

**PART C3: SCOPE OF WORK**

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## C3.1 EMPLOYER'S WORKS INFORMATION

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## SECTION 1

### 1 Description of the *Works*

#### 1.1 Executive overview

Transnet National Ports Authority (TNPA) is mandated to implement measures to protect its assets, customers, employees, and port facilities against terrorism, sabotage, stowaways/illegal immigrants, armed robbery, etc. Under this mandate TNPA is obliged to provide adequate and effective security fencing infrastructure and lighting to ensure these security barriers are protected, ensuring compliance with all relevant legislation and regulatory framework standards.

The perimeter of the site consists of a combination of steel palisade fencing and welded mesh fencing with an approximate height of 2.5m. Both types of fencing however has been damaged in a number of areas and does not suffice as a physical barrier to intrusions. This has resulted in localized failure/collapse and the development of perimeter gaps, rendering the infrastructure incapable of preventing trespassing and subsequent non-compliance with the National Ports Act and Maritime Security Regulations.

The Culemborg area currently does not have any perimeter lighting along its boundary. The only lighting comes from the streetlighting along the N1 Highway. The main security entrance to Culemborg has no designated lighting, the only lighting comes from 2 streetlights along the entrance road. The lack of perimeter as well as entrance lighting poses a safety risk for the tenants, TNPA staff and security officers on duty and creates opportunity for increased theft and vandalism.

These works are aimed at replacing and upgrading security fencing, perimeter lighting and entrance lighting in Culemborg to ensure compliance with the relevant legislation and regulatory framework standards as well as address security concerns posed by the condition of the existing facilities.

#### 1.2 *Employer's objectives*

The *Employer* and owner of the works, Transnet National Port Authority (TNPA), aim to ensure compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks through the execution of this project. The Employer's objectives for this project are further listed below:

##### a. Design, Supply and Install Perimeter Fencing

The *Employer's* objective is to replace the current boundary fence with welded mesh fencing. The new fencing and foundations are to be able to withstand the loading typical to the industrial area as well as high wind forces. The welded mesh fencing has a long design life and requires minimal maintenance. The fence is robust and cannot easily be damaged in comparison with the other

options considered. The welded mesh is designed to withstand harsh and corrosive environments and cannot easily be scaled, greatly improving the ports' security measures.

The *Employer's* objectives are to:

- i. Replace the existing steel palisade fencing and welded mesh fencing with welded mesh fencing – matching existing on the northern boundary, providing a perimeter security fence that will demarcate the site boundary and restrict access to the area.
- ii. Ensure security compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks.
- iii. Achieve completion of the Works by meeting the completion date whilst maintaining the highest environmental, quality, and safety standards, minimizing disruptions to ongoing operations.

#### **b. Perimeter Lighting**

The *Employer's* objective is to install new 6m light poles with LED light fixtures along the entirety of Culemborg boundary. These light poles will serve as a deterrent against vagrant ingress and theft in the vicinity. The LED technology is aligned with the Port of Cape Town's Port Lighting Upgrade whereby the Port is moving towards the latest in lighting technology.

The *Employer's* objectives are to:

- i. Verify and adjust the proposed lighting and kiosk drawings provided in accordance with SANS and the appropriate lighting requirements to ensure the installation complies with the relevant legislation and regulatory framework standards.
- ii. Create a lighting simulation and model of the proposed lighting installation.
- iii. Acquire new perimeter lighting for the entirety of the Culemborg area.
- iv. Ensure security compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks.
- v. Acquire Certificate of Compliance on completion of the electrical installation.
- vi. Conduct a secondary illumination study to ensure the installation complies with the relevant legislation and regulatory framework standards.
- vii. Achieve completion of the Works by meeting the completion date whilst maintaining the highest environmental, quality, and safety standards, minimizing disruptions to ongoing operations.

#### **c. Entrance Lighting**

The *Employer's* objective is to install new 12m light poles with LED light fixtures at the entrance of Culemborg. These light poles will provide adequate lighting for the security checkpoint at the entrance. The LED technology is aligned with the Port of Cape Town's Port Lighting Upgrade whereby the Port is moving towards the latest in lighting technology.

The *Employer's* objectives are to:

- i. Verify and adjust the proposed lighting and kiosk drawings provided in accordance with SANS and the appropriate lighting requirements.
- ii. Create a lighting simulation and model of the proposed lighting installation.
- iii. Acquire new entrance lighting for the main entrance to the Culemborg area.
- iv. Ensure security compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks.
- v. Conduct a secondary illumination study to ensure the installation complies with the relevant legislation and regulatory framework standards.
- vi. Acquire Certificate of Compliance on completion of the electrical installation.
- vii. Achieve completion of the Works by meeting the completion date whilst maintaining the highest environmental, quality, and safety standards, minimizing disruptions to ongoing operations.

**d. Design Supply and Install of 11kV Mini Substation**

The *Employer's* objective is to Design, Supply, deliver and install 200kVA Type B 11.75/0.400 kV with 2R2B Ring Main Unit. This Mini Substation will supply power to the light poles and provide adequate power for the lighting for the perimeter of the Culemborg area..

The *Employer's* objectives are to:

- I. Conduct underground cable tracing
- II. Plan cable route to the new MiniSub
- III. Design, Supply and Install of the MiniSub and all required connections, terminations and concrete plinths
- IV. Design, Supply and Install of fence securing the new MiniSub (Five sided fence with lockable entrance)
- V. Design, Supply and install any alterations to the existing MiniSub to feed the new MiniSub.

### 1.3 Interpretation and terminology

For the purposes of this Contract for all matters regarding technical decisions, Acceptance of Engineering related technical documents, Testing, Commissioning and any matters pertaining to the context of the Occupational Health and Safety Act, the *Contractor* is required to cooperate with the *Employer's* Engineers/Professional Engineers as per the NEC3 Engineering and Construction Contract (ECC) Core Clause 25.1 and Clause 14.2 as delegated by the *Project Manager* and the *Supervisor*, for the former and as applicable in the context. The instructions received by the *Contractor* shall be interpreted as lawful in matters pertaining to the former if the instruction has been endorsed by both the *Project Manager* or *Supervisor* and the *Employer's* Engineers/Professional Engineers as applicable in the context. The *Employer's* Engineers shall be named post-award of the Contract and prior to commencement of the Works. The *Contractor* is further advised that, in compliance with Core Clause 25.1, that cooperation with the *Employer's* Engineers and other representatives of the *Employer* (*Others*) is a requirement of this Contract and

the *Contractor* is to allow, grant and facilitate all reasonable access that may be required by the *Employer's* Engineers and *Others* as applicable, for the provision of the Works.

