 46 ' 39,91362636"	S
8	Longitude	29° 56 ' 4,3159326"	E
	Latitude	29° 46 ' 34,79048471964"	S
9	Longitude	29° 56 ' 8,21386607964"	E
	Latitude	29° 46 ' 32,10830076"	S
Close	Longitude	29° 56 ' 12,20053812"	E
	Latitude	29° 46 ' 31,08859284"	S

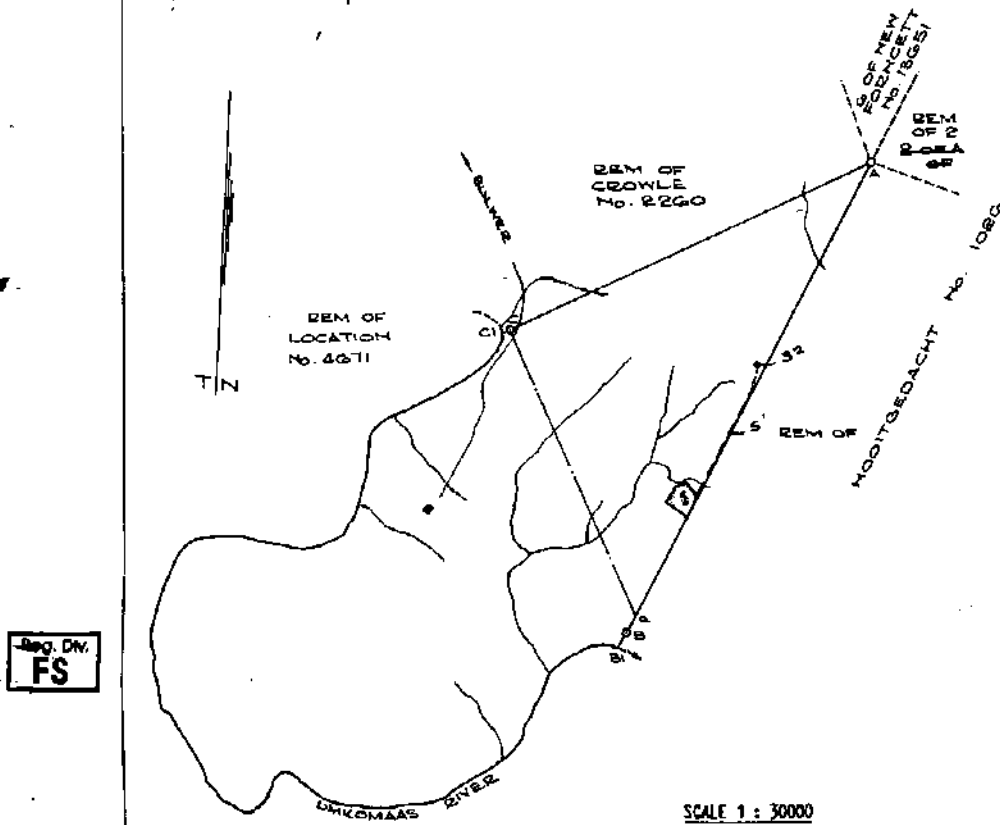
SG Diagram

S.G. No. 130/1968

SIDES ENGLISH FEET		DIMENSIONS METERS		CO-ORDINATES Y SYSTEM		X	OFF. DESIG.
AB	9102.72	A	37.38.00				
CA	6860.70	ABB1	180.00.00				
BB1	326.70	C1CA	180.00.00				

Approved

K. M. West
for Surveyor-General.
- 4. 9. 1968



The figure represents A.B1. Unknowns River C1. 1382.3625 Acres of land being THE FARM SMITHFIELD No. 14796

and comprises :-

- 1) The figure A.s.C. representing Sub 2 of the farm Crowle No. 2260 vide diagram Sub Vol 114 Fol 57 and Deed of Transfer No. 886/1893.
- 2) The figure C.s.B1. Unknownas River C1. representing the farm Smithfield No. 5352 vide diagram Grant Vol 104 Fol 5 and Deed of GRANT No. 5352

situate in the County of Pietermaritzburg Province of Natal.
Compiled in January 1968 by me K. J. Lee
Land Surveyor.

