Technical Specification for Upgrading a 65-Ton Traverser to 120 Tons

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Location:	Salt River Plant			

1. Scope of Work

This specification requirement covers all the requirements that will be needed to inform the supplier/vendor/manufacture to carry out what is expected from him/her: The contract will be awarded as a turnkey project and the contractor will be responsible for all the work specified.

This specification states the minimum requirements relating to the work and in no way absolves the contractor from responsibility for sound engineering practice. Any omissions or sub-standard requirements of this specification must be brought to the attention of Transnet Engineering procurement manager and Engineer at tender stage and optional prices for addressing such omissions must be provided.

The Supplier shall supply all the labour, tools, material, equipment, consumables, facilities, testing, and supervision required for the supply of the specified equipment at site during erection, pre-commissioning, and commissioning activities.

2. Site Inspection

Tenderers must visit the site to familiarize themselves with all the aspects involved relating to the project that must be done. This must be arranged via the Contract Manager. The site inspection certificate will be counter-signed by the Contract Manager on day of the site visit. The tender documents must only be submitted if the site inspection certificate has been signed.

3. Information Required

Tenders shall be in duplicate and will not be considered if full particulars of all relevant equipment and works requested are not submitted at the tender stage, to ensure an objective assessment of the offer can be made. Tenderers shall confirm that the items that they are offering comply at a standard not less than the minimum required requirement asked for in the specifications. Tenderers must comply with these specifications, but alternative offers may, in addition, also be submitted. Such alternative offers must be fully motivated and substantiated.

4. Specific Requirements:

- Occupational Health & Safety Act (Act 85 of 1993) and its Regulations, as amended.
- Adhere to the Construction Regulation
- Compensation of Occupational Injuries and Diseases Act (Act 130 of 1993) as amended.
- Transnet Contractor Management Procedure (TRN-IMS-GRP-PROC 014)
- Transnet Engineering IMS Compliance Policy Statement
- The contractor shall undergo Safety, Health and Environmental **(SHE) Induction**, and be issued with Induction certificate and valid permits authorising him/her to enter Transnet premises for the duration of the contract.

- The contractor is required to produce an approved **Compliance File or SHE File** and **Site Instruction Book** on site at all **times.**
- All measurements and amounts must be stipulated in quote.
- Contractor's name board will at all times be visible.
- A supervisor will be on site at all times.
- Comply with Transnet Engineering Waste Management Standard.
- The correct PPE must be worn at all times. (Harnesses ropes, etc.)
- During and on completion of the project, there will be SHE inspections and Risk assessments done on the site that the supplier/vendor is working on, which will be reported to the project manager.
- Failure to comply will result in a stop certificate being issued and the supplier will be required to leave the site until the situation is rectified.
- All scaffolding used to be SANS approved.
- All employees who will be working at height to have medical fitness certificate and proof of competency training thereof.
- Valid letter of good standing with Compensation commissioner.

5. Technical Requirements:

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. Sudden power losses will not have an adverse effect on equipment and shall not unduly delay return to operation after power is restored.

6. Codes of Practice, Regulations & Standards:

The tenderer shall specify which statutory, or industry rules will be applied for the equipment to be working successfully and safely and shall indicate the designed life span.

7. Loads and Duty Cycles:

The tenderer shall describe all duty cycles that the equipment would be required to perform. The duration and the number of cycles per day/week/month/year must also be stipulated.

8. Dimensional Parameters:

The tenderer shall describe the major physical dimensions that are required for ease of operation and installation.

9. Operational Parameters:

9.1 Environment:

The equipment will be required to operating in the climatic conditions of Pretoria:

9.2 Safety Features:

The tenderer shall indicate all the safety features installed on the equipment and describe fully its operational standard/s.

9.3 Special Requirements:

The tenderer shall indicate any tooling, lifting attachments etc. which is not considered to be standard accessories for the equipment at hand and will be required to operate the equipment effectively and safely.

9.4 Controls:

The tenderer shall indicate the type of controls and layout to operate the equipment. This must also include backup and emergency systems.

9.5 Markings:

The tenderer shall conspicuously mark the equipment with following info as a minimum: all PPE to be warn, technical data, dates of manufacture, manufacturer's details etc.

10. Power Supply & Services:

The tenderer shall indicate the electrical power supply and air (if applicable) required operating the equipment.

11. Foundation:

The tenderer shall indicate the foundation design required for the equipment.

12. Documentation:

The tenderer shall supply the following manuals during commissioning for each crane: Operation Manuals x 4 hard copies and CDs, Maintenance Manuals x 4 hard copies and CDs and Spare Catalogues x 4 hard copies and CDs. Full details of recommended lubricants to be furnished with possible suppliers.

13. Testing:

The tenderer shall indicate the performance/s standard which the equipment will be subjected to.

14. Training:

The tenderer shall supply the high-level training scope for the operators, millwrights, electricians and electronics technician. The supplier shall indicate if the training is accredited

and furnish with such accreditation number or reference quote and the body that is issuing such accreditation.