The following terminology is used in this document:

| Term                   | Meaning given to the term                                                                                                                                                                                                                                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drawings               | The latest revision of the construction drawings                                                                                                                                                                                                                                                                                               |
| Specification/s        | The document/s forming part of the Contract, in which methods of executing the various items of work, and the nature and quality of the materials to be supplied are described. The specification includes technical schedules and drawings attached thereto as well as all samples and patterns interpretation of incorporated documentation. |
| <i>Supervisor</i>      | As defined in the NEC3 ECC contract. Responsible for checking that the works are constructed in accordance with the drawings and the specifications.                                                                                                                                                                                           |
| <i>Project Manager</i> | As defined in the NEC3 ECC contract. Responsible for contractual matters, cost, and time.                                                                                                                                                                                                                                                      |
| <i>Contractor</i>      | As defined in the NEC3 ECC contract, the company engaged to construct the works.                                                                                                                                                                                                                                                               |
| Works                  | As defined in the NEC3 ECC contract. That which is to be constructed/executed.                                                                                                                                                                                                                                                                 |
| Native                 | Original electronic file format of documentation                                                                                                                                                                                                                                                                                               |

The following abbreviations are used in this document:

| Abbreviation | Meaning given to the abbreviation                       |
|--------------|---------------------------------------------------------|
| BS           | British Standard                                        |
| CDS          | Contractor Documentation Schedule                       |
| CEMP         | Construction Environmental Management Plan              |
| CIRP         | Contractor's Industrial Relations Practitioner          |
| CM           | Construction Manager                                    |
| DWG          | Drawings                                                |
| EO           | Environmental Officer                                   |
| IR           | Industrial Relations                                    |
| IRCC         | Industrial Relations Co-ordinating Committee            |
| LED          | Light Emitting Diode                                    |
| PES          | Project Environmental Specifications                    |
| PIRM         | Project Industrial Relations Manager                    |
| PIRPMP       | Project Industrial Relations Policy and Management Plan |
| PPE          | Personal Protective Equipment                           |

|      |                                   |
|------|-----------------------------------|
| QA   | Quality Assurance                 |
| SANS | South African National Standards  |
| SHE  | Safety, Health and Environment    |
| TNPA | Transnet National Ports Authority |

## 2 Engineering and the *Contractor's* design

### 2.1 *Employer's* role

- 2.1.1 The *Employer* will rely on the *Contractor* for the design, supply, and installation to execute this project. The boundary fence will be removed and replaced with new welded mesh fencing. The perimeter and entrance lighting will be new additions the Culemborg area, thus no removal of old equipment.

### 2.2 *Contractor's* role

#### 2.2.1 Permanent works

The Contractor is responsible for executing and providing designs, drawings, and/or information for the following parts of the works:

- i. Removal of the existing boundary fence and storing it as directed by the *Employer*.
- ii. Design, supply and install fence and accessories and foundations as required (perimeter and other):

Replace the current boundary fence with new welded mesh fencing in all areas specified in this document. The new fence should be modern and sturdy with no gaps or points of entry. The fence should be anti-climb, anti-cut, and anti-burrow. All fences supplied should be coated to protect against corrosion associated with the coastal environment.

- iii. Concrete foundations:

The new fence shall be secured to the foundations of the existing fence. If the exposed parts of the concrete foundation are damaged, have cracked, or have experienced spalling or any other defect as stated in SANS 2001-CC1, concrete patchwork will be necessary to rehabilitate and repair the foundations. The fence should not be erected on top of any concrete patchwork. Any defects to the concrete foundations and plinths will be repaired using suitable repair methods and products upon approval by the engineer. In the instance where no existing foundation is present, or the existing is found to be insufficient, a new suitable foundation shall be constructed.

- iv. Provide as-built drawings for the new fencing installation.
- v. Design, Supply and Installation of 11kV Miniature Substation:

The *Contractor* should use the following information as a guide for the 11kV Miniature Substation design to be completed:

- a. Design, Supply, deliver and install 200kVA Type B 11.75/0.400 kV, 50 Hz, Dyn 11, 5% impedance, fault level rating of 30kA on MV side, fault level rating of 50kA on low voltage bus-bar, oil cooled ONAN, coastal type avocado green 'C12' mini-substation, complete with MV and LV switchgear compartments, protection relays,

all current transformers, earthing material, Relay and Communication compartment, BTU, all other equipment, fixing materials and accessories etc.

- b. The Miniature Substation at minimum should also include a 2R2B RMU with fault protection all designed by the contractor.
- c. The supply cable will run from the Existing 11kV Miniature Substation at the main entrance to Culemborg.
- d. The *Contractor* shall design supply, deliver, offload and install (inclusive of all terminations) the 185mm<sup>2</sup>, 3 core, Cu, SWA, 6,35/11kV XLPE cable from the existing Minisub to the proposed new location of the new 11kV Minisub towards the middle of Culemborg where the old LV kiosk was situated. The cable dimensions should be verified with fault and voltage drop calculations to ensure compliance to SANS 10142.
- e. The *Contractor* shall cable trace the existing cable MV cable from the existing Minisub towards Train Lighting Substation to verify its location and confirm its operation as alternative to installing a new supply cable.
- f. The *Contractor* shall design, supply and install a concrete plinth base for mounting the Minisub and should have a five sided cage structure (four vertical walls with security gates and a roof). The security mess panel cage system is to be constructed from mild steel and hot dip galvanised for marine environments as per SANS 121/BS EN ISO 1461. The gate system is to be secured with an approved padlock entry system. Clearance should be made so that the Kiosk doors can be opened for operations and maintenance. Clearances should be at minimum 1m on the sides of the Minisub and 2m on the front and back for the doors to open.
- g. The *Contractor* shall design, supply and install any alterations to the existing Minisub's RMU and LV distribution boards to ensure operations with the new Minisub to be installed.

vi. Design, Supply and Installation of Perimeter Lighting:

The *Contractor* should use the following information as a guide for the lighting design to be completed:

- a. The Contractor shall verify (drawings provided) and design the lighting model (ReLUX at minimum) of the complete lighting system to comply with all relevant legislation and regulatory framework standards. Inclusive of conducting illumination studies prior and post installation of the lighting system to ensure the installation complies with the relevant legislation and regulatory framework standards.
- b. The *Contractor* shall supply, deliver, offload and install 170 6m (above NGL) planted galvanised steel streetlight poles. The poles should be treated and coated

for the marine environment to protected against corrosion. Poles should be space at a minimum of 30m apart along the perimeter.