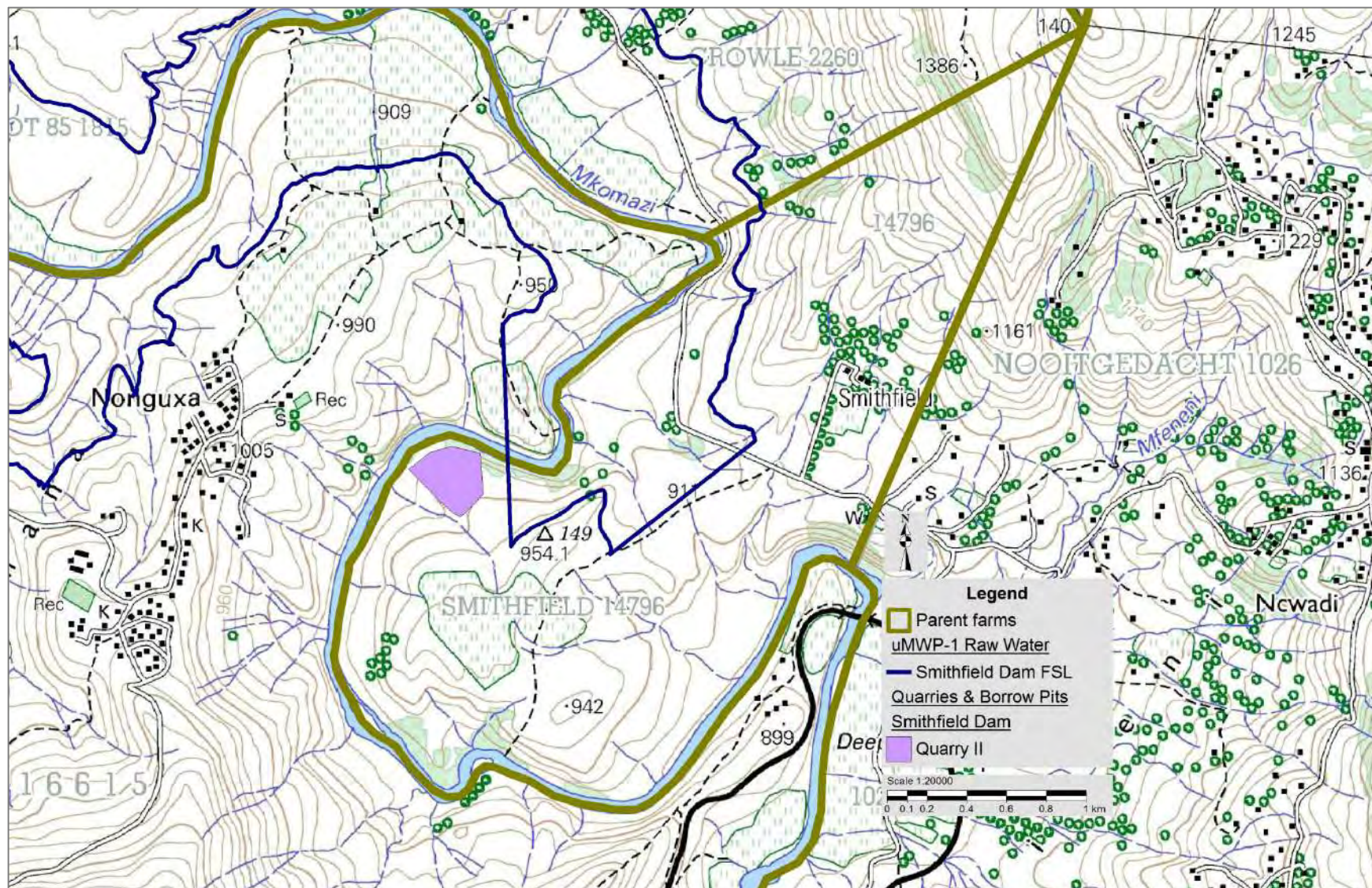
This diagram relates to CCT
No. 7374/1969
Registrar of Deeds.




The original diagrams are
as quoted above

File No. 14722
S.R. No. 70/1968
Comp. ~~15-88~~
Degree Sheet 57

F55P

FOR ENDORSEMENTS, etc., SEE BACK



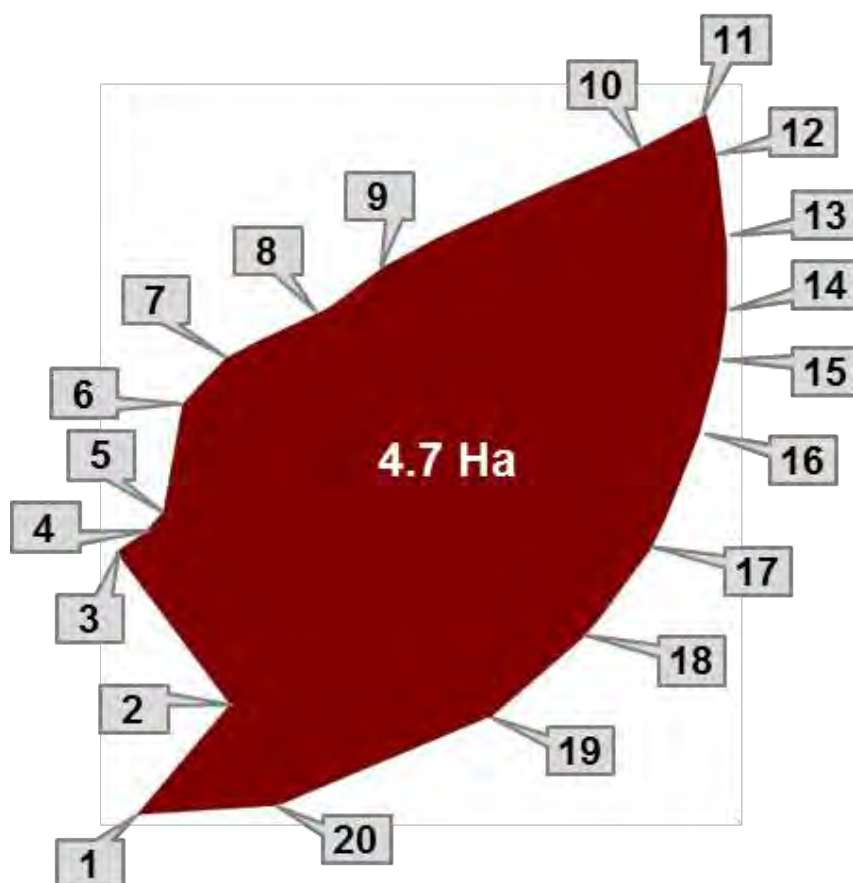
PREPARED FOR:  water & sanitation Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA	PROPOSED UMKHOMAZI WATER PROJECT PHASE 1 – RAW WATER COMPONENT: BORROW PITS & QUARRIES	DATE:	SIGNATURE:
PREPARED BY:  NEMA CONSULTING	MAP SMITHFIELD DAM - QUARRY II	10 August 2016	

A5) Quarry III

Description of Land

Farm name:	Smithfield
Farm number and registration division:	14796 FS
Magisterial district:	PIETERMARITZBURG
Farm subdivision name:	REMAINING EXTENT
Farm subdivision number:	0
SG 21-digit code (if known)	N0FS00000001479600000
Offshore area (if applicable):	N/A

