



# **SCOPE OF WORKS FOR THE UPGRADE OF BUILDING AT THE INSEZI LOCOMOTIVE BUSINESS WITHIN TRANSNET ENGINEERING.**

**REFERENCE NO.: INSEZI LOCOMOTIVE**

**Date of release: JULY 2023**




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### Document Authorities

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## **EXECUTIVE OVERVIEW**

Transnet Engineering is an engineering division of Transnet SOC Ltd, comprising of a group of product focused businesses in manufacture, upgrading, conversion, repair, and maintenance of railway rolling stock as well as spares and associated transport equipment.

The corrosion and rusted structure started developing early in 2010 and the propagation of the corrosion has worsened. It has also been noticed that the movements of the Locomotives in the shed seem to resonate with building structures left vibrating and they been growing to the extent that the buildings are now deemed unsafe for human occupancy.

The structural steel in the sheds and workshops is highly corroded and rusted, which raise safety concerns to those who use the said facilities. Replacement of the portal structure and sheeting is a requirement to pass the infrastructure as structurally safe. If the capacity should be stated as below requirement by the business it may be prudent to consider upgrades at this point to avoid double costing of similar work items in the short to medium term. The business has stopped using the crane within this building due to safety measures.

## **EMPLOYER'S OBJECTIVE**

The purpose of the project is to upgrade the workshop shed/structure.

## **DESCRIPTION OF SERVICES**

Complete dismantle, design, supply, delivery, construction, testing and commissioning of a workshop shed/structure including electrical installation for the Insezi Locomotive.

## **PART A: TECHNICAL REQUIREMENTS**

1. **The main deliverables would be as per the scope of works, in summary, to be carried out is as follows and to be read in conjunction with part C3 of the scope of works:**

Item no.	REQUIREMENTS
<b>A</b>	<b>ENGINEERING DATA GATHERING</b>
1	Detailed site investigation and data gathering to establish the full project requirements
2	The design will need to take into consideration a wide range of technical, social, legal, economic, spatial, and environmental issues, which should be integrated to provides a recommended solution.
3	Arrange and undertake all engineering surveys, civil, structural, tests, & geotechnical surveys.
4	Consultation with the client authorized representatives
5	Control the design, planning and quality of material to meet time and budgetary requirements.
6	Designing a plan which outlines the key variables and what needs to be considered prior to the construction process.
7	Developing a detailed design as per Transnet Engineering requirements
8	Collation of available information about the existing services and As-built drawings
9	Preliminary investigations, surveys, tests, analyses, and geotechnical investigations
10	Compilation and submission of the Initial Feasibility Study/Assessment Report to the employer
<b>B</b>	<b>DESIGNS AND DOCUMENTATION PHASE</b>
11	Design the retaining wall in terms of Transnet Engineering requirements and present plans to the Transnet Engineering and eThekweni Municipality for approval.
12	Producing site studies, securing planning approvals and perform a variety of other pre-design and pre-tender tasks
13	Submission of preliminary designs and final designs to all parties.
14	Preparation of specifications for the construction purposes.
15	Ensuring all design information and investigation required are addressed and documented.
16	Prepare quality and risk management plans.
17	Preparation of AFC (Approved for Construction) drawings.
18	Municipal approval and other relevant stakeholders.
19	Overall responsibility for environmental issues and approvals related to the project
20	Notification and approval to all relevant authorities. (Consents and approvals by other stakeholder groups)
21	Ensure that the Occupational Health and Safety requirements (In accordance with OHSA 85 of 1993) are included in the design of all the work categories and the respective specifications.
22	All designs to be done and approved by a registered Engineer.
23	Ensuring all design information and investigation required are addressed and documented.
<b>C</b>	<b>DISMANTLE OF THE EXISTING STRUCTURE &amp; SET ASIDE</b>
24	A detailed plan and schedule clearly illustrating the method and sequence by which the Contractor proposes to demolish and remove the existing concrete or steel structures (in whole or in part), including a description of the measures that will be implemented to meet the environmental requirements. The demolition procedure shall include detailed design notes and Shop Drawings that are sealed, signed, and dated by a Professional Engineer
25	Demolition, removal and disposal of existing concrete or steel structures, including but not limited to abutments, piers, girders, deck, curbs (in whole or in part)
26	Sequence of operation, including position of equipment