- c. The *Contractor* shall design, supply, deliver, offload and install electrical Lighting Kiosk capable of managing a minimum of 9 lighting fixtures. The kiosk shall have the required earthing protections and include an enclosure suitable for the marine environment with a locking feature. The Kiosk will at minimum have Back-to-Back doors and distribution board including all breakers, mounting accessories, plugs, glands, gland plate, wiring, labelling in the stainless steel 3CR12 enclosure. Powered coated Avo Green with padlock lockable doors (MasterLocks included) and inclusive of concrete plinth bases. Each kiosk enclosure should have a Five-sided cage structure (four vertical walls with security gates and a roof). The security mess panel cage system is to be constructed from mild steel and hot dip galvanised for marine environments as per SANS 121/BS EN ISO 1461. The gate system is to be secured with an approved padlock entry system. Clearance should be made so that the Kiosk doors can be opened for operations and maintenance. As builds of the kiosk will be supplied to the Employer on delivery of the kiosk.
- d. The *Contractor* shall supply, deliver, offload and install the required cabling (16mm<sup>2</sup> 4Core ECC) from the light poles to the kiosk inside a 160mm<sup>2</sup> UPVC sleeve.
- e. The *Contractor* shall supply, deliver, offload and install the required cabling (95mm<sup>2</sup> 4Core ECC) from the closest LV Kiosk to the Lighting Kiosk inside a 160mm<sup>2</sup> UPVC sleeve.
- f. The *Contractor* shall supply deliver, offload and install luminaires equal or similar approved to Genlux LUXMO I LED 4x6 Type Street Light, 107W, 5000K with bottom entry spigot. These luminaires shall be installed on the newly installed poles (1 luminaire per pole). The contractor shall ensure that a suitable spigot is installed.
- g. The Contractor shall design, supply and install new earthing and lightning protection for the new installation. The Contractor shall also design, supply and install hot-dip Galvanized finials and bonding of the perimeter poles to ground in all the perimeter poles. Test results shall be submitted to the Employer 's Engineer.
- h. The *Contractor* is required to test the installation in the presence of the Employer 's Engineers and issue electrical "Certificate of Compliance" (COC) for all work done to the satisfaction of the Employer's Engineers.

vii. Design, Supply and Installation Entrance Lighting:

- a. The *Contractor* shall verify (drawings provided) and design the lighting model (ReLUX at minimum) of the complete lighting system to comply with all relevant legislation and regulatory framework standards. Inclusive of conducting illumination studies prior and post installation of the lighting system to ensure the

installation complies with the relevant legislation and regulatory framework standards.

- b. The *Contractor* shall supply, deliver, offload and install 4 12m GRP street light poles. The poles should be treated and coated for the marine environment to protected against corrosion. Poles should be space at a minimum of 30m apart along the perimeter.
- c. The *Contractor* shall design, supply, deliver, offload and install electrical lighting kiosk capable of managing a minimum of 8 lighting fixtures. The kiosk shall have the required earthing protections and include an enclosure suitable for the marine environment with a locking feature. The Kiosk will at minimum have Back-to-Back doors and distribution board including all breakers, mounting accessories, plugs, glands, gland plate, wiring, labelling in the stainless steel 3CR12 enclosure. Powered coated Avo Green with padlock lockable doors (MasterLocks included) and inclusive of concrete plinth bases. Each kiosk enclosure should have a Five-sided cage structure (four vertical walls with security gates and a roof). The security mess panel cage system is to be constructed from mild steel and hot dip galvanised for marine environments as per SANS 121/BS EN ISO 1461. The gate system is to be secured with an approved padlock entry system. Clearance should be made so that the Kiosk doors can be opened for operations and maintenance. As builds of the kiosk will be supplied to the Employer on delivery of the kiosk.
- d. The *Contractor* shall supply, deliver, offload and install the required cabling (16mm<sup>2</sup> 4Core ECC) from the light poles to the Lighting kiosk inside a 160mm<sup>2</sup> UPVC sleeve.
- e. The *Contractor* shall supply, deliver, offload and install the required cabling (95mm<sup>2</sup> 4Core ECC) from the closest LV Kiosk to the Lighting Kiosk inside a 160mm<sup>2</sup> UPVC sleeve.
- f. The *Contractor* shall supply deliver, offload and install luminaires equal or similar approved to Genlux LUXMO II LED 32 Street Light, 140W, 5000K with bottom entry spigot. These luminaires shall be installed on the newly installed poles (2 luminaries per pole). The contractor shall ensure that a suitable spigot is installed.
- g. The Contractor shall design, supply and install new earthing and lightning protection for the new installation. The Contractor shall also design, supply and install hot-dip Galvanized finials and bonding of the perimeter poles to ground in all the perimeter poles. Test results shall be submitted to the Employer 's Engineer.
- h. The *Contractor* is required to test the installation in the presence of the Employer 's Engineers and issue electrical "Certificate of Compliance" (COC) for all work done to the satisfaction of the Employer's Engineers.

viii. Sleeves for Electrical Cabling:

- a. The *Contractor* is required to supply, deliver and install 110mm<sup>2</sup> UPVC sleeves in ground along the perimeter of the Culemborg area for lighting (Used as spare sleeves). Including to the entrance lighting
  - b. The *Contractor* is required to supply, deliver and install 110mm<sup>2</sup> UPVC sleeves in ground from the closest LV Kiosk to the Lighting Kiosk (As spare sleeves).
  - c. The *Contractor* is required to supply, deliver and install 160mm<sup>2</sup> UPVC sleeves in ground along the perimeter of the Culemborg area for lighting (Used for main cable runs).
  - d. The *Contractor* is required to supply, deliver and install 160mm<sup>2</sup> UPVC sleeves in ground from the closest LV Kiosk to the Lighting Kiosk (Used for main cable runs).
  - e. The *Contractor* is required to supply, deliver and install draw wire in all the sleeves in order to pull in cables.
  - f. The *Contractor* is required to supply, deliver and install electrical cable marking tape above all the sleeves in the ground.
- ix. Manholes for Electrical Cabling:
- a. The *Contractor* is required to supply, deliver and install 1m diameter by 1m deep precast concrete manhole with lockable lid. At minimum 6 manholes will be required at the major corners of the perimeter of Culemborg.
- x. As builds for Electrical Cabling:
- a. The *Contractor* is required to provide the Employer with single line diagrams of all electrical circuits as well as and updated electrical service drawing indicating the newly installed lighting fixtures, kiosk and cables in the Culemborg area.

Unless expressly stated to form part of the design responsibility of the *Employer* as stated under Section 2.1, and whether or not specifically stated to form part of the design responsibility of the *Contractor* under Section 2.2, all residual design responsibility and overall responsibility for the total design solution for the works rests with the *Contractor*.

### 2.2.2 Temporary works

Temporary work is all work other than the permanent works indicated in the project specifications, drawings, bill of quantities, and associated contract documentation. These include but are not limited to infrastructure to be removed from the Site at the end of construction, protection of new and existing infrastructure/services, dismantling existing infrastructure/services where specified and the like.

Any temporary work that may be necessary should be approved by the *Project Manager* prior to construction. Any temporary work submitted is required in the format of both calculations and

drawings. The temporary work shall be structurally adequate and the foundations adequate with no settlement.

### 2.2.3 General

All temporary or permanent *works* designed by the *Contractor* shall remain the *Contractor's* responsibility. The *Contractor* shall appoint suitably qualified, experienced, and professionally registered engineers and designers, to be approved by the *Employer*, to carry out detailed designs for the permanent and where applicable temporary *works*, in accordance with this Works Information, the drawings, and the project specifications. The *Contractor* shall indemnify and hold indemnified the *Project Manager* and *Employer* against any claims and actions that may arise out of the design and construction of such permanent and temporary works.

The *Contractor* shall be responsible for full compliance with all codes of practice, safety, professional procedures, checking, site approval, and requirements of the construction regulations with regard to the temporary and permanent *works*.