Coordinates (Hartebeesthoek 94)



1	Longitude	29° 56 ' 22,98295103964"	E
	Latitude	29° 46 ' 51,99890267964"	S
2	Longitude	29° 56 ' 24,48045708"	E
	Latitude	29° 46 ' 50,44197648"	S
3	Longitude	29° 56 ' 22,63784099964"	E
	Latitude	29° 46 ' 48,28138716"	S
4	Longitude	29° 56 ' 23,10391968"	E
	Latitude	29° 46 ' 48,00353339964"	S
5	Longitude	29° 56 ' 23,40647159964"	E
	Latitude	29° 46 ' 47,70649596"	S
6	Longitude	29° 56 ' 23,7169464"	E
	Latitude	29° 46 ' 46,17897959964"	S
7	Longitude	29° 56 ' 24,40704407964"	E
	Latitude	29° 46 ' 45,53860656"	S

8	Longitude	29° 56 ' 26,09356739964"	E
	Latitude	29° 46 ' 44,81590764"	S
9	Longitude	29° 56 ' 26,97390024"	E
	Latitude	29° 46 ' 44,24086596"	S
10	Longitude	29° 56 ' 31,11304092"	E
	Latitude	29° 46 ' 42,57308747964"	S
11	Longitude	29° 56 ' 32,2100574"	E
	Latitude	29° 46 ' 42,07572588"	S
12	Longitude	29° 56 ' 32,37503532"	E
	Latitude	29° 46 ' 42,674727"	S
13	Longitude	29° 56 ' 32,52751368"	E
	Latitude	29° 46 ' 43,87904903964"	S
14	Longitude	29° 56 ' 32,53526376"	E
	Latitude	29° 46 ' 44,82962832"	S
15	Longitude	29° 56 ' 32,42277024"	E
	Latitude	29° 46 ' 45,53707331964"	S
16	Longitude	29° 56 ' 32,08252595964"	E
	Latitude	29° 46 ' 46,62805223964"	S
17	Longitude	29° 56 ' 31,30560096"	E
	Latitude	29° 46 ' 48,23546196"	S
18	Longitude	29° 56 ' 30,46945776"	E
	Latitude	29° 46 ' 49,23275232"	S
19	Longitude	29° 56 ' 28,74835535964"	E
	Latitude	29° 46 ' 50,59293455964"	S
20	Longitude	29° 56 ' 25,25561051964"	E
	Latitude	29° 46 ' 51,87235332"	S
Close	Longitude	29° 56 ' 22,98295103964"	E
	Latitude	29° 46 ' 51,99890267964"	S

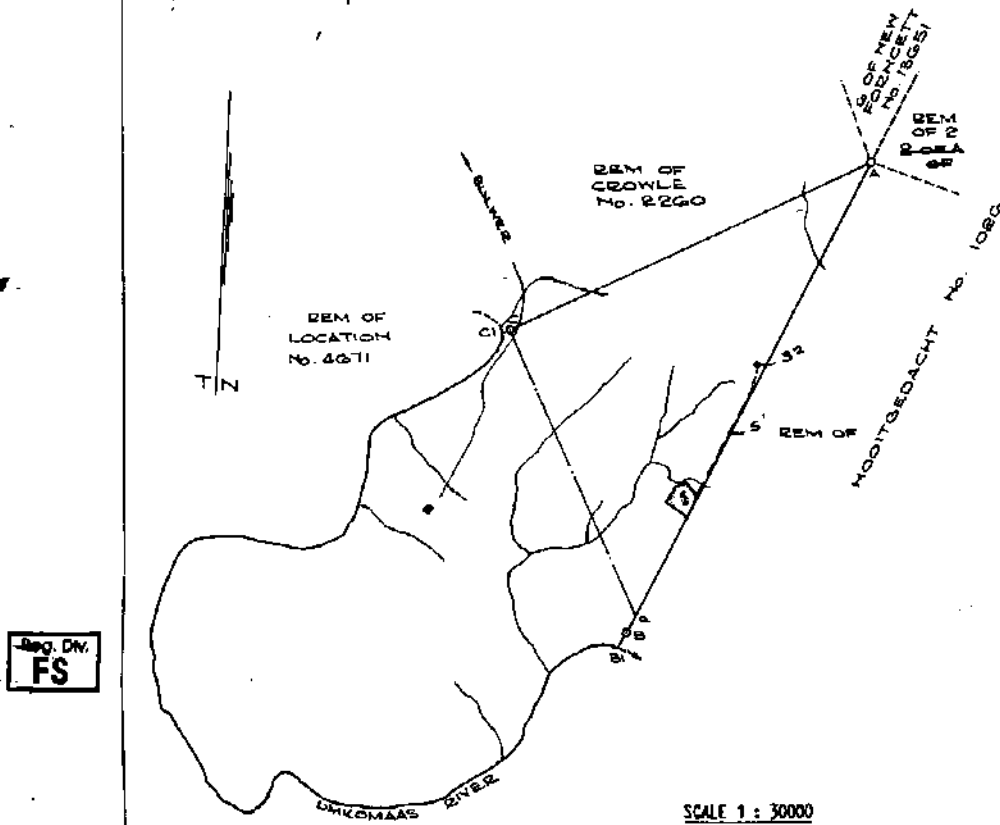
SG Diagram

S.G. No. 130/1968

SIDES ENGLISH FEET		DIMENSIONS METERS		CO-ORDINATES Y SYSTEM		X	OFF. DESIG.
AB	9102.72	A	37.38.00				
CA	6860.70	ABB1	180.00.00				
BB1	326.70	C1CA	180.00.00				

Approved

K. M. West
for Surveyor-General.
- 4. 9. 1968



The figure represents A.B1. Unknowns River C1. 1382.3625 Acres of land being THE FARM SMITHFIELD No. 14796

and comprises :-

- 1) The figure A.s.C. representing Sub 2 of the farm Crowle No. 2260 vide diagram Sub Vol 114 Fol 57 and Deed of Transfer No. 886/1893.
- 2) The figure C.s.B1. Unknownas River C1. representing the farm Smithfield No. 5352 vide diagram Grant Vol 104 Fol 5 and Deed of GRANT No. 5352

situate in the County of Pietermaritzburg Province of Natal.
Compiled in January 1968 by me K. J. Lee
Land Surveyor.