27	Proposed method of traffic accommodation and protection of the travelling public, when required
28	Specific requirements for dismantling, demolition and disposal of precast concrete and structural steel components.
29	Measures to be taken to protect adjacent structures, adjacent grades, and portions of existing structure to remain
30	The Contractor shall be fully responsible for ensuring safety in areas underlying and adjacent to the construction site. The Contractor will be responsible for any loss or damage caused as a result of his actions. The Contractor shall prevent movement, settlement or damage to adjacent structures, grades or portions of existing structures to remain. If the safety of the structure being removed, or adjacent structures or grades appear to be in danger, the Contractor shall cease operations and notify the Engineer immediately
31	Upon completion of the Work, a letter bearing the seal of the Registered Professional Engineer certifying that he has carried out a personal inspection of the Work and the method of demolition and removal, including any temporary works
<b>D</b>	<b>DIMENSIONAL PARAMETERS</b>
32	Ensure that the Occupational Health and Safety requirements (In accordance with OHSA 85 of 1993) are included in the design of all the work categories and the respective specifications.
33	The structures shall be 80m (l) x 15m (w) x 9m (h). Design a roof for the shed (Similar pitch with the existing structural steel)
34	The structures shall be constructed of IBR sheeting a minimum white coat thickness of 130g/mm <sup>2</sup> as required by ISO 9364:2001 for a coating designation of AZ150 similar to Zinalume
35	Excavate foundations for new column bases for the new building as per the approved engineering designs
36	Excavate new strip foundations to brick up one side (80m) with facebrick to the height of 1.2m in order to close the structure complete, including brick-force every course
37	Erect new structure for the building as per the approved Engineering designs. All steel structural steel work shall be fabricated and erected in accordance with SANS 2001-CSI
38	Welds shall conform to SABS 0167-1984 and 044 spec. and to be 6mm fillet welds unless otherwise shown
39	All dimensions shall be checked on site before shop drawings commence any discrepancies shall be brought to the attention of the engineer
40	Roof sheets to be 0.6mm chromadek IBR sheets. Insulation to be installed underneath the roof sheets.
41	Install new downpipes and drainage system to be connected on the existing stormwater line
42	Erect the side cladding the side cladding to be chromadek IBR sheeting, 0.6mm full hard and polycarbonate translucent sheeting in between to provide lighting.
43	Provide ventilation on the new roof (to comply with OHSA).

44	All the supporting posts shall be hot dipped galvanised and unpainted.
45	The contractor shall submit the plans to the local authority and follow up until the plans are approved
<b>E</b>	<b>CORROSION PROTECTION</b>
46	Corrosion protection with reference to SANS 1200 HC CLAUSE5,2
47	Corrosion protection shall be applied to the structural steel under workshop conditions, the only structural corrosion protection work allowed on site will be touching up of minor damage
<b>F</b>	<b>STORMWATER AND DRAINAGE SYSTEM</b>
48	Supply and Install gutters and gutter boxes to control the top roof water (Complete storm water management plan for the entire shed)
49	Drainage system must be installed inside the shed. This includes deviating of the existing effluent drainage and storm water to new positions
<b>G</b>	<b>ELECTRICAL INSTALLATION</b>
50	8 X 250W Metal halide flood lights shall be mounted on columns outside the roof. (4 lights per side)
51	The contractor shall design and install lights to produce 300 Lux Illuminance.
52	The design shall decide on the cable sizes, breakers, and connection to the nearest power supply
53	The contractor shall install new DB and cables to supply what was existing
54	Special Requirements- Electrical contractor to do the electrical work must have a CIDB grading of EB
55	Copies of compliance certificates shall be submitted after the completion of work.
56	On completion of the electrical installation on the contractor shall issue a certificate of compliance in accordance with SANS10142
<b>H</b>	<b>COMMISSIONING &amp; TESTING</b>
57	A performance test to the satisfaction of the stakeholders shall be conducted by the contractor.
58	The contractor shall undertake to repair all faults due to shoddy workmanship and/or faulty materials during a period of twelve calendar months, calculated from the date that the project is accepted by Transnet Engineering.
59	Any defects that become apparent during the guarantee period shall be rectified to the satisfaction of Transnet Engineering at the cost of the supplier.
<b>J</b>	<b>DOCUMENTATION ON DAY OF COMMISSIONING</b>
60	4 sets off hard copies with a disc containing documentation in PDF Format for each of:
61	Operating Manual.
62	Maintenance Manual.
63	Electrical Schematics.
64	Mechanical Drawings.
65	As built Drawings.