Where temporary or permanent works are located close to or within infrastructure or property owned by others, e.g. Transnet Operating Divisions, Eskom, Telkom, or other service and utility owners as may be the case, the *Contractor* will be responsible for the following, but not limited to:

- i. Liaising with the relevant parties to ascertain impacts on existing property or any planned activities. Measures to eliminate or mitigate such impacts shall be developed and agreed to with all affected parties.
- ii. Ensuring compliance with the applicable standards, procedures, and requirements of such third parties.
- iii. Identify requirements and provide protection of all infrastructure owned by such third parties.

For both permanent and temporary works, the following shall apply:

- i. All calculations must be authenticated and authorized by Professional Engineers and/or Technologists registered with the Engineering Council of South Africa (ECSA).
- ii. The *Contractor* shall submit to the *Employer* and/or *Supervisor* for acceptance all design calculations and drawings for all permanent works as well as all temporary works.
- iii. The *Contractor* shall submit detailed drawings and workshop details for all designs to the *Project Manager* for acceptance by the *Employer's* Engineers and/or *Employer's* Consultant.
- iv. The *Contractor* is wholly responsible for all design coordination, integration and liaison activities involved the works, and shall take all measures necessary and make all arrangements for activities such as meetings, inspections, endorsements, and any other

activities required for the timeous completion of the works and to the appropriate quality. When these activities require the involvement of the *Employer's* Professional Engineering team or any other stakeholders, the *Contractor* is required to make these arrangements with due consideration of the *Employer's* Professional Engineering team's availability and the availability of other stakeholders.

- v. The *Contractor* shall thus be wholly accountable and responsible for all aspects of his designs, including the implementation of all Statutory Safety, Health and Environmental Regulations of South Africa and the particular requirements, specifications, and regulations of the *Employer* pertaining to Health and Safety, Environment, Quality and Engineering.
- vi. The *Contractor* shall be wholly accountable and responsible for the implementation of the aspects of his designs including commissioning, putting into service, and handover of his constructed designs to the *Employer*, and his duly appointed ECSA registered Engineers shall be held accountable and responsible for these aspects of the Works for the lifetime duration of the Works.

## 2.3 Procedure for submission and acceptance of *Contractor's* design

### 2.3.1 Submission procedure

The *Contractor* shall address the following procedures:

- i. The *Contractor's* design shall be submitted as part of the Tender Submission and will be evaluated at the Technical Evaluation stage in line with the *Employer's* requirements and specifications in this document.
- ii. The *Contractor* shall submit detailed drawings of the design including, but not limited to, the proposed fence as well as all fixtures.

### 2.3.2 Documentation submission

The *Contractor's* documentation shall be issued to the *Project Manager* under cover of the *Contractor's* Transmittal Note stating all contract references (i.e. Project No, Contract No, etc.) as well as the *Contractor's* Project Document Number, Revision Number, Title and chronological listing of transmitted documentation.

Formats of *Contractor* data submitted are dependent on the project procedure and shall be specified by the *Project Manager*, upon the notified request of the *Contractor*.

The *Contractor's* Transmittal Note must state the purpose of the submission. Documentation for different purposes must be sent on separate transmittals.

All electronic documentation shall be submitted by the *Contractor* in Adobe Acrobat (PDF) and native file format, with drawings in 'rvt', 'dgn', 'dxf', 'dwg' or similar approved formats as requested by the *Employer*.

The *Contractor* shall also provide any design package software files to the *Employer*, in the format specified by the *Employer*, if so requested, in order to review and/or verify drawings and designs.

The *Contractor* shall submit their designs to the *Project Manager* for approvals before commencing with any manufacturing or construction.

The *Contractor* undertakes design safety reviews with the *Project Manager*, the NEC Supervisor, the *Employer's* Engineer's and Professional team, the *Employer's* Health and Safety Officers, the *Employer's* Environmental Officers, the *Employer's* Quality Assurance and Quality Control Officers and any other Specialists and/or Subject Matter Experts (SME) as deemed by the *Employer* necessary for the provision of the Works.

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the '*Contractor* Document Submittal Requirements' Standard included in **Annexure B (Refer DOC-STD 0001)**.

## 2.4 Review and Acceptance of *Contractor's* documentation

- 2.4.1 The *Contractor* submits documentation as the Works Information to the *Project Manager* for review and acceptance.
- 2.4.2 The *Project Manager* may withhold acceptance of a submission if the document submission requirements stated in the Works Information are not adhered to.
- 2.4.3 The *Contractor* shall allow the *Project Manager* two weeks (unless otherwise stated and agreed) to review and respond to the *Contractor's* submission of their documentation, i.e. from time of receipt by the *Employer* to the time of despatch to the *Contractor*. However, work shall proceed without delay in the event of late return of the documentation by the *Project Manager* with prior notification in writing by the *Contractor*.
- 2.4.4 After review by the *Employer*, a copy of the original reviewed/marked-up drawing/document, with the *Project Manager's* consolidated comments and document status marked on the *Contractor's* review label, will be scanned and the hard copy will be returned to the *Contractor* under cover of the project's transmittal note for revision or re-submittal as instructed.
- 2.4.5 The *Contractor* will be advised by e-mail (accompanied by a copy of the project's Transmittal Note) that documentation is available for their collection.
- 2.4.6 On receipt of the reviewed documentation, the *Contractor* shall make any modifications as requested or marked up and resubmit the revised documentation to the *Project Manager* within two weeks. Queries regarding comments or changes shall be addressed with the *Project Manager* prior to re-submittal.
- 2.4.7 Any re-submittals, which do not include the changes or comments as indicated by the *Employer*, will be returned to the *Contractor* to be corrected. The *Contractor* shall re-issue the revised documentation incorporating all comments and other specified details not included in the previous issue within two working days of receipt of the marked-up document.
- 2.4.8 The *Contractor* issues method statements in advance of carrying out items of work. The *Contractor* allows the period for reply for acceptance of method statements. Work does not commence until the *Supervisor* has accepted the relevant method statement. The *Contractor* does the work in accordance with the accepted method statement.

## 2.5 Use of *Contractor's* design

- 2.5.1 The *Contractor* grants the *Employer* a license to use the copyright in all design data presented to the *Employer* in relation to the works for any purpose in connection with the construction, reconstruction, refurbishment, repair, maintenance, and extension of the works, with such license being capable of transfer to any third party without the consent of the *Contractor*.
- 2.5.2 The *Contractor* vests in the *Employer* full title to the intellectual property and copyright in the design data created in relation to the works, irrespective of where or what those works may be.

2.5.3 The *Contractor* grants the *Employer* a non-exclusive license, in accordance with the provisions of Section 22 of the Copyright Act 1978, to copy any document/calculation compiled/done by the *Contractor* in connection with the Works, to make free and unrestricted use thereof for his own purposes, modify some or having it modified by a third party for any reasons, to provide copies thereof to a third party (*Contractors* or *Consultants*) of the *Employer* to be used by them for the purposes of tendering or consultancy.

2.5.4 Furthermore, if any such document/calculation by any Principal *Contractor* or *Subcontractor* is used for the Works, the *Contractor* requests such Principal *Contractor* or *Subcontractor* to grant to the *Employer* a similar non-exclusive license for the purposes set out herein.

