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[illegible]

1. SCOPE

- 1.1. This specification covers Sapo's general requirements and conditions for the design, supply, erection and commissioning of port equipment and structures and must be read in conjunction with the main specification.

2. GENERAL

- 2.1. Each Tenderer shall provide Sapo with sufficient proof of having suitable experience regarding the designing and/or manufacturing of similar equipment, proven in practise and applied in circumstances similar to those intended by Sapo. To this end, complete and detailed reference lists shall be submitted with the tender.
- 2.2. The equipment in general and the intended operation of the equipment to be supplied, shall be in full compliance with the Occupational Health and Safety Act, Act 85 of 1993, as amended.
- 2.3. The tenderer must submit an offer in accordance with the main specification, and may only then submit alternative offers. Full details as requested in these tender documents should be submitted for each alternative offer. Full details of the differences or deviation from the main offer shall also be submitted.
- 2.4. The Tenderer shall submit a complete list of proposed sub-contractors and suppliers of major components with his tender.
 - 2.4.1. The list of sub-contractors must contain sufficient detail to enable SAPO to grant approval for the respective sub-contracting.
- 2.5. A complete list of major components shall be submitted with the tender, containing sufficient details like make, description, rating, standard of design and manufacture, etc. to enable Sapo's Engineers to decide about its suitability in terms of local conditions, availability, past experiences, etc.
- 2.6. To enable Sapo to apply life-cycle costing in comparison of offers, a complete list of major components to be replaced during the life of the equipment shall be submitted, indicating for each item the expected mean time between failures, based on past experience, and total cost of replacement, including labour and material. Any additional material that can assist Sapo to apply life cycle costing can be submitted by the Tenderer.
- 2.7. The equipment as made and supplied shall be complete in every respect, of modern design using most advanced technology extensively supported by reputable local companies, and be designed and built to applicable recognised standards and good engineering practices.
- 2.8. All components to be fitted shall have been tested for reliability and extended lifetime in conditions to be expected.

- 2.9. The Tenderer shall complete the Schedule of Prices. The lump sum quoted for each category shall be deemed to cover all costs of the design, materials, plant and labour of each item to complete the work according to the drawings and specifications.
- 2.10. All special tools, software and devices essential for the effective operation and/or maintenance of the plant and equipment, shall be listed, detailed and quoted for separately in the Schedule of Prices.
- 2.11. Further to clause 11 of the E5M (1980), the Contractor shall comply with all Municipal regulations regarding the inspection of any portion of the Works. The Contractor shall further provide the Engineer with documented proof of compliance when so requested by the Engineer.
- 2.12. All handbooks, training manuals, wording on drawings and equipment designation labels shall be in English and the Contractor shall ensure that the correct and accurate translation of English is used throughout.
- 2.13. The works will only be accepted (and the certificate of acceptance issued) when the works has been successfully commissioned and tested, and all final drawings, manuals and other documents required in terms of the contract has been delivered to SAPO and accepted by SAPO
- 2.14. Where "tonne", "ton" or the abbreviation "t" is used, it shall be taken as meaning "metric ton" which is equivalent to 1 000kg or approximately 2 204,62 pound mass.

3. STATEMENT OF COMPLIANCE

- 3.1. All tenders are to be accompanied by a separate clause by clause statement of compliance to the requirements of the main specification, as well as to all its annexures, completed and signed by the Tenderer. A general statement that equipment offered is in compliance with the specification is not acceptable.
- 3.2. Every statement of non-compliance or partial compliance shall be fully defined by the Tenderer.
- 3.3. Where a simple statement of compliance against a particular clause could be insufficient to describe exactly what is being offered, a description, fully explaining the Tenderer's offer, shall be submitted with the tender.

4. COPYRIGHT OF PLANS, DIAGRAMS AND DOCUMENTS

- 4.1. The contractor will grant to Sapo a non-exclusive licence, in accordance with the provisions of section 22 of the Copyright Act 1978 (Act 98 of 1978), (a) to copy any plan, diagram, drawing, specification, bill of

quantities, design calculation or other similar document made other than under the direction or control of Sapo, by the Contractor in connection with the installation, (b) to make free and unrestricted use thereof for its own purposes, (c) to provide copies thereof to consultants to be used by them for the purpose of the consultancy and (d) to provide other parties with copies for tenders invited by it. The Contractor, further more, if any plan, diagram, drawing, specification, bill of quantities, design calculations or other similar document made, other than under the direction or control of Sapo, by any principal or sub-contractor of the Contractor, is used in connection with the installation, shall cause such principal or sub-contractor to grant to Sapo a similar non-exclusive licence in respect of such plan, diagram, drawing, specification, bill of quantities, design calculation or other similar document. The provisions of this clause shall not apply to documents made, in the case of equipment to be supplied in connection with the manufacturing process of the equipment supplied but only to the equipment supplied itself. No separate or extra payment shall be due by Sapo in respect of any non-exclusive licence granted in terms of this clause.