This diagram relates to CCT
No. 7374/1969
Registrar of Deeds.

The original diagrams are
as quoted above

File No. 14722
S.R. No. 70/1968
Comp. ~~15-88~~
Degree Sheet 57

F55P

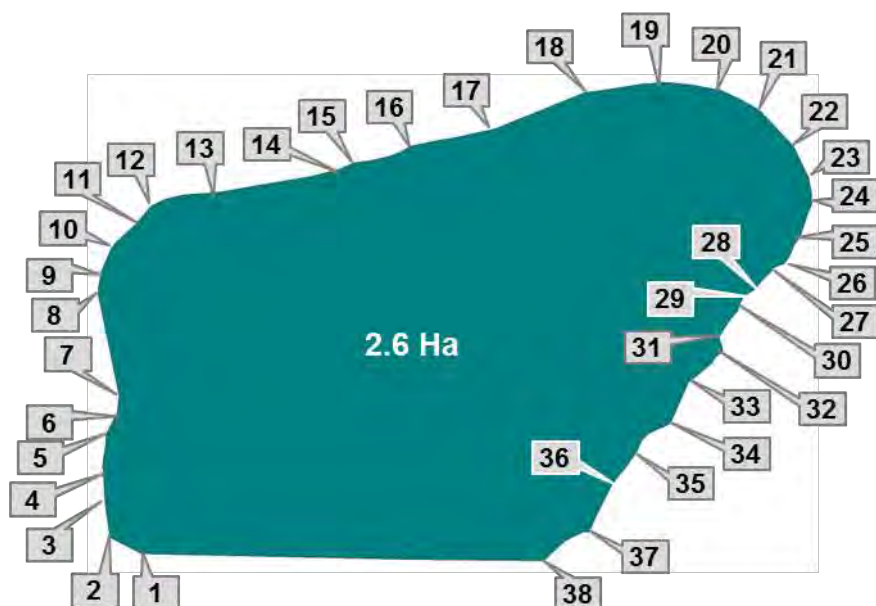
FOR ENDORSEMENTS, etc., SEE BACK

A6) Quarry IV

Description of Land

Farm name:	Crowle
Farm number and registration division:	2260 FS
Magisterial district:	PIETERMARITZBURG
Farm subdivision name:	REMAINING EXTENT
Farm subdivision number:	0
SG 21-digit code (if known)	N0FS00000000226000000
Offshore area (if applicable):	N/A

Coordinates (Hartebeesthoek 94)



1	Longitude	29° 56 ' 58,28391816"	E
	Latitude	29° 45 ' 51,71566211964"	S
2	Longitude	29° 56 ' 57,90526692"	E
	Latitude	29° 45 ' 51,54177635964"	S
3	Longitude	29° 56 ' 57,82483824"	E
	Latitude	29° 45 ' 50,89316112"	S
4	Longitude	29° 56 ' 57,81468912"	E
	Latitude	29° 45 ' 50,80096116"	S
5	Longitude	29° 56 ' 57,857073"	E
	Latitude	29° 45 ' 50,44225824"	S
6	Longitude	29° 56 ' 57,9918858"	E
	Latitude	29° 45 ' 50,21990351964"	S
7	Longitude	29° 56 ' 58,01355384"	E
	Latitude	29° 45 ' 50,04737063964"	S
8	Longitude	29° 56 ' 57,909597"	E
	Latitude	29° 45 ' 49,59610667964"	S
9	Longitude	29° 56 ' 57,80527655964"	E
	Latitude	29° 45 ' 49,15794924"	S
10	Longitude	29° 56 ' 57,92596224"	E
	Latitude	29° 45 ' 48,47107067964"	S
11	Longitude	29° 56 ' 58,241076"	E
	Latitude	29° 45 ' 48,20472288"	S
12	Longitude	29° 56 ' 58,58926836"	E
	Latitude	29° 45 ' 47,95705295964"	S