## 2.6 As-built drawings, operating manuals, and maintenance schedules

2.6.1 The *Contractor* provides the following:

- i. Unless otherwise stated, the required number of copies of all as-built/final/data packs shall be:
  - o Adobe Acrobat (.pdf) and "Native" formats as requested by the Project Manager.
- ii. The *Contractor* provides manuals in electronic Adobe Acrobat (.pdf) format. The manuals are well-indexed and user-friendly and include a summarized Table of Contents.
- iii. The originals of all brochures shall be issued to the *Project Manager*. When a general brochure applies to a range of equipment, then the specific item, catalogue number, or model number shall be stated, which is best achieved by introducing a separate index page, which cross-references the specific item to a tag number.
- iv. Unless otherwise stated, the required number of copies of all as-built/final/data packs shall be:
  - Adobe Acrobat (.pdf) and "Native" formats as requested by the *Project Manager*.

### 2.6.2 As-built/final documentation

In undertaking the works (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the '*Contractor* Document Submittal Requirements' Standard included in **Annexure B (Refer DOC-STD 0001)**.

### 3 Construction

#### 3.1 Temporary works, site services & construction constraints

##### 3.1.1 Employer's site entry and security control, permits, and site regulations

The Culemborg Site is a designated security area and consequently, all access to the Site is strictly controlled. The *Contractor* shall comply with all the requirements of the *Employer* with regard to site entry. The cost of complying with this access security, including labour transport and access requirements and maintaining access cards for staff working on the site are to be considered in the tendered price.

The *Contractor* complies with the following:

- i. The *Contractor* shall obtain the necessary entry permits for all staff working within the area in accordance with the access control requirements of the *Employer* and shall issue each personnel member with an appropriate identification card.
- ii. The *Contractor* identification cards shall detail the individual's name and identity number. All costs incurred in providing construction personnel with ID cards shall be borne by the *Contractor* and shall be made by the *Contractor* to a standard acceptable to the *Project Manager*.
- iii. The *Contractor* is also required to obtain the relevant permits for his *Subcontractors* and all *Suppliers*. The *Contractor* is required to make applications for these permits on behalf of his workers, *Suppliers*, and *Subcontractors*. The *Contractor* is to make a cost and time allowance for obtaining the necessary permits.
- iv. Each of the *Contractor's* employees shall undergo a medical examination, certifying that the employee is fit and capable of undertaking the assigned tasks, as applicable.
- v. All people working within the Port are to undergo an induction on the port's health and safety, security, and general procedures. The cost of the induction will be for the *Contractor's* account. The *Contractor* is to allow for a minimum of one day for the induction period.
- vi. The minimum personal protective equipment (PPE) requirements for any of the *Contractor's* employees within the port boundaries shall include hard hats, safety vests, and safety boots. Where special circumstances dictate this, or as per the *Contractor's* activity-based risk assessment, or where so advised by the *Employer*, the *Contractor* shall also provide his employees with, but not limited to, ear protection, eye protection, dust masks, safety harnesses, and life jackets.
- vii. Each of the *Contractor's* employees shall have a valid police clearance certificate.

- viii. The *Contractor* is responsible for the security of the works until completion and hand-over and must make arrangements for security and the safekeeping of his property. The *Contractor's* watchmen are allowed on site for this purpose.
- ix. The *Contractor* is to be in constant consultation with the Port's security operations to ensure compliance with all the required security procedures.

### 3.1.2 Restrictions to access on site, roads, walkways, and barricades

The *Contractor's* staff shall be confined to the working area and defined access routes and shall not be allowed to be present in other areas of the *Employer*. *Contractor* staff found disobeying this instruction will be subject to disciplinary action.

The *Contractor* complies with the following requirements of the *Employer*:

- i. Access to the area where the *Contractor* is working is to be strictly controlled and will be restricted to construction traffic only. No access will be given to private vehicles or public transport, and, in this regard, the *Contractor* is to make provisions for transporting his labourers in from an external meeting/collection point.
- ii. The *Contractor* shall provide adequate transport for all staff members between the construction site and the *Contractor's* yard, as well as transport to and from work.

### 3.1.3 Site management, traffic management, and site delivery

- i. The *Contractor* is required to establish a well-planned site management system. To achieve this, the *Contractor* will provide a comprehensive well-planned work method and schedule followed by the submission of a detailed risk assessment for approval and implementation.
- ii. The *Contractor* shall develop a traffic management plan to ensure safety in construction as well as with the interface with operations.
- iii. The *Contractor* shall plan the delivery of equipment and materials to site accordingly, minimizing the amount of material on site. The *Contractor* shall be responsible for temporarily upgrading the access route should the *Contractor* deem it necessary for the delivery of the *Contractor's* Equipment and/or Materials to site.
- iv. The *Contractor* shall be responsible for always ensuring the safe passage of construction traffic to and around the site. The *Contractor* shall not traverse any areas outside the immediate vicinity of the construction site(s) or designated access routes approved by the *Project Manager*. Any person(s) found contravening these restrictions will be subject to disciplinary action and may be instructed to be removed off site.

### 3.1.4 People restrictions on site, hours of work, conduct, and records:

The working hours shall be in accordance with the requirements of the Department of Labour and the Industrial Relations Policy included in Annexure F of the Works Information. This

information relating to working hours shall be supplied to the *Project Manager*, prior to commencement of the proposed working hours. Normal working hours shall be Monday to Friday 07h00 – 17h00. If the *Contractor* requires working extended hours, a formal request shall be submitted to the *Supervisor* for approval. The cost incurred by the *Employer* to accommodate extended hours may be for the *Contractor's* account. External lighting shall be directed at the working areas and not away from the site. Staff, with the exemption of security personnel, shall not remain on the site overnight without the agreement of the *Project Manager*.

3.1.4.1 The *Contractor* keeps daily records of his people engaged on the site and working areas (including *Subcontractors*) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.

3.1.5 Health and safety facilities on site

At all times during construction, the *Contractor* is responsible for the safety of all persons on site and shall have the necessary systems and procedures in place to effectively manage this in relation to health and safety requirements in addition to those of the Occupation Health and Safety (OHS) Act 85 of 1993.

3.1.6 Environmental controls, fauna & flora, dealing with objects of historical interest

The *Contractor* shall perform the works and all construction activities within the site and working areas having due regard for the environment and environmental management practices.

3.1.7 Title to materials from demolition and excavation

- i. The *Contractor* has no right to any materials arising from demolitions if such material is to be re-used and re-incorporated into the new works and is required for the completion of the works as specified in the Works Information or Pricing Instructions. The title to such materials remains with the *Employer*. The *Project Manager* shall instruct the *Contractor* how to label, mark, set aside, and/or dispose of such materials for the benefit of the *Employer* in accordance with NEC3 ECC Clause 73.1.
- ii. Where such materials become available for spoiling the *Project Manager* shall instruct the *Contractor* how to label, mark, set aside, and/or dispose of such materials for the benefit of the *Employer* in accordance with NEC3 ECC Clause 73.1.