5. DESIGN CALCULATIONS

- 5.1. Tenders must be accompanied by a preliminary design analysis and drawings for structural work. The design calculations and drawings shall be sufficiently comprehensive for Transnet Engineers to make a fair and accurate assessment of the essential details and general qualities of the scheme offered. The various loading combinations used for the analysis of the structure must be detailed and submitted with the tender.
- 5.2. At the completion of the Works, the Contractor shall supply as part of the contract, one set of clearly set out, edited and bound, final complete design, stability and stress analysis for all structural items.
- 5.3. Designs based on computer analysis must include properly drawn up, indexed and reference diagrams of all bending moments, shear and axial forces and deflections for all the loading cases. A number reference drawing to facilitate reading of computer printouts must be included.

6. CERTIFICATION

- 6.1. Where applicable, the Contractor shall for each piece of equipment fully completed and taken over by Sapo, submit the necessary certificate of classification and/or certification by a recognised testing authority in compliance with requirements of applicable standards and rules.

7. CONTRACT MANAGEMENT

- 7.1. The Tenderer shall submit a full set of financial statements, as required in terms of the Companies Act, for the last three financial years. This shall

include the financial statements, auditor's report and chairman's report of the Tenderer and proposed main sub-contractors.

- 7.2. The Tenderer shall submit an organogram of the company with his tender which shall show all posts down to supervisory level for all personnel who will be directly involved with this contract and down to managerial level for all other posts in the Tenderer's organisation.
- 7.3. The Tenderer shall submit a C.V. of all personnel who will be directly involved with the management and execution of this contract down to supervisory level. This shall include qualifications and past experience.
- 7.4. The successful Tenderer shall be prepared to commit himself in writing to providing Sapo with an adequate, experienced and stable project team for the duration of the contract. Every effort must be exercised by the Contractor to minimise replacement of individual project members in order to ensure optimum contract management continuity. Prior advice and full motivation must be submitted to Sapo before the replacement of any of the Contractor's key personnel involved with the project.
- 7.5. The Tenderer shall submit a detailed barchart showing all major activities and identifying all major milestones to be achieved in this contract. This barchart will be critically analysed by Sapo as it will show whether Tenderers are able to plan the project efficiently. This barchart will be taken into account when evaluating offers received.
- 7.6. The Contractor shall submit a fully detailed schedule within two weeks after the official contract showing all activities from a Work Breakdown Structure commencing from date of contract to the final commissioning and acceptance based on the initial barchart submitted with the tender.
- 7.7. The Tenderer shall submit details of resource management which will be applied to this contract for:
 - 7.7.1. Manpower
 - 7.7.2. Finance
 - 7.7.3. Equipment
 - 7.7.4. Material supply
- 7.8. This should be in sufficient detail to establish where the above resources will be obtained and how they will be managed during the duration of the contract.
- 7.9. It is a requirement of this contract that the Contractor will employ a full time, fully experienced site manager who has been delegated sufficient authority to manage the contract efficiently on site during erection and commissioning.

8. QUALITY MANAGEMENT

- 8.1. The Contractor shall be required to install and operate a quality

management system which conforms to the requirements of SABS ISO 9001/9002.

- 8.2. The Tenderer must submit a detailed statement of his quality system with this tender which shall include the following:-
 - 8.2.1. Statement of quality management policy and objectives.
 - 8.2.2. Statement of the design control system with emphasis on design review procedures and customer requirements evaluation.
 - 8.2.3. Statement of the documentation and change control procedures.
 - 8.2.4. Statement of the quality control procedures that will apply to purchased materials.
 - 8.2.5. Statement of the quality control plan for all components manufactured or supplied so that inspection is carried out to ensure conformance to the specification.
 - 8.2.6. Statement of the quality control procedure that will apply to installation and painting on site.
- 8.3. The sole responsibility for ensuring that the components supplied conform to the specification shall rest with the Contractor.
- 8.4. The Contractor shall notify the Engineer of all inspections at least 3 working days in advance of such inspections. The Engineer reserves the right to have an inspector present at such inspections. The Contractor shall have the relevant quality control plans available at such inspections. The Engineer shall give the Contractor 24 hour notice in writing of his intention to attend the inspections.
 - 8.4.1. Where the contract provides for tests on the premises of the Contractor or of his sub-contractor, the Contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be a requisite and as may be reasonable demanded to carry out such tests efficiently. All gauges, templates, tools and other equipment required to check the accuracy of the work shall be calibrated at regular intervals by a laboratory approved by the National Calibration Services of the Council for Scientific and Industrial Research of South Africa, or by the respective authority in the country of origin of the equipment
 - 8.4.2. As and when the equipment has passed these tests, the Engineer shall furnish the Contractor a certificate in writing to this effect.
 - 8.4.3. If as a result of such an inspection, examination or test the Engineer decides that such equipment is defective or not in accordance with the requirements, he shall notify the Contractor accordingly, stating in writing his objections and reasons therefore. The Contractor shall timeously make good the defect