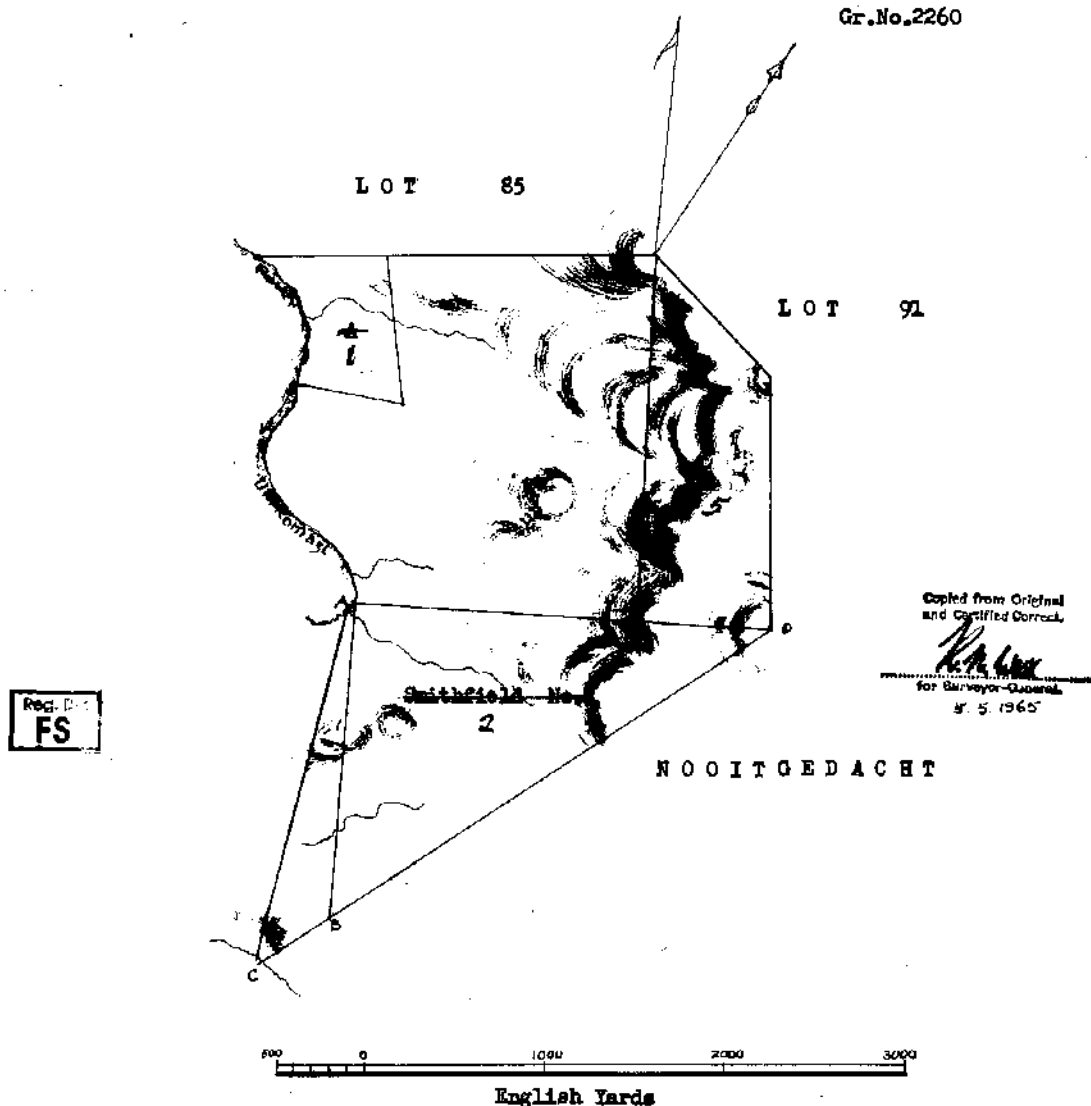
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	Latitude	29° 45 ' 47,88668447964"	S
14	Longitude	29° 57 ' 0,35812151964"	E
	Latitude	29° 45 ' 47,71871532"	S
15	Longitude	29° 57 ' 0,73214027964"	E
	Latitude	29° 45 ' 47,63152439964"	S
16	Longitude	29° 57 ' 1,1103768"	E
	Latitude	29° 45 ' 47,54530907964"	S
17	Longitude	29° 57 ' 2,02931963964"	E
	Latitude	29° 45 ' 47,32045992"	S
18	Longitude	29° 57 ' 3,70903428"	E
	Latitude	29° 45 ' 46,82709396"	S
19	Longitude	29° 57 ' 4,71912659964"	E
	Latitude	29° 45 ' 46,7251686"	S
20	Longitude	29° 57 ' 5,35486068"	E
	Latitude	29° 45 ' 46,80884231964"	S
21	Longitude	29° 57 ' 5,59614455964"	E
	Latitude	29° 45 ' 46,90903607964"	S
22	Longitude	29° 57 ' 6,23706048"	E
	Latitude	29° 45 ' 47,39827536"	S
23	Longitude	29° 57 ' 6,41883132"	E
	Latitude	29° 45 ' 47,73265163964"	S
24	Longitude	29° 57 ' 6,44783399964"	E
	Latitude	29° 45 ' 47,87248967964"	S
25	Longitude	29° 57 ' 6,36057504"	E
	Latitude	29° 45 ' 48,24546372"	S
26	Longitude	29° 57 ' 6,1421976"	E
	Latitude	29° 45 ' 48,6234666"	S
27	Longitude	29° 57 ' 6,07501151964"	E
	Latitude	29° 45 ' 48,65864615964"	S
28	Longitude	29° 57 ' 5,7518928"	E
	Latitude	29° 45 ' 48,92526323964"	S
29	Longitude	29° 57 ' 5,66077968"	E
	Latitude	29° 45 ' 48,96745632"	S
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	Latitude	29° 45 ' 49,14901404"	S
31	Longitude	29° 57 ' 5,32366236"	E
	Latitude	29° 45 ' 49,42550844"	S
32	Longitude	29° 57 ' 5,36625468"	E
	Latitude	29° 45 ' 49,52429279964"	S
33	Longitude	29° 57 ' 4,95285659964"	E
	Latitude	29° 45 ' 49,90383468"	S
34	Longitude	29° 57 ' 4,73391108"	E
	Latitude	29° 45 ' 50,33706983964"	S
35	Longitude	29° 57 ' 4,26061692"	E
	Latitude	29° 45 ' 50,71885343964"	S
36	Longitude	29° 57 ' 4,01056704"	E
	Latitude	29° 45 ' 51,00876179964"	S
37	Longitude	29° 57 ' 3,74311188"	E
	Latitude	29° 45 ' 51,48911988"	S
38	Longitude	29° 57 ' 3,18674015964"	E
	Latitude	29° 45 ' 51,79034987964"	S
Close	Longitude	29° 56 ' 58,28391816"	E
	Latitude	29° 45 ' 51,71566211964"	S

SG Diagram

GV. 49 F28.