## 2. CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB) REGISTRATION

The contractor to be appointed under this contract must be registered with the CIDB. To this end, Transnet Engineering Durban does not award contracts to any company without proof of this registration. Only contractors with a minimum of **4CE or Higher** CIDB rating may submit the bids.



## **PART B: TECHNICAL AND FUNCTIONALITY CRITERIA**

Functionality Criteria/ Sub Criteria		Maximum Points Score
Previous Experience		20
Project Organogram, Management & Cv's		10
Management & CVs of Key Personnel	Structural Engineer	20
	Civil Engineer	10
	Quantity Surveyor	10
	Electrical Engineer	10
Programme		10
Approach and Methodology		10
<b>Maximum possible score for functionality (Ms)</b>		<b>100</b>

**Total Weighting:**

**100 points**

**Qualifying score required:**

**80 points**

*Evaluation criteria will be adjudicated according to submissions made in accordance with the following schedule which is found in **Part T2.2: Returnable Schedules**:*

Functionality Scoring	Returnable Schedules
<b>Previous Experience</b>	<ul style="list-style-type: none"> <li>• Previous Experience of a Tenderer</li> </ul>
<b>Project Organogram, Management &amp; Cv's</b>	<ul style="list-style-type: none"> <li>• Project Organogram, Management &amp; Cv's</li> </ul>
<b>Management &amp; CVs of Key Personnel</b>	<ul style="list-style-type: none"> <li>• Key Personnel</li> <li>• CVs with Experience of Key Personnel</li> </ul>
<b>Programme</b>	<ul style="list-style-type: none"> <li>• Programme</li> </ul>
<b>Approach and Methodology</b>	<ul style="list-style-type: none"> <li>• Approach</li> <li>• Methodology and Quality Control</li> <li>• Schedule of Proposed Sub-Contractors</li> <li>• Design approach and method.</li> <li>• Execution plan</li> </ul>

Unless otherwise stated, evaluation criteria will be adjudicated with respect to the contract specific Scope of Work as specified in **Part C3**. In this regard, the following definitions apply to the evaluation criteria prompt for judgement:

### **3. PREVIOUS EXPERIENCE**

The experience of the tendering entity or joint venture partners in the case of an incorporated joint venture or consortium, as opposed to the key staff members/ experts, in similar projects completed over the last five years will be evaluated.

Tenderers should very briefly describe their experience in this regard and attach this to this schedule. Proof of participation/ case studies and contact details of clients of the relevant projects must also be provided.

The description should be put in tabular form with the following headings:

<b>Employers, contact person and telephone number, where applicable</b>	<b>Description of Event</b>	<b>Detail of work undertaken nature of work &amp; nature</b>	<b>Date undertaken</b>
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The scoring of the tenderer's experience will be as follows:

<b>Score</b>	<b>Previous Experience</b>
<b>0</b>	The Tenderer failed to address the question / issue. Has not submitted the required information.
<b>03</b>	The Tenderer's previous experience presented has no relevance to the scope of this project and did not address any of the required categories. Tenderers generally have experience in one (1) project relating to the scope of works. The tenderer has limited or poor evidence of previous experience.
<b>05</b>	The Tenderer's previous experience presented has some relevance to the project but lacks detail i.e., Description of previous projects, value, and references. Tenderers generally have experience in two (2) projects relating to scope of <i>works</i> . The tenderer lacks convincing evidence of knowledge of previous experience, specific to the <i>works</i> .
<b>10</b>	The Tenderer's previous experience presented demonstrates sufficient knowledge and experience to successfully execute this project scope. Tenderers generally have experience in three (3) projects relating to the scope of works. The tenderer has reasonable and relevant previous experience to the requirements of the <i>works</i> .
<b>15</b>	The Tenderer's previous experience presented demonstrates a real understanding and substantial evidence of the ability meet the stated project requirements. Tenderers generally have experience in four (4) projects relating to the scope of works. The tenderer has extensive previous experience in relation to the <i>works</i> .
<b>20</b>	The Tenderer's previous experience presented demonstrates real confidence extensive understanding in all of the categories as required. Tenderers generally have experience in more than five (5) projects relating to the scope of works. The tenderer has comprehensive previous experience in projects of a similar nature.