3.1.8 Cooperating with and obtaining acceptance from others

3.1.8.1 The *Contractor* must make allowance for the necessity to interface with the activities of others including the *Employer*, *Project Manager*, *Others* appointed by the *Employer*, and any other 3rd party stakeholders, to allow smooth, uninterrupted construction, mitigate risk which could cause, and where possible completely avoid, delays in construction between *Contractors* and to allow for safe access and working conditions. Due care and diligence should be taken when dealing with areas in the fencing where illegal communities traverse the fence line.

3.1.8.2 The *Contractor* shall organize the work to cause the least possible inconvenience to other construction activities or operations at the site. Access for *Others* to adjacent areas shall be maintained at all times. Temporary access points shall be provided for the *Employer*.

3.1.8.3 The *Contractor* shall be responsible for his construction programme, which shall be subject to approval by the *Employer* and *Project Manager*. *Contractors* shall be deemed to have allowed in their tender for any additional cost to be incurred due to the foregoing. No claims for extra costs for coordination and cooperation with *Others* will be entertained.

3.1.8.4 The *Contractor* shall manage all persons executing the works, including all *Subcontractors*/OEMs and *Suppliers* undertaking temporary or permanent works, or supplying Plant and Materials to site.

3.1.8.5 The *Contractor* performs the works and co-operates with:

- i. All authorized officials and employees of the *Employer*.
- ii. Other effected/associated 3rd parties.
- iii. Any local and/or national authorities.

### 3.1.9 Risks

The *Contractor* will be required to provide method statements, risk assessments, job safety analyses, and the like, which shall specifically include measures to mitigate risks at identified high-risk locations. Risks that have already been identified at such locations are outlined below.

#### 3.1.9.1 Relocation and protection of services and Infrastructure

- i. It is not foreseen that any existing services and/or infrastructure have to be relocated, however if required, risk assessments, method statements, and procedures must be compiled and approved by the *Employer* for these works, including in particular the tie-in of the existing and relocated sections of these services.
- ii. Measures for the protection of any existing or new services and/or infrastructure shall also be documented. Risk assessments, method statements, and procedures shall be approved by the *Employer* prior to the commencement of works near such services and/or infrastructure.

#### 3.1.9.2 Existing illegal communities along the boundary of the site.

3.1.9.3 The above lists do not constitute a comprehensive schedule of such risks but are intended only as an initial guideline to the *Contractor*.

#### 3.1.10 Publicity and progress photographs

The *Contractor* shall obtain the permission and approval of the *Employer* before erecting any notice boards, using the details of the contract in any advertising media, or revealing any details of the contract to the public. The *Contractor* does not advertise the contract or the project to any

third party, nor communicate directly with the media (in any jurisdiction) whatsoever without the express written notification and consent of the *Project Manager*.

3.1.10.1 The site establishment area shall be clearly sign posted and be compliant with the relevant safety regulations and restrictions that might be in place until the *Contractor* has de-established from site.

3.1.10.2 The *Contractor* provides a comprehensive photographic record of the progress of the works by taking photographs at weekly intervals. The initial photographs are to be taken at the start of the project, immediately prior to the commencement of any work. As far as possible each set of photographs shall be taken from the same locations as the previous set.

3.1.10.3 The areas to be photographed and the number of photographs in each area will be determined by the *Project Manager*.

3.1.10.4 Photographs are to be submitted in JPEG format, with a minimum resolution of 1200 x 800. Each set of photographs must be accompanied by an index showing:

- Contract reference
- Photograph file reference
- Date of photograph
- Subject matter

#### 3.1.11 *Contractor's* Equipment

3.1.11.1 The *Contractor* keeps daily records of his Equipment used on site and in the working areas (distinguishing between owned and hired equipment) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.

3.1.11.2 The *Contractor*, within fourteen (14) days after completion, must completely remove from site all his plant, materials, equipment, stores, temporary accommodation, or any other asset belonging to him and leaves the site in a tidy condition to the satisfaction of the *Project Manager*. The site must be left in a similar or better condition than during occupation. No excess or discarded materials, plants, or stores may be buried or dumped within the *Employer's* boundaries.

#### 3.1.12 Equipment provided by the *Employer*

The *Employer* does not provide any Equipment for the *Contractor*.

#### 3.1.13 Site services and facilities

No connection points for electricity power supply are available on site. The *Contractor* shall make arrangements for the connection of electricity power supply to their work site. The position of the existing supply connection points for water, if available, is to be indicated by the *Project Manager*. The *Contractor* is to make arrangements for the connection of such services to their working areas, for their use during construction. Where such services are purchased from the Port, the

applicable tariffs will be those that the Local Authority charges the Port and shall be obtained by the *Contractor*. There is no water-borne sewage facility available. The *Contractor* shall provide everything else necessary for providing the works.

3.1.13.1 The *Employer* provides the following facilities for the *Contractor*:

- i. The site and access to the site will be made available to the *Contractor* for the duration of the works, subject to the limitations provided in this Works Information.
- ii. Yard and laydown areas

The *Contractor* may establish a yard and laydown areas as indicated under Part C4 - Site Information. The provision of utility services shall be as detailed in the Site Information.

The *Employer* will not provide any further designated space on site for the establishment of offices, workshops, storage areas, or the like. The *Contractor* may however liaise with the *Employer* and *Others* engaged in concurrent construction activities to obtain their consent for temporary storage of materials and equipment outside of the designated yard and laydown areas. This will be at the sole risk of the *Contractor*.

The *Contractor* shall ensure that the areas are properly fenced and secured at all times and shall provide all access control. The areas may only be used for the storage of materials, temporary sanitation facilities, and other essential activities required for the works.

Accommodation of the *Contractor's* staff at the yard and laydown areas will not be permitted. The *Contractor* may retain 24-hour security at the yard and laydown areas, provided that proper temporary sanitation and shelters are provided.

3.1.13.2 Wherever the *Employer* provides facilities (including, inter alia, temporary power, water, waste disposal, telecommunications, etc.) for the *Contractor's* use within the working areas and the *Contractor* adapts such facilities for use, then the *Contractor* makes good and provides full reinstatement to the land (including all apparatus of the *Employer* and *Others* in, on or under the land) and surrounding areas to its original standard upon dismantling of such facilities and hand-back to the *Employer*.

3.1.14 Facilities provided by the *Contractor*:

3.1.14.1 The *Contractor* provides the following facilities for the *Project Manager* and *Supervisor*:

- i. The *Contractor* provides, maintains, moves to new positions as required, and finally removes proper portable toilets of sufficient number at his cost. Toilets are to be properly constructed and placed in suitable positions and maintained in a clean and sanitary working condition. Where no suitable connection to a sewerage system is feasible, conservancy tanks or chemical-type toilets may be used. The *Contractor* shall make arrangements with the Local Authority for the disposal of night soil at his cost.

The *Contractor* must make arrangements for the disposal of sewerage and wastewater. Sewerage may not be disposed of on site. Transnet facilities may not be used.