Gr.Vol.49 Fol.28

Gr.No.2260



Now known as:-

The farm CROWLE No. 2260

(Intd) E.G.P.
30/11/49

The above Diagram represents the Extent of 1500 Acres of land, being portion of Lot No. 86, situated on the river Umkomazi, in the Division of Pietermaritzburg, District of Natal.

Bounded on the N.Ed. and S.Ed. by the farm "Nooitgedacht" Northward by Lots Nos. 81 & 91 and S.Wd by the River Umkomazi and remaining portion of Lot 86.

Copied from Diagram by

G.D.Greaves

Govt. Surveyor

by me

Sept. 19, 1860

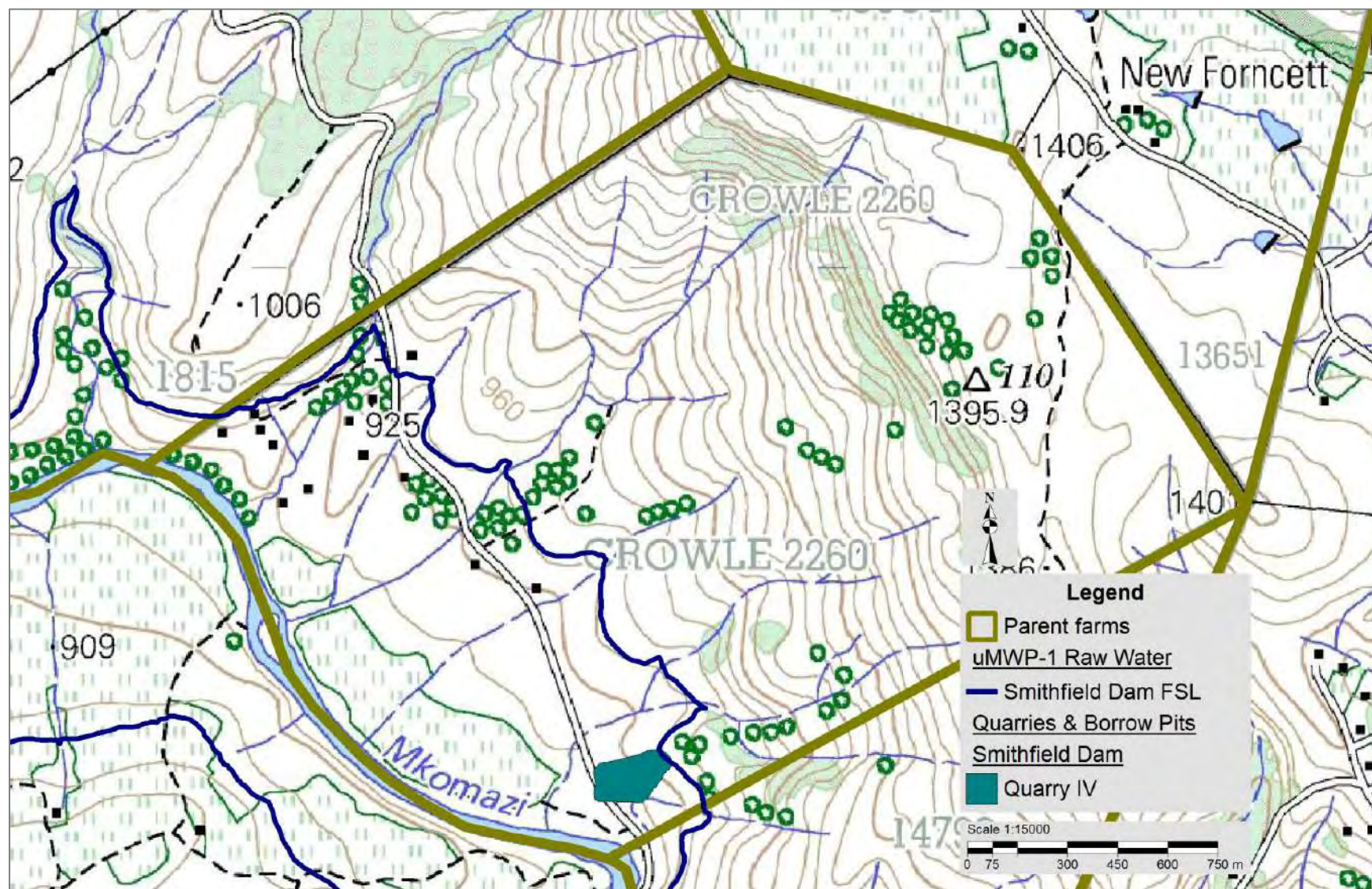
(Sgd) Albert B. Allison




D/Sh. 57

Govt. Draughtsman

FOR THE SURVEYOR-GENERAL

FSSP



PREPARED FOR:	 water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA	PROPOSED UMKHOMAZI WATER PROJECT PHASE 1 – RAW WATER COMPONENT: BORROW PITS & QUARRIES		DATE:	SIGNATURE:
PREPARED BY:	 NEMAI CONSULTING	MAP SMITHFIELD DAM - QUARRY IV		10 August 2016	