#### 4. PROJECT ORGANOGRAM, MANAGEMENT & CV'S

Submit the following documents as a minimum with your tender document:

1. A comprehensive and detailed **organogram** that shows the structure and composition of their management structure involved in the *works*, inclusive of the key staff/professionals, identified in the Contract Data Part two.
2. Detailed CV's providing the following:
  - The roles and responsibilities for the *works* of each resource should be clearly stated.
  - Detailed experience in this specific construction activity and positions held, such as recent assignments inclusive of total duration that has a bearing on the scope of work.
  - The education, training (*inter alia* NEC3) and skills of the assigned staff in the specific sector, field, subject, etc. which is directly linked to the *works*. Qualifications (degrees, diplomas, grades) and membership of professional societies and relevant professional registrations to be attached.

Pts	Criterion: Project Organogram, Management & Cv's
0	No submission or missing personnel/ irrelevant information is provided
10	The proposed team is well integrated, and several members have worked extensively in the past. Key staff to be included in the plan are: Civil Engineer, Structural Engineer, Quantity Surveyor & Electrical Engineer

#### 5. MANAGEMENT & CV'S OF KEY PERSONNEL

Criterion: Experience of Key Resources in executing work of similar nature									
Job Title	Minimum Qualification Required	Professional Registration Required	Numbers of Years Relevant Experience on projects of a similar nature						Total Points
			0 pts	01 pts	05 pts	07 pts	8 pts	20 pts	
Structural Engineer	BSc Eng. Or BEng. Or BTech	Pr. Eng. Or Pr. Tech. Eng.	No submission	$\leq 3$	$< 3 \leq 7$	$< 7 \leq 10$	$< 10 \leq 19$	$> 20$	20
Job Title	Minimum Qualification Required	Professional Registration Required	Numbers of Years Relevant Experience on projects of a similar nature						Total Points
			0 pts	01 pts	05 pts	06 pts	8 pts	10 pts	
Civil Engineer	BSc Eng. Or BEng. Or BTech	Pr. Eng. Or Pr. Tech. Eng.	No submission	$\leq 3$	$< 3 \leq 7$	$< 7 \leq 10$	$< 10 \leq 19$	$> 20$	10
Electrical Engineer	BSc Eng. Or BEng. Or BTech	Pr. Eng. Or Pr. Tech. Eng.	No submission	$\leq 3$	$< 3 \leq 7$	$< 7 \leq 10$	$< 10 \leq 19$	$> 20$	10
Quantity Surveyor	BSc Eng. Or BEng. Or BTech	Pr. QS	No submission	$\leq 3$	$< 3 \leq 7$	$< 7 \leq 10$	$< 10 \leq 19$	$> 20$	10

	<p>Note 1: “experience” implies experience on projects of a similar nature with respect to the scope.</p> <p>Note 2: “accredited degree/ diploma” implies a minimum 3-year qualification with the built environment from a registered University or Institute of Technology.</p> <p>Note 2: if any of the above documentation is not submitted will result a zero score</p>
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## **6. APPROACH PAPER/ METHODOLOGY/ PROGRAMME**

The approach paper must respond to the scope of work and outline the proposed approach/ methodology including proposals for outsourcing (including details of the companies to be used), leading to the delivery of the design and construction monitoring deliverables listed in the scope of the works. The approach paper should articulate what value add the tenderer will provide in achieving the stated objectives for the project. The tenderer must explain their understanding of the objectives of the assignment and the Employer’s stated and implies requirements, highlight the issues of importance, and explain the technical approach they would adopt to address them. The approach should explain the methodologies to be adopted and should also include a project plan and programme which outlines processes, procedures, and associated resources indicating how risks will be managed and identifying what contribution can be made regarding value management. Tenderers must attach their approach paper to this page. The approach paper should not be longer than 10 pages.

