

	<b>Strategy</b>	<b>Engineering</b>
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Strategy for Kusile 10 Year  
Dump Optimization Project**

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**Compiled by**



**Andre Laas  
KET Engineer– BMH  
Kusile Power Station**

Date: **26-Oct-2021**

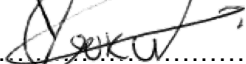
**Functional Responsibility**



**Karabo Taunyane  
KET Lead Engineer – BMH  
Kusile Power Station**

Date: **26/10/2021**

**Supported by**



**Yuvir Gokul  
Engineering Design Work  
Lead  
Kusile Power Station**

Date: **26/10/2021**


**Approved by**



**Tumiso Railo  
Project Engineering Manager  
Kusile Power Station**

Date: **27/10/2021**

**Authorised by**



**Justice Tshikomba  
(Acting) Technical Plant  
Manager  
Kusile Power Station**

Date: **2021/11/03**

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## **1. INTRODUCTION**

An invite will be issued calling for interested parties to participate in the tender process for the design, procurement, fabrication, manufacturing, factory testing, storage, delivery to Kusile Power Station site, off-loading, erection, installation, site testing, cold and hot commissioning, project management and quality control of a fully functional link conveyor system and associated auxiliary systems for Kusile Power Station.

The complete work is detailed in the Scope of Work document, 366-258167 Kusile Power Station 10 Year Ash Dump Optimization – Interim Phase.

This document sets out the method and criteria that will be used to evaluate the tenders that will be received from the Open Enquiry process.

An evaluation score card was created to be read in conjunction with this Tender Technical Evaluation Strategy, which will be issued as part of the Works Information. Refer to Appendix A for the score card.

## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

The Scope of this document includes the technical evaluation method, mandatory evaluation criteria, qualitative evaluation criteria and TET member responsibilities for Kusile Power Station 10 Year Dump Optimization project of the Mechanical, Electrical, C&I and associated Civil and Structural scope. The scope of the project is as described in the Kusile Power Station 10 Year Ash Dump Optimization – Interim Phase – Scope of Work (366-258167).

#### **2.1.1 Purpose**

The purpose of this tender technical evaluation strategy is to capture the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and TET member responsibilities for tender technical evaluation. The technical evaluation strategy serves as basis for the tender technical evaluation process.

#### **2.1.2 Applicability**

This document applies to the Tender Evaluation Team for the Kusile Power Station 10 Year Ash Dump Optimization – Interim Phase project.

## **2.2 NORMATIVE/INFORMATIVE REFERENCES**

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

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### **2.2.1 Normative**

- [1] 240-48929482: Tender Technical Evaluation Procedure, Rev. 2
- [2] 32-1034 Eskom Procurement and Supply Chain Management Procedure, Rev. 4

### **2.2.2 Informative**

- [3] 366-258167 Kusile Power Station 10 Year Ash Dump Optimization – Interim Phase – Scope of Work Rev. 4

## **2.3 DEFINITIONS**

### **2.3.1 Classification**

**Controlled Disclosure:** Controlled Disclosure to external parties (either enforced by law, or discretionary)

### **2.3.2 Abbreviations**

<b>Abbreviation</b>	<b>Description</b>
3D	Three Dimensional
ADF	Ash Disposal Facility
BMH	Bulk Materials Handling
C&I	Controls & Instrumentation
CADD	Computer Aided Design & Drafting
CoE	Centre of Excellence
CV	Curriculum Vitae
ECSA	Engineering Council of South Africa
EDWL	Engineering Design Work Lead
GTE	Group Technology Engineering
HAZOP	Hazard and Operability Study
HECU	Head End Control Unit
IEC	International Electrotechnical Commission
ISO	International Standards Organization
LDE	Lead Discipline Engineer
OEM	Original Equipment Manufacturer
P&ID	Piping and Instrumentation Diagram
PLC	Programmable Logic Controller
RAM	Reliability, Availability, and Maintainability
SACPCMP	South African Council for the Project and Construction Management Professions
SANS	South African National Standards

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<b>Abbreviation</b>	<b>Description</b>
TET	Technical Evaluation Team
VDSS	Vendor Document Submission Schedule