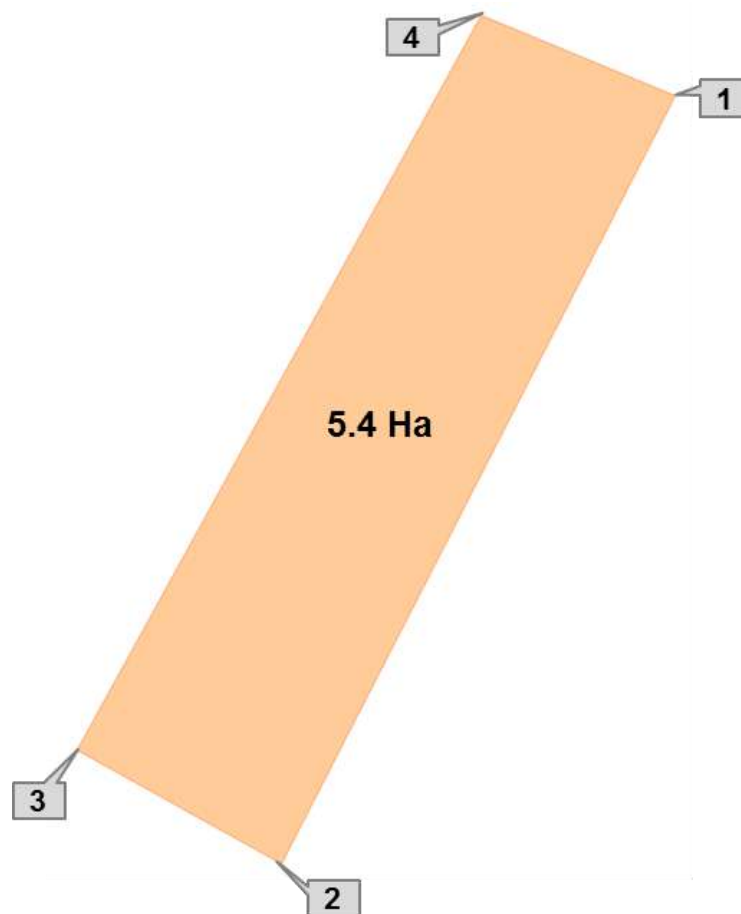
B. LANGA BALANCING DAM

B1) Borrow Pit & Quarry

Description of Land

Farm name:	Nooitgedacht
Farm number and registration division:	903 FT
Magisterial district:	PIETERMARITZBURG
Farm subdivision name:	Portion 12
Farm subdivision number:	12
SG 21-digit code (if known)	N0FT00000000090300012
Offshore area (if applicable):	N/A

Coordinates (Hartebeesthoek 94)



1	Longitude	30° 17' 51,95689512 "	E
	Latitude	29° 47' 36,43890251964 "	S
2	Longitude	30° 17' 44,11017959964 "	E
	Latitude	29° 47' 49,7722092 "	S
3	Longitude	30° 17' 40,0400376 "	E
	Latitude	29° 47' 47,79638879964 "	S
4	Longitude	30° 17' 48,08217623964 "	E
	Latitude	29° 47' 35,0483802 "	S
Close	Longitude	30° 17' 51,95689512 "	E
	Latitude	29° 47' 36,43890251964 "	S

SG Diagram

TARBOTON, HOLDER, ROSS & PARTNERS

CONSOLIDATED DIAGRAM

SHEET 2 OF 2 SHEETS

FOR LEASEHOLD PURPOSES ONLY

Compiled in November 1989 by me (FOR OTHER LEASES OVER THIS
O.M. Greene PROPERTY REFER TO LEASEHOLD
 Professional Land Surveyor DIAGRAM FOR SUB 2 OF FARM
 No. 503 vide S.V. 24 fol 19)

S.G. No.