The scoring will be as follows:

<b>Pts</b>	<b>Criterion: Approach, Methodology and Quality Control</b>
0	No information provided, or submission of no substance/ irrelevant information provided
01	The technical approach and/ or methodology is poor/ is unlikely to satisfy project objectives or requirements. The Tenderer has misunderstood certain aspects.
05	The technical approach is tailored to address the specific project objectives and methodology. The approach does adequately deal with the critical characteristics of the project. The project plan and manner in which risk is to be managed etc is tailored to the key aspects of the programme
07	The approach is tailored to address the specific project objectives and methodology and is sufficiently flexible to accommodate changes that may occur during execution. The project plan and approach to managing risk etc is tailored to the critical characteristics of the project. The programme is good and has allowed for all critical aspects.
10	Besides meeting the good rating, the important issues are approached in an innovative and efficient way, indicating that the tenderer has excellent knowledge of working state of the art approaches. The programme is well throughout and makes allowance for all key issues

## **7. PROGRAMME**

<b>Pts</b>	<b>Criterion: Programme</b>
0	No information provided, or submission of no substance/ irrelevant information provided
02	The tenderer has misunderstood certain aspects of the Scope of Work and does not deal with the critical aspects of the project. (Above 12months)
05	The programme does not adequately deal with the critical characteristics of the project or the plan and manner in which risk is to be managed. (10-12months)
07	The programme covers all the applicable individual activities which are in an acceptable sequence, with appropriate durations, and is in accordance with accepted construction practice, and is in line with Clause 1.1.8.7 of the conditions of the Contract (time for Completion). (8-10months) The program must show the critical path
10	In addition to the requirements of level 3, the programme covers all activities, meetings, and requirements and is sufficiency flexible to accommodate changes that may be required during execution within project completion time. (0-8 months)

## **8. HEALTH AND SAFETY REQUIREMENTS**

- 8.1 All equipment and installation whether detailed in this specification or not shall comply with the requirements of the Occupational Health and Safety Act 85 of 1993 as amended and all other applicable legislation including specific set of regulations and local authority bylaws where applicable.
- 8.2 The contractor shall hold monthly safety meetings with staff and records of minutes. shall be kept on file on site.
- 8.3 The contractor shall be available for monthly meetings with Transnet Management. A schedule for these meetings may be agreed upon.

## **9. SHE SPECIFICATION**

- Prior to commencement of contract, the contractor shall be issued with a SHE specification in order to compile a SHE files in line with TE requirements.
- Prior to establishing on site, it is an explicit requirement of this contract that all of the Contractor's personnel directly involved with this contract, including those of sub-contractors, attend a Safety induction course. Transnet will provide the course free of charge and attendance is compulsory for all personnel under the control of the Contractor who, during the duration of the contract, will be present on site whether on a full time or adhoc basis.
- The contractor must allow for all additional charges because of these requirements as no claims for extras will be accepted in connection with the foregoing.

## **10. AS PART OF THE LEGISLATIVE AND TE SHE REQUIREMENTS.**

- The successful contractor is required to conduct a Risk assessment to ascertain all potential risks associated with this project. The completed risk assessment is to potential risks associated with this project. The completed risk assessment is to be formally submitted to the Risk department via the project manager at least two weeks prior to the commencement of the actual project.
- A safety file and associated documents will be required from a successful tenderer and such will be communicated by the Risk department.

## **11. REQUIREMENTS FOR PREVENTION OF COVID-19**

- 11.1 COVID-19 Safety Plan.
- 11.2 Daily Screening questionnaire.
- 11.3 Return to work induction register- Induction Presentation/TE will also conduct.  
the COVID-19 induction.
- 11.4 COVID-19 Employee questionnaire checklist.
- 11.5 Fitness Certificates.
- 11.6 Risk Assessments register.
- 11.7 COVID-19 PPE issue register/sanitizer.

## **12. ACTIVITY SCHEDULES**

All prices **exclude Vat** and additional items listed (with prices) shall be clearly labelled as optional or essential.

<b>Item</b>	<b>Qty</b>	<b>Price per item</b>	<b>Total Price</b>
Provision of Health & Safety	Sum		
Inception	Sum		
Concept and Viability	Sum		
Design Development	Sum		
Final Designs and Council Submission for Approval	Sum		
Documentation and Construction Drawings	Sum		
Dismantling and di-commissioning of Existing Structure & set aside	Sum		
Construction & Commission	Sum		
Professional Fees	Sum		
P n G's	Sum		
Contingency Allowance	Sum		
<b>Total (Excl. VAT) to tender form</b>			<b>R</b>

Tenderer: \_\_\_\_\_

Date: \_\_\_\_\_

Witness 1: \_\_\_\_\_

Date: \_\_\_\_\_

Witness 2: \_\_\_\_\_

Date: \_\_\_\_\_