## **2.4 ROLES AND RESPONSIBILITIES**

Compiler	The document compiler is responsible for ensuring that this document is up-to-date and that this document is not a duplication of an existing documentation, regarding the document's objectives and content.
Functional Responsibility (CoE Manager)	The Functional Responsible Person shall determine if the document is fit for purpose, before the document is submitted for authorisation.
Authoriser (Senior Manager)	The document authoriser is a duly delegated person with the responsibility to review the document for alignment to business strategy, policy, objectives and requirements. He/she shall authorise the release and application of the document.
Lead Discipline Engineers	Provide input to the technical tender evaluation strategy and associated engineering activities.
Configuration Management Lead	Is accountable for ensuring that the engineering documentation, engineering systems and databases are correctly configured. As part of this role, the Configuration Practitioner is responsible for the development of the configuration management plan; configuration and management of the PBS and the management of plant item Tags.

## **2.5 PROCESS FOR MONITORING**

The primary process for monitoring will be governed by Design Review Procedure (240-53113685), this entails assuring that the design achieves the requirements set out in this document.

## **2.6 RELATED/SUPPORTING DOCUMENTS**

N/A

# **3. TENDER TECHNICAL EVALUATION STRATEGY**

## **3.1 TECHNICAL EVALUATION METHOD**

A weighted score-card approach is used to evaluate the technical compliance of the tenders against the specifications. Tenderers need to have a weighted score of 70% overall or more to technically qualify for further evaluation.

The technical criteria and weighting is broken down as follows:

- a) Engineering: 100%

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The evaluation of the tender submission will be based on the tenderer's ability to meet the Engineering and Project Management requirements. A weighted score card approach will be used to evaluate the tender submission against the specifications and Employer's requirements.

The scoring method will be as follows:

**Table 1: Scoring Method**

SCORE	PERCENTAGE	DESCRIPTION
5	100	COMPLIANT <ul style="list-style-type: none"><li>Meet technical requirement(s) AND;</li><li>No foreseen technical risk(s) in meeting technical requirements.</li></ul>
4	80	COMPLIANT WITH ASSOCIATED QUALIFICATIONS <ul style="list-style-type: none"><li>Meet technical requirement(s) with;</li><li>Acceptable technical risk(s) AND/OR;</li><li>Acceptable exceptions AND/OR;</li><li>Acceptable conditions.</li></ul>
2	40	NON-COMPLIANT <ul style="list-style-type: none"><li>Does not meet technical requirement(s) AND/OR;</li><li>Unacceptable technical risk(s) AND/OR;</li><li>Unacceptable exceptions AND/OR;</li><li>Unacceptable conditions.</li></ul>
0	0	TOTALLY DEFICIENT OR NON-RESPONSIVE

### 3.2 TECHNICAL EVALUATION THRESHOLD

In order to be eligible for evaluation, the contractor shall meet all the mandatory requirements.

The evaluation of tenders will be based on the contractor's ability to meet the requirements specified in the Kusile 10 Year Ash Dump Optimization Scope of Work [3].

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 70% as defined in the tender Technical Evaluation Procedure (240-48929482).

Individual engineering discipline specific criteria weighting is as follows:

**Table 2: Evaluation Scores**

Discipline	Weighting (%)
Bulk Materials Handling	50
Civil and Structural	20
Control and Instrumentation	10
Electrical	20

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### **3.4 MANDATORY TECHNICAL EVALUATION CRITERIA**

**Table 4: Mandatory Technical Evaluation Criteria**

	<b>Mandatory Technical Criteria Description</b>	<b>Reference to Technical Specification / Tender Returnable</b>	<b>Motivation for use of Criteria</b>
1.	Supply a reference list (one (1) project or more) indicating the Tenderer's capability and experience in complete design, construction and commissioning of Belt Conveying System operating in conjunction with a Stacker Machine, at a minimum conveying capacity of 1 000 Tph (of any product) and a conveying distance of more than 100 m (pulley centre-to-centre distance).  The tenderer must submit information of reference plants, as the primary contractor or as part of a joint venture.	Submit the following minimum information, per reference plant: <ul style="list-style-type: none"><li>• Client</li><li>• Project description</li><li>• Contact person</li><li>• Contact number</li><li>• Project end date</li></ul>	Conveyor and Crawler Mounted Radial Stacker machine Design and Construction experience is required to ensure tenderer has the requisite capability and expertise to undertake this project.
2.	Supply a letter of compliance to all Scope of Work for the 10 Year Ash Dump Optimization – Interim Phase project, with no exclusions.	See Scope of Work Document [3] / Letter of compliance to all Scope of Work to be provided.	Full compliance to Scope of Work.