3508 / 1989L

Approved

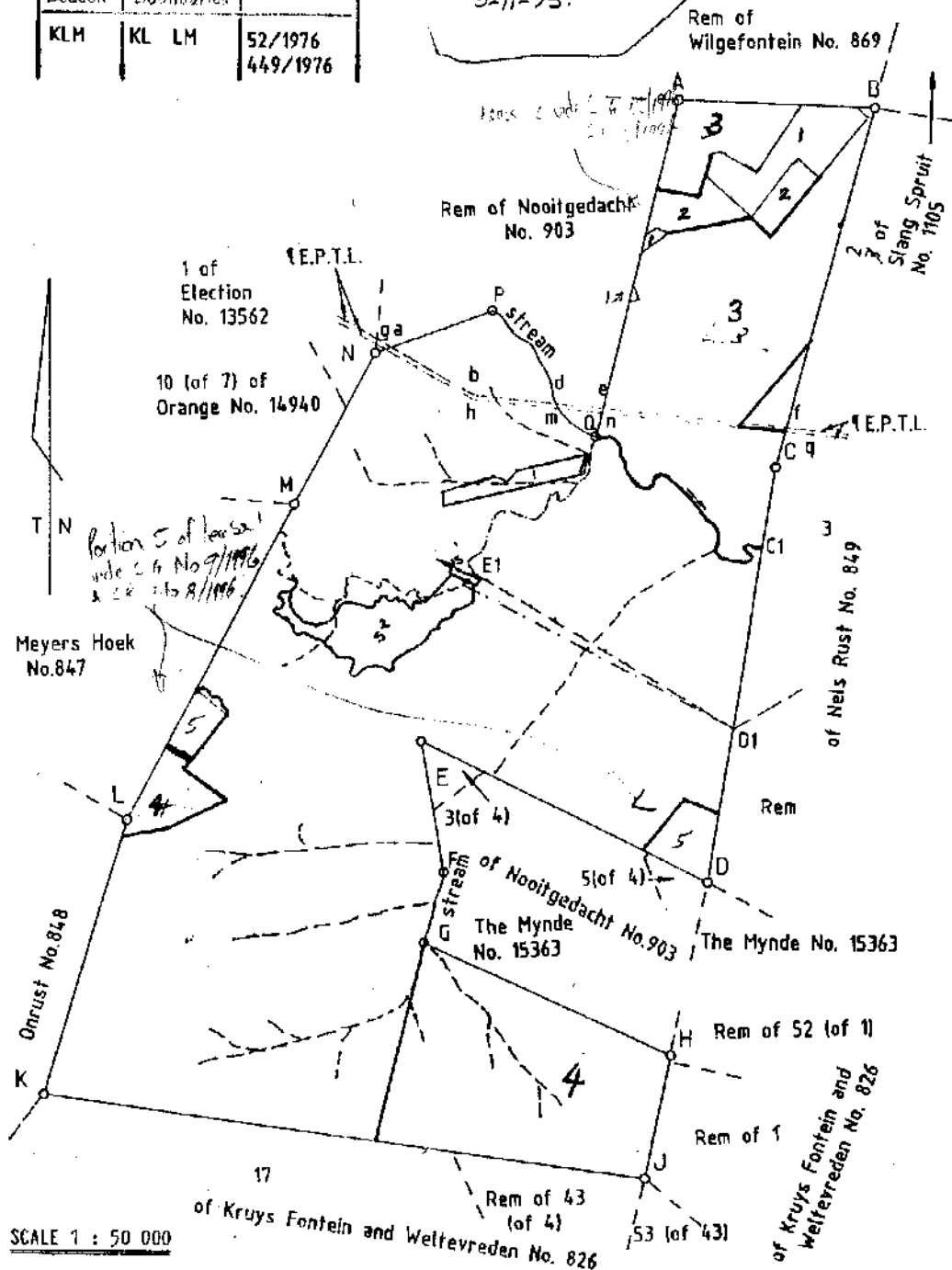
M. de Wet

for
SURVEYOR-
GENERAL

1990-01-09

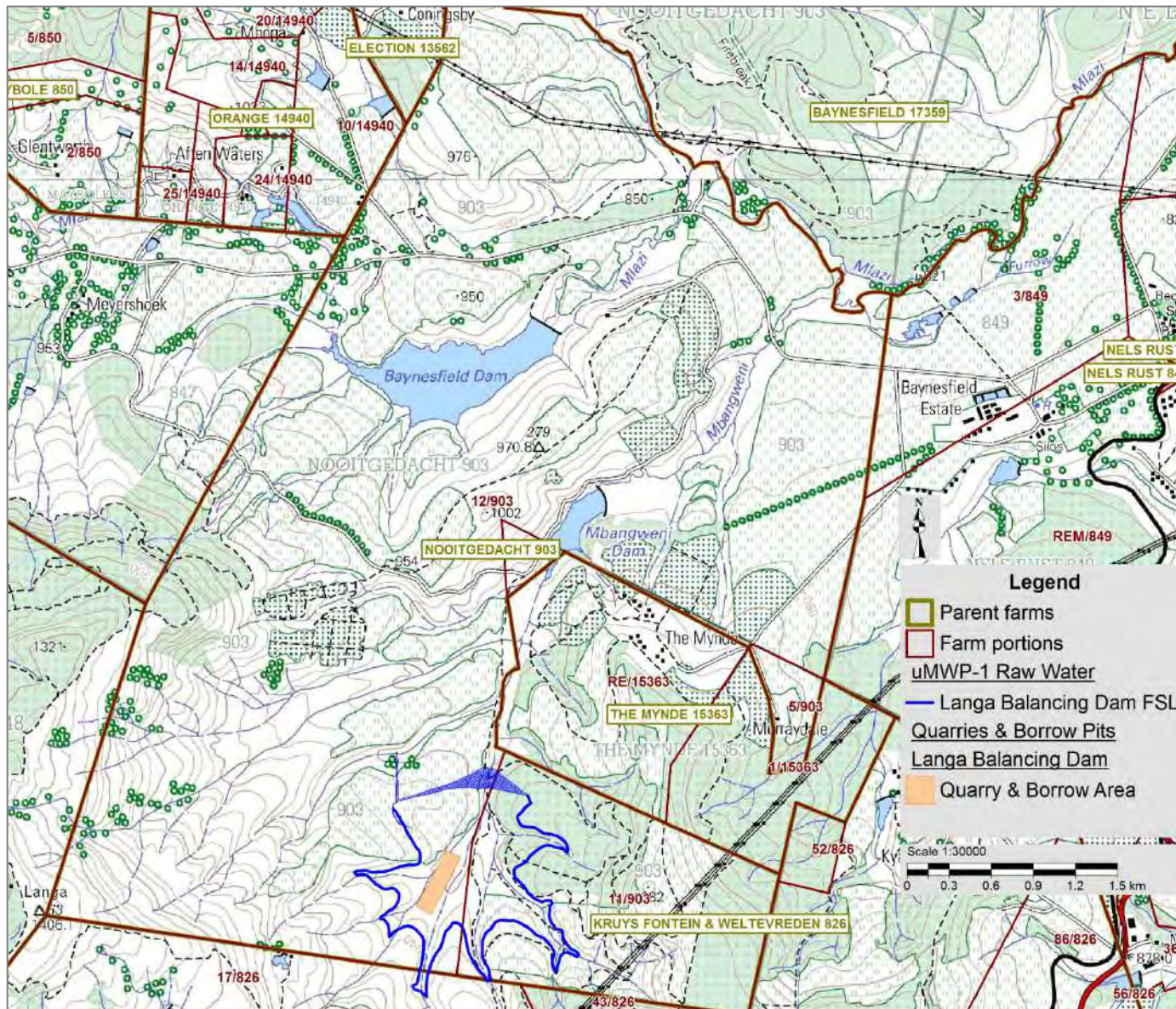
ESTABLISHED		Ref. No.
Deacon	Boundaries	S.T. No.
KLM	KL LM	52/1976
		449/1976



*Portion 5 (of 4) Reared - S.T.G.
 FILE 503 pg. 32
 9-11-95.*



Reg. Div.
FT

SCALE 1 : 50 000



PREPARED FOR:  water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA	PROPOSED UMKHOMAZI WATER PROJECT PHASE 1 – RAW WATER COMPONENT: BORROW PITS & QUARRIES		DATE:	SIGNATURE:
PREPARED BY:  NEMA CONSULTING	MAP LANGA BALANCING DAM – BORROW PIT & QUARRY		10 August 2016	