15. Technical Specifications

Section	Description
1. Introduction and Project Overview	- Project Purpose: Upgrade 65-ton traverser to 120-ton capacity.
	- Scope of Work: Structural, mechanical, control, and safety upgrades with compliance to standards.
2. Technical Specifications	**Capacity Requirements**:
	- Current Capacity: 65 tons
	- New Required Capacity: 120 tons
	- Load Distribution and Stability.
	Dimensions and Structural Design:
	- Outline dimensions, structural reinforcements, and stress analysis.
	- Reference material standards (e.g., SANS 1431, SANS 10025).
	Materials:
	- Specify material types and standards required.
	Motors and Drives:
	- Required motor power and drive systems to support increased load.
3. Safety Requirements	**General Safety Compliance**:
	- Compliance with SANS standards for machine safety (SANS 12100, SANS 13849, SANS 14738).
	Load Safety and Stability:
	- Stability requirements and safety mechanisms.
	Emergency Stops and Controls:
	- Emergency stops per SANS 10142 and SANS 10366.
	Safety Barriers and Guards:
	- Install protective barriers, guards, and signage (SANS 60335, SANS 13732).
4. Control Systems	**Operational Controls**:
	- Control systems for 120-ton capacity, load sensing, and automation.
	Control Panel Upgrades:
	- Enhanced control panel and safety interlocks (SANS 60204).

5. Mechanical and Structural Modifications	**Frame and Chassis Reinforcement**:
	- Reinforce frame and structural components, welding standards (SANS 10162).
	Wheel and Track Modifications:
	- Upgrade wheels and tracks to handle 120 tons.
	Hydraulic and Pneumatic Systems (if applicable):
	- Upgraded systems to manage increased load.
6. Electrical and Power Requirements	**Power Supply**:
	- Outline power supply needs, cable sizing, and electrical compliance (SANS 10142).
	Motor and Drive System Upgrades:
	- Motor capacity and noise/vibration control.
7. Testing and Quality Assurance	**Pre-Commissioning Tests**:
	- Conduct load testing, verify stability and safety.
	Compliance Testing:
	- Test for compliance with SANS load-bearing equipment standards.
	Documentation:
	- Record test results and compliance certificates.
8. Training Requirements	**Operator Training**:
	- Provide training for operators on controls and safety procedures.
	Maintenance Training:
	- Train maintenance team on inspections, preventive maintenance, and compliance.
	Certification:
	- Certification for trained operators and maintenance staff.
9. Maintenance and Inspection Schedule	**Routine Inspection Requirements**:
	- Outline routine inspection intervals and activities.
	Preventive Maintenance Schedule:
	- Recommended maintenance actions and schedules.
	Records and Documentation:
	- Log all maintenance activities for long-term safety.
10. Applicable Standards	**SANS Standards for Compliance**:

	- List relevant SANS standards (e.g., SANS 1431, SANS 10025, SANS 12100, SANS 13849, SANS 10142, etc.).
11. Environmental and Site Requirements	**Site Preparation**:
	- Outline any ground reinforcement and site modification needs.
	Environmental Considerations:
	- Noise, vibration, dust, and debris control measures.
12. Project Timeline and Milestones	**Phase 1**: Engineering Design and Material Procurement
	Phase 2: Site Preparation and Demarcation
	Phase 3: Mechanical and Electrical Upgrades
	Phase 4: Testing, QA, and Commissioning
	Phase 5: Training and Final Handover
13. Budget and Cost Estimate	**Cost Breakdown**:
	- Itemized costs for materials, labor, testing, and training.
	Contingency:
	- Allocate contingency funds for unforeseen modifications or compliance needs.
14. Health, Safety, and Environmental (HSE) Compliance	**Protocols**:
	- Outline HSE protocols in compliance with national safety regulations.
	Signage and PPE:
	- Specify safety signage and PPE requirements.
15. Appendices	**Design Diagrams**:
	- Structural and mechanical design modifications.
	Compliance Certificates:
	- Include relevant SANS certificates.
	Training Documentation:
	- Operator and maintenance training records.

16. References:

Standard operating procedure for specification of contract work.

17. Painting:

The supplier shall indicate the code of practice to which painting, and surface preparation will conform to.

18. Quality Control:

The contractor shall provide a quality control plan with the tender indicating how quality will be assured.

19. Installation and Commissioning:

A detailed program (project-plan/gantt-chart) shall be submitted with the tender, indicating the main activities and periods necessary up to handover. The bidder shall submit with their tender a detail erection and installation procedure.

The contractor shall be fully responsible for any damage caused to all supplied equipment and to Transnet Engineering's assets during the installation, testing and commissioning. The supplier shall conduct a risk assessment as to identify anything that might hinder the installation of the equipment.

20. Guarantee:

The contractor shall guarantee for a period of 12 months minimum (preferably 24 months or more) after successful commissioning and free from any defects in design, workmanship and material, and are in accordance with the Contract, unless otherwise agreed in writing.

The Contractor shall agree to replace at his cost any defective items discovered within the guaranteed period.

21. After Sales Support:

Tenderers shall state whether all essential renewable parts for the equipment will be readily available in the Republic of South Africa.
The tenderer shall guarantee the supply of spares for a minimum of 20-years after commissioning.
Tenderers shall state what after-sales service can be offered.