### 3.5 QUALITATIVE TECHNICAL EVALUATION CRITERIA

**Table 5: Qualitative Technical Evaluation Criteria**

	Qualitative Technical Criteria Description		Tender Returnable	Reference to Technical Specification	Criteria Weighting	Criteria Sub Weightin g	Specific Criteria Weightin g
					(%)	(%)	(%)
<b>1.</b>	<b>Bulk Materials Handling Evaluation Criteria</b>				<b>50</b>		
<b>1.1</b>	<b>General</b>					<b>30</b>	
	1.1.1	CVs of all mechanical engineering resources dedicated to this project and ECSA registration status.	Provide the following:  1. CV of the Lead Mechanical Engineer with minimum 6 years related experience [30].  2. ECSA professional registration (Pr. Eng/Pr. Tech) of the Lead Mechanical Engineer. Professional certification/ registration number to be provided [70].				100
<b>1.2</b>	<b>Design</b>					<b>70</b>	
	1.2.1	Tenderer to submit licence certificates/proof of all design software to be used for Design Calculations.	Submit specialized materials handling software certificate/proof used for Conveyor and Chute designs.				50
	1.2.2	Tenderer to provide a signed letter stating compliance to all BMH Codes/Standards/ Specifications as detailed in the Scope of Work Document [3], and provide a list of deviations and/or equivalent international Codes/Standards/Specifications compliance.	Submit a letter of compliance to be utilized for the BMH scope of work for the conveyor and stacker machine major components, and provide a list of Codes/Standards/Specifications deviations (if required).	Section 3 and Appendix D			50

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<b>2.</b>	<b>Civil Engineering Evaluation Criteria</b>				<b>20</b>		
<b>2.1</b>	<b>Design</b>					<b>60</b>	
	2.1.1	Design Methodology for the design of civils and structural works: The Design Methodology is to clearly provide details of the design method to be followed including compliance to specific standards and design reviews by the Employer.	Design Proposal: Proposed Design methodology/plan for the works. Provide typical proposals covering all design stages highlighting the following:  a) Sketch of proposed general arrangement. b) Proposed Civil Works execution plan which includes high level list and schedule of deliverables. c) Construction Supervision and Design Assurance Plan.	4.3, 4.4, 4.5, 4.6, 4.7, 4.8			60
	2.1.2	Qualifications and previous work experience of the Lead Design Engineer.	1. CV's of the Lead Civil Engineer with a 5 years related experience 2. Copy of ECSA Professional certification or ECSA Professional Registration number	4.5			40
<b>2.2</b>	<b>Construction</b>					<b>40</b>	
	2.2.1	Method Statements & Construction Quality Assurance: The Method Statement is to clearly provide details of the construction method to be adopted. The method statements should correlate with the project schedule.	Construction Methodology + Typical method statements for the execution of civil works:  a) Submit typical method statement for concrete and steel construction. b) Submit Typical inspection and test plans for construction	4.3, 4.4, 4.5, 4.6, 4.7, 4.8			100

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			activities detailing interventions and inspection by the Contractor and Designer/Employer. c) Risk assessment for construction activities and risk management plan.  The Method Statement is to clearly provide details of the construction method to be adopted. The method statements correlate with the project schedule.				
<b>3.</b>	<b>C&amp;I Engineering</b>				<b>10</b>		
<b>3.1</b>	<b>Stacker Requirements</b>					<b>100</b>	
3.1.1	Provide a description of the automation architecture of the Stacker machine as used on any past project. The description must specify the type of control used (either DCS or PLC based or No automation used).	The tenderer submits a written description which specifies the stated requirements.	5.2.1				34
3.1.2	Provide a description of the HMI technology used to operate the Stacker on any past project. The description must specify the type of HMI used (either hardwired panel with push buttons or touch screen control station, or no HMI used).		5.2.1				33
3.1.3	Provide a description of the protocols used to interface to the Stacker on any past project. The description must specify the type of protocol used (either Bus, or Hardwired only, or both).		5.2.1				33