to ensure that the equipment complies with the requirements. Thereafter, if required by the Engineer, the tests shall be repeated under the same terms and conditions save that all reasonable expenses to which Sapo may be put by the repetition of the tests will be deducted from the contract sum.

- 8.4.4. Unless the Engineer otherwise directs, no equipment or materials are to be delivered to site until the Engineer issues an inspection certificate in respect of such equipment. The Contractor shall be responsible for the reception on site of all equipment delivered for the purpose of the contract.
- 8.5. SAPO reserves the right to conduct a quality assurance audit on the Contractor's quality control system at regular intervals.
- 8.6. If required by the Engineer the Contractor shall produce evidence to show that both his welding procedures and welders have passed all the relevant tests required in terms of BS 5135 and SABS 044 Parts III and IV.
- 8.7. The Contractor shall hold design review meetings during the planning phases of this contract. This will be to establish all customer requirements and to provide approval in principle for design interfaces for all designs and specifications to ensure that quality is designed into the final product.
- 8.8. The Contractor shall not change any design or specification feature which has any of the following impacts without formal approval by the Engineer:
 - 8.8.1. Financial
 - 8.8.2. Interface with other equipment or installations
 - 8.8.3. Safety
 - 8.8.4. Departure from customer requirements

9. SITE SURVEY BY CONTRACTOR

- 9.1. Immediately after award of the contract, and prior to final design, the successful Tender shall survey the complete site of final operation of the equipment tendered for. This survey shall serve to confirm dimensions and for relative positions of all items and equipment that will interface with the equipment tendered for, e.g. rail gauges, conveyor position relative to rails, location of electrical power supply points, location and dimensions of any obstacle protruding into the operations envelope, etc.
- 9.2. It will be the contractor's responsibility to ensure that equipment supplied in terms of the contract will interface successfully with existing items and equipment.
- 9.3. Any major deviation from data supplied by Sapo in the tender documents shall be brought under the attention of the Engineer. Any potential impact

of a commercial or technical nature shall be discussed and finalised with the Engineer, prior to final design of the equipment.

- 9.4. The Tenderer shall allow in all respects in his tender for this requirement to survey the operation site and confirm tender data.

10. DRAWINGS AND SCHEMATICS

- 10.1. On the contract being placed, the Contractor shall at once prepare and must submit two copies of black line paper prints of the general arrangements, working drawings and schematics for approval by the Engineer. These drawings and schematics must be submitted in a systematic manner, accompanied by an index sheet of all the drawings and schematics in question. Approval in principle by the Engineer must be obtained prior to commencement of fabrication or construction. Time required for preparation and approval of these drawings must be included in the Tenderer's program.
- 10.2. Drawings which are submitted for the Engineer's formal approval shall bear the signature and designation of the Tenderer's "responsible professional Engineer".
- 10.3. General arrangement drawings shall show the complete structural layout arrangements with plan views, elevations, cross sections, location and sizes of members, erection details, cladding details, services where applicable, etc.
- 10.4. Notwithstanding any formal approval in principal of drawings and schematics submitted to Sapu, the sole responsibility for the adequacy of the design, fabrication and installation or erection as well as accuracy of workmanship and quality of all materials, shall rest entirely with the Contractor who will be required to rectify any defects.
- 10.5. The Contractor's fabrication shop drawings and detailed drawings are not required for approval except when the Engineer requests such drawings specifically for approval or to assist him in the inspection of the structure at any stage.
- 10.6. At the completion of the Works, the Contractor shall supply as part of the contract two sets of paper prints and a set of latest AUTOCAD version files in the DXF format of the general arrangement, manufacturing and detailed working drawings and schematics, showing every portion of the work as actually made for the equipment, giving all wording in English and all dimensions in Metric units.
- 10.7. The drawings and schematics shall comply with the applicable SABS, British, VDE or ISO standards. The official Sapu title block with the Sapu serial No. and numbering system must be included in the lower right hand corner.
- 10.7.1. The Contractor will be advised regarding numbering and detailing of drawings.