- ii. Strictly no housing will be permitted within the *Contractor's* laydown area or anywhere else within the port boundaries. The *Contractor* shall make arrangements for housing his employees and transporting them to and from the working area.

- iii. Temporary lighting and fencing

The *Contractor* must ensure that the working area is well-lit at night and that all the fences, obstacles, and hazards are marked. The *Contractor* provides temporary lighting and fencing around every section occupied during the construction of the works. Such fencing demarcates and secures the construction area at each stage and is erected before work starts in that area and removed only upon completion of that area and re-erected as work proceeds. The *Contractor* is responsible for all costs such as lighting and fencing, including access control into and out of these restricted areas. The *Project Manager's* acceptance is to be obtained for the use of any temporary lighting on the site due to the impact that this may have on vessel traffic in the harbour and/or interference with surrounding communities

- iv. Temporary buildings and fencing shall be neat and presentable and the site area shall be kept in a neat, clean, and orderly condition.
- v. The *Contractor* submits the following drawings to the *Project Manager* for acceptance before commencing with the establishment of the site facilities:
  - a. Location drawing showing the area to be occupied by the *Contractor*.
  - b. Layout drawing of the proposed facilities.

3.1.14.2 Unless expressly stated as a responsibility of the *Employer* as stated under Section 3.1.13, all residual requirements for the provision of facilities and all items of equipment necessary for the *Contractor* to provide the works remain the responsibility of the *Contractor*.

#### 3.1.15 Existing premises and inspection of adjoining properties

The *Contractor* shall visit the site of the proposed works and acquaint themselves with the nature of the works, the conditions under which the works are to be performed, the means of access to the site, and all further matters that may influence or affect the execution of the works.

- a) The *Contractor* shall take all adequate precautions necessary to protect against injury to persons and damage to the integrity of surrounding structures and existing assets during the course of the work. The *Contractor* shall be held accountable for any third party damage to infrastructure or services caused by the contractors operations or equipment, in accordance with this contract.
- b) The *Contractor* is required to attend a mandatory inspection, with the Employer, of the infrastructure in and around the construction site area and adjacent buildings before site establishment, in order to agree on its current condition.

- c) Records and photographs will be taken during this inspection which will be used as a benchmark for reference if an incident occurs or if damage is identified at the end of the contract.
- d) The Contractor will be responsible for the repairs and the costs incurred in effecting such repairs to or any damage caused to Transnet's property or others' property by the Contractor's staff during transporting, off-loading and carrying out the required work.

### 3.1.16 Survey control and setting out of the works

Any topographical survey carried out as part of the works shall be undertaken by a SAGC registered surveyor, to be appointed by the *Contractor*, and to be approved by the *Employer*.

The *Contractor* shall appoint such a competent surveyor to properly set out all works prior to installation, as well as after installation for as-built documentation purposes. Should the *Project Manager* be unsatisfied with the setting out or any other associated survey details, he may request that an additional surveyor be appointed to validate all coordinates.

#### 3.1.16.1 The *Employer* provides the following information and survey controls for the *Contractor*:

- i. Survey reference points will be provided by the *Employer*. The *Contractor* shall, within two weeks after the site has been handed over to him, ascertain the correctness of all surveys and reference points. Any discrepancy shall immediately be reported in writing to the *Employer*. Any costs arising from discrepancies that were not reported to the *Employer* within the aforementioned period shall be the sole responsibility of the *Contractor*.
- ii. The *Contractor* shall take care that property beacons, trigonometrical survey beacons, or setting-out beacons are not displaced or destroyed without the consent of the *Employer*. Property beacons and trigonometrical survey beacons that have been displaced or destroyed shall be replaced by a registered land surveyor, who shall certify such replacement.
- iii. The cost of replacing any beacons displaced or destroyed during the contract without the consent of the *Employer* shall be to the *Contractor's* account.
- iv. The *Contractor* is to note that the coordinates shown on all drawings relate to the WGS 84 survey system. A local system using Lo25 has been used for this project.

### 3.1.17 Excavations and associated water control

It is the responsibility of the *Contractor* to ensure that all excavations are rendered safe and suitable for construction and conform to the requirements of the Construction Regulations (CR 13). The *Contractor* shall not continue construction in conditions that the *Project Manager* does

not approve of. The *Contractor* will be required to design and submit for approval the methods of excavation.

3.1.17.1 The *Contractor* complies with the following requirements:

- i. The *Contractor* shall consult the *Project Manager* prior to undertaking any excavation work.
- ii. All excavations deeper than 1.5 m below ground level shall either be fully shored or the sides shall be battered back to a safe angle as determined by the strength of the soil and approved by the relevant competent person appointed in writing in terms of the Occupational Health and Safety Act 85 of 1993. An evaluation of the stability of the ground, as far as reasonably practicable, is to be undertaken prior to excavation.
- iii. The *Contractor* shall be responsible for the protection of the works including the provision of the temporary drainage works such as drains, open channels, and banks, and providing and operating temporary pumps and such other equipment as may be necessary for adequately protecting and dewatering the works. Work performed by the *Contractor* as part of the protection of the works shall be deemed included in the tendered rates for the various items captured in the pricing document.
- iv. The *Contractor* shall obtain all the necessary work permits before starting any excavations in accordance with health and safety procedures.
- v. The *Contractor* shall be liable for all claims arising out of any damage caused by such excavation if the *Contractor* fails to exercise the requisite care and attention in carrying out the excavation.
- vi. The control of water during construction, including in particular dewatering of deep excavations, shall be managed and controlled in accordance with method statements to be compiled by the *Contractor* and approved by the *Project Manager* prior to the commencement of the works. These method statements shall include all measures that are required to remove or mitigate adverse environmental impacts. The *Contractor* will only be allowed to construct such drainage water control systems once the method statement is approved by the *Project Manager*.

3.1.18 Underground services, other existing services, cable and pipe trenches, and covers

3.1.18.1 No excavations shall be done within and outside the port area, as applicable, in the absence of a written permit, to be issued by the port authorities and other relevant parties. The *Contractor* shall also ensure that any other required permits to excavate are in place.

3.1.18.2 The *Contractor* is required to liaise with the *Project Manager* or *Supervisor* and establish as accurately as possible; the location of the various existing services situated within the working areas and record all such information on a suitable 'marked-up' drawing for reference at all

times. As far as possible, existing services have been shown on the drawings included in this contract. The drawings showing the existing services are supplied as a guide only.

3.1.18.3 The *Contractor* must thereafter exercise due care and attention in carrying out the agreed excavation work as may be directed by the *Project Manager* to avoid damage or disruption to existing services.

3.1.18.4 Where any live, existing, or new services are anticipated, the *Contractor* shall excavate by hand trial pits and proving trenches. Prior to commencing with such hand excavations, the *Contractor* shall provide detailed and specific method statements, risk assessments, and the like for approval by the *Employer*.

3.1.18.5 Care shall be taken by the *Contractor* to protect all existing services unless they are confirmed to be abandoned. The same care shall apply to any new services.

3.1.18.6 If any existing and/or new service is damaged, that should have been located or protected by the *Contractor*, the *Contractor* shall be required to carry the cost of the repair of that service.