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<b>4.</b>	<b>Electrical Engineering</b>				<b>20</b>	
	4.1	<p>For standardisation and warranty preservation, it is preferred that the additional MV switchgear tiers and associated protection devices offered be designed and manufactured by the OEM of the currently installed equipment (namely, ABB).</p> <p>If the equipment concerned is manufactured under licence, the tenderer shall provide a proof of licence agreement made with the OEM.</p> <p>The distributors or agents provide a copy of the contract agreement made with the OEM for the distribution of their equipment and the duration of the agreement should match that of the Contract.</p>	<p>If the bidder is procuring the switchgear directly from the OEM, the bidder provides a signed letter of commitment.</p> <p>If the bidder is not currently procuring directly from the OEM then the proof of licence agreement to supply from the OEM must be provided.</p> <p>If the bidder is not willing to utilize OEM (ABB) equipment, then the proof of licence agreement with the alternative supplier must be provided.</p>	Technical Specification Section 6.1.6, a & b.		30
	4.2	Tenderer must indicate Compliance to Electrical Standards and requirements. (Eskom, SANS and IEC standards for the electrical scope)	Electrical Technical Compliance Schedule.(see Appendix B)	Technical Specification Section 6		70

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### **3.7 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS**

#### **3.7.1 Risks**

**Table 7: Acceptable Technical Risks**

<b>Risk</b>	<b>Description</b>
1.	<b>A Tenderer who has 1 successful operating reference for belt conveying technology and stacking machines</b>
2.	<b>Lead design engineer has at least 5 years' experience in design of belt conveying and stacker machine systems</b>

**Table 8: Unacceptable Technical Risks**

<b>Risk</b>	<b>Description</b>
1.	<b>A Tenderer who has no successful operating references for belt conveying technology and stacking machines</b>
2.	<b>Lead design engineer for the mechanical work is not a professionally registered engineer with the Engineering Council of South Africa.</b>
3.	<b>Lead design engineer for civil and structural work is not a professional registered engineer with the Engineering Council of South Africa</b>
4.	<b>Lead design engineer for civil and structural work does not have minimum 5 years' experience in structural steel and concrete design</b>
5.	<b>Deviations resulting in non-compliance to National Building Regulations.</b>

### **3.7.2 Exceptions / Conditions**

**Table 9: Acceptable Technical Exceptions / Conditions**

<b>Risk</b>	<b>Description</b>
1.	<b>All key activities are included in the activity schedule, but are not detailed.</b>
2.	<b>There are minor inconsistencies between timing, project deliverables and the proposed methodologies, which are deemed not to result in project delays once addressed.</b>
3.	<b>The methodology does not adequately deal with the critical constraints and hazards of the project but is sufficiently flexible to accommodate changes that may occur during execution.</b>

**Table 10: Unacceptable Technical Exceptions / Conditions**

<b>Risk</b>	<b>Description</b>
1.	<b>Submission does not meet design requirements.</b>
2.	<b>The method statement(s) is generic, incomplete and not tailored to address the specific project objectives, scope and constraints. The method statement(s) does not deal with the critical constraints and hazards of the project.</b>
3.	<b>The construction site layout plan does not indicate excavation space requirements, access ramps, laydown area, existing infrastructure and proposed infrastructure.</b>
4.	<b>The program omits important tasks and/or the timing of the activities and correlation among them are inconsistent with the methodologies proposed. There is lack of clarity and logic in the sequencing.</b>
5.	<b>Tenderers staffing and organogram does not show details of the civil and structural subcontractors</b>
6.	<b>Structural steel method statement does not state corrosion protection, overhead crane and gantry.</b>

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**APPENDIX B: ELECTRICAL TECHNICAL COMPLIANCE SCHEDULE**

<b>COMPLIANCE SCHEDULE FOR ELECTRICAL REQUIREMENT</b>			
<b>Clauses of Technical specification</b>	<b>Item</b>	<b>Fully Comply (Yes/No)</b>	<b>Comments/Deviations</b>
6.1.1	General requirements		
6.1.2	Miniature Substation Requirements		
6.1.3	Electrical Motor Control Panel Requirements		
6.1.4	Small Power and Lighting		
6.1.5	Cabling Requirements		
6.1.6	MV Switchgear		
6.1.7	Earthing and Bonding		
6.1.8	Electric Motors and Accessories		

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