- 10.8. Prints and CAD files must be delivered not later than 2 months after completion of the commissioning of the equipment.

11. SITE BOOKS

- 11.1. The Contractor shall supply and have available at the site office at all times, the following site books:

11.1.1. Site instruction book:

This shall be a suitable carbon copy book, size A4, with two detachable sheets for receiving and recording instructions in triplicate issued by the Engineer or his authorised representative.

11.1.2. Site diary book:

This shall be a suitable carbon copy book, size A4, with two detachable sheets for a page to a day and all events affecting the Works, such as arrivals of plans, breakdown of machinery, weather conditions etc., must be entered. The plant, labour and material on site must be recorded as well as work performed.

Entries will be made by the Contractor (or his appointed agent) and signed by both parties daily. The diary may be used to establish the validity of claims for extension of time.

- 11.2. These site books will remain the property of Sapo and will be used for reference purposes and during the guarantee period.

12. CO-OPERATION WITH OTHER PARTIES

- 12.1. Departments of Transnet and other contractors may be working in the confines of the contract work site and in the general area surrounding it during the course of the contract. The Contractor shall make reasonable allowance in all tendered rates for the necessity to interface with the activities of other contractors and Transnet, and to allow for access and safe working conditions.
- 12.2. The success of the project depends on the effective co-operation of all contractors on site, and the Contractor will if necessary be required to discuss his programme on a day to day basis with the Engineer's Deputy to ensure effective co-ordination.

13. CUSTOMS AND PORT REGULATIONS

- 13.1. The Works are situated within a Customs controlled area and the Contractor and his staff shall observe all Customs regulations within the

port area.

- 13.2. The Works are sited within a promulgated port area and the Contractor and his staff shall observe all Port Regulations within the port area. Copies of the Harbour Regulations are obtainable from the Port admin offices.
- 13.3. The fullest collaboration between the Contractor, Sapo and the Engineer is essential in regard to the working of the port.

14. INSTRUCTION OF SAPO'S PERSONNEL

- 14.1. Sapo's personnel concerned with operating, and maintenance will be made available for instruction by the Contractor in their various functions at the Port concerned.
- 14.2. The necessary formal lecturing on the working, adjustment, maintenance and fault finding procedures shall be arranged for at the Port concerned.
- 14.3. Details of alternative and additional official courses offered shall be specified at tender stage i.e. full procedures, duration, place of training, competence and qualifications of personnel to be trained.

15. OPERATING AND MAINTENANCE INSTRUCTION MANUALS AND PARTS CATALOGUE

- 15.1. The Contractor will be required to furnish three final copies of each manual/handbook supplied in terms of the contract.
- 15.2. One copy of the preliminary set of manuals/handbooks must be available on site one month prior to commissioning.
- 15.3. One copy of the final set of handbooks will be kept in the workshop and the Contractor must cover every page of this set with translucent plastic.
- 15.4. The following manuals shall be supplied as part of the contract:
 - 15.4.1. Maintenance Instruction Manual.
 - 15.4.2. Workshop Reference Manual.
 - 15.4.3. Operator's Manual.
 - 15.4.4. Parts Catalogue.
 - 15.4.5. Training Manual.
- 15.5. The *Maintenance Instruction Manual* shall include:
 - 15.5.1. Safety instructions to be observed by maintenance and operating personnel.

- 15.5.2. A general description with illustrations and flow diagrams of the works, indicating all major items, with a functional description of these items.
 - 15.5.3. Full detail of all faultfinding procedures (electrical and mechanical).
 - 15.5.4. Detailed periodic maintenance programmes in respect of the whole of the works, including electrical components and structural work.
 - 15.5.5. Comprehensive data and procedure descriptions (suitably illustrated) on routine maintenance, including intervals, tasks, wear tolerances and lubrication detail.
 - 15.5.6. A list of all equipment that require lubrication must be compiled under the following headings.
 - 15.5.7. Name, description, location.
 - 15.5.8. Recommended lubricant.
 - 15.5.9. Frequency of lubrication.
 - 15.5.10. A list of all PLC fault codes and their probable causes.
 - 15.5.11. Diagrams of all electrical, pneumatic and hydraulic circuits.
- 15.6. The *Workshop Reference Manual* shall include:
- 15.6.1. Safety instructions to be observed by maintenance and operating personnel.
 - 15.6.2. Complete data and procedures on the repair and overhaul of all items of the works.
 - 15.6.3. Detailed diagrams of all electrical, pneumatic and hydraulic circuits.
 - 15.6.4. A list of all PLC fault codes and their probable causes.
 - 15.6.5. A complete listing of the PLC programs.
 - 15.6.6. Data necessary for condition monitoring purposes, like the number of teeth on gears, number of balls/rollers in bearings etc.
 - 15.6.7. Detailed Supplier data sheets on all standard equipment that forms part of the works.
 - 15.6.8. Design, installation, inspection and performance or load test certificates as required by law (including Act 85 of 1993).
 - 15.6.9. Completed commissioning document for the works.

- 15.7. The *Operator's Manual* must detail the safe and efficient operation of the works, and must include the following:
 - 15.7.1. Safety instructions to be observed by the operating personnel.
 - 15.7.2. Start-up procedure.
 - 15.7.3. Shut-down procedure.
 - 15.7.4. Storm anchoring procedure if applicable.
 - 15.7.5. Diagram showing the lay-out of controls and operator meters and displays.
 - 15.7.6. Detail of the use of the controls and interpretation of the meters and displays.
 - 15.7.7. Detailed check-lists for the daily, weekly and monthly inspections to be performed by the operator.
 - 15.7.8. A list of all fault codes that could be displayed at operator, with a description and detail of what action should be taken by operator when such a code is displayed.
- 15.8. The *Parts Catalogue* shall comprehensively list all parts of the works with full descriptions, locations, re-order numbers and supplier, and will include illustrated diagrams of assemblies showing all parts of the assembly. A list of suppliers and their contact detail shall also be included.
- 15.9. The *Training Manual*:
 - 15.9.1. Comprehensive pictures and text shall be provided to enable SAPOt Academy (NPA's division responsible for training) to compile final training manuals for operator training, including first line maintenance.
 - 15.9.2. Pictures and text shall be in digital format supplied on CD Rom to enable Sapo to edit the content.
 - 15.9.3. To assist the Contractor in compiling the necessary information, the following requirements must be complied with for all major parts of the equipment.
 - 15.9.3.1. Identify (i.e. description and picture of) the part and describe where the part can be found on the equipment.
 - 15.9.3.2. Explain the function of the part; and
 - 15.9.3.3. Describe what the operator has to do to keep the part in good working order.
- 15.10. All final manuals shall be supplied by the Contractor as soon as possible after the works has been successfully commissioned, in order for the works to be accepted (see clause 2.13).

16. RECOMMENDED SPARES

- 16.1. A complete priced list of recommended mechanical and electrical spares to enable SAPO to operate and maintain the installation efficiently for its useful life and to obtain spares as required must be submitted by the Contractor not later than one month after the finalisation of the design. This list of recommended spares must include full details on the source or supplier in each and every case.
- 16.2. Spares for the equipment must be classified as:
 - 16.2.1. Initial spares which are the major assemblies and critical single items that have been established from experience as being necessary to maintain the installation fully operational after commissioning for a period of twelve months.
 - 16.2.2. Recommended maintenance spares which are the spares that the Contractor recommends as necessary for the maintenance of the installation over and above the initial spares described above, and include all wearing items and slow moving contingency (insurance) spares.
- 16.3. Each spare part must be comprehensively described, and Contractors must furnish the manufacturer's part number as well as any applicable international item number.
- 16.4. Tenderers shall state:
- 16.5. Whether all essential renewable parts for all the equipment will be readily available in the Republic of South Africa.
- 16.6. What after sales service and operational instruction can be offered to Sapo.

17. GUARANTEE AND GUARANTEE PERIOD

- 17.1. The Contractor shall guarantee that all components and material supplied are new and fit the specified purpose for which they are purchased and are free from any defects in design, workmanship and material and are in strict accordance with the specifications and drawings, unless otherwise agreed in writing by Sapo.
- 17.2. The Contractor shall agree to replace without charge to Sapo any defective items discovered within 12 months from the date of acceptance, provided that the equipment has been operated and maintained in accordance with the Contractor's written operating instructions; normal wear and tear excluded.
- 17.3. During the guarantee period the Contractor shall have a branch or local agent at or near the Port with full time personnel available for guarantee

repairs. Spare parts and equipment must also be available from the branch or agent.

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END OF SPECIFICATION HE 9/2/9 [Version 7]

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