3.1.18.7 Should any service be damaged by the *Contractor*, it is the responsibility of the *Contractor* to report such damage to the *Project Manager* immediately.

3.1.18.8 Where the *Contractor* encounters existing services the *Contractor* undertakes the following:

- i. Immediately notify the *Project Manager*, relevant utility owners, or officials of the located service.
- ii. Ascertain whether the service is still required and must remain live, or whether the service has been abandoned.
- iii. If the service is confirmed as abandoned, the *Contractor* shall remove such service, if so instructed by the *Employer*.
- iv. If the service is deemed live, it shall be protected by the *Contractor* and marked on the specific record drawing(s) for that area or service discipline. The service shall be demarcated by the placement of brightly painted wooden stakes to provide clear visibility of such services to the construction teams and others working in the area.

3.1.19 Control of noise, dust, water, and waste

The *Contractor* shall take all reasonable steps to contain unacceptable levels of noise and dust, in accordance with the specified and referenced environmental, health and safety requirements. The control and disposal of water and waste must be expressly stated and approved by *Project Manager* prior to any of these activities taking place.

3.1.19.1 The *Contractor* complies with the following:

- i. The *Contractor* is to provide dust suppression as per the CEMP, PES and SES documents to ensure that dust levels resulting from the *Contractor's* construction traffic

are kept to the required safety and environmental standards as specified in the relevant project environmental specifications.

- ii. The control of water during construction, including in particular drainage of deep excavations, shall be managed and controlled in accordance with method statements to be compiled by the *Contractor* and approved by the *Project Manager* prior to the commencement of the works. These method statements shall include all measures that are required to remove or mitigate adverse environmental impacts.
- iii. The *Contractor* shall dispose of all waste products at an appropriately licensed and registered waste disposal site, to be approved by the *Project Manager*. The *Contractor* shall provide written proof that all permits for the waste disposal site are in place. Waste may not be disposed of at the designated stockpile area, as described in Part C4 – Site Information.

#### 3.1.20 Giving notice of work to be covered up

The *Contractor* shall notify the *Supervisor* prior to covering up any of the completed works, to allow the *Supervisor* time for inspection of those works. This notification is given not less than 48 (forty-eight) hours prior to the proposed covering up.

##### 3.1.20.1 The *Contractor* notifies the *Supervisor* of the following elements of the *works* which are to be covered up:

- i. All excavations for posts
- ii. Blinding under base plates
- iii. Before casting ground beams
- iv. All reinforcement and shuttering prior to concreting.

## 3.2 Completion, testing, commissioning, and correction of Defects

### 3.2.1 The *work* to be done by the Completion Date

On or before the Completion Date the *Contractor* shall have done everything required to provide the works including the work listed below which is to be done before the Completion Date and in any case before the dates stated. The *Project Manager* cannot certify completion until all the work listed below has been done and is also free of defects, which would have, in his opinion, prevented the *Employer* from using the works and *Others* from doing their work.

| Item of work                                                                  | To be completed by            |
|-------------------------------------------------------------------------------|-------------------------------|
| Submission of all data packs, quality assurance records and as-built drawings | 30 days after Completion date |

|                                                                                                                                      |                                       |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Operations and Maintenance manuals of all lighting installations including all equipment specifications.                             | 2 weeks prior to the Completion Date. |
| Performance testing of all lighting installations (inclusive of illumination study) after having received Certificate of Compliance. | 2 weeks prior to the Completion Date. |
| Approval and Sign of Works by the Supervisor and Project Manager                                                                     | 2 weeks after the Completion Date.    |

The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of as-built documents that represent the status of the completed works (to include Plant within the works) to present to the *Employer*.

### 3.2.2 Materials facilities and samples for tests and inspections

The *Contractor* provides the *Employer* with the following materials, facilities and samples during the provision of the works, as per NEC3 ECC Clause 40.2:

- 3.2.2.1 The *Contractor* is required to provide all materials, facilities and samples for any tests required in Section 4 below.
- 3.2.2.2 The *Contractor* shall furnish samples of any Plant that is other than, or different to, that required by the *Employer's* Engineering specifications, that shall be utilised in the *Contractor's* designs, to the *Supervisor* for acceptance by the *Employer's* Engineers. The *Contractor* is prohibited from installing said Plant without the required prior authorization from the *Employer's* Engineers.
- 3.2.2.3 The *Contractor* shall furnish samples of any Plant that is proposed to be used in the *Contractor's* designs, to the *Supervisor* for acceptance by the *Employer's* Engineers. The *Contractor* is prohibited from designing with, and subsequently installing said Plant without the required prior authorization from the *Employer's* Engineers.
- 3.2.2.4 Samples, tests and inspections required of the *Contractor*, shall be as specified in Section 3 of C3.1 or any other standards, specifications or statutory requirements referred to therein or annexed thereto.
- 3.2.2.5 The *Contractor* shall give notice to the *Supervisor* of the required inspection not less than 48 hours before the inspection is required.
- 3.2.3 The *Employer* will not provide any materials or facilities for the use of the *Contractor*, to perform tests and inspections.
- 3.2.4 The *Contractor* ensures that the documentation as described under paragraph 3.2.1 of the *Works Information* is presented to the *Project Manager* before completion.
- 3.2.5 The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of as-built documents and maintenance manuals that represent the plant, services and systems that reflect

the status of the completed works (and including Plant within the works) to present to the *Employer*.

### 3.2.6 Commissioning of Lighting Installations (inclusive of the LV Kiosk and Mini Substation and all associated works)

- a) The Contractor shall successfully demonstrate the following to the Project Manager prior to the commissioning of the Works:
  - i. Construction complete certificates signed by the Employer's Supervisor
  - ii. Illuminations compliance complete certificates signed by the Employer's Supervisor
  - iii. Approved warranty/guarantee certificates from relevant Original Equipment Manufacturers
  - iv. Demonstration that all equipment is powered and working according to specification
  - v. "Certificate of Compliance" (COC) for all work done to the satisfaction of the Employer's Engineers.
- b) The Contractor shall complete all pre-commissioning and commissioning tests on all Plant and Works completed under this Contract. In order to achieve this, the Contractor shall fulfil the following requirements:
  - i. Development and supply of commissioning and test plans for the approval of the Project Manager
  - ii. Implementation of formal handover procedures and documentation from construction to commissioning
  - iii. Punch list Category Items:
    - A. Category A: Items which compromise safety and integrity of personnel, plant, equipment and infrastructure and must be completed following the pre-commissioning tests but prior to the commissioning and trial operation tests being undertaken
    - B. Category B: Items which require correction prior to operational acceptance and are required to be remedied following the commissioning and trial operation tests but before Employer's taking over.
    - C. Category C: Items required to be remedied during the defects notification period
  - iv. Pre-Commissioning: The Contractor shall complete all pre-commissioning tests and all Punch List Category A items shall be compiled during these tests and be attended to prior to the commencement of the commissioning tests.
  - v. Commissioning: The Contractor is required to test the installation in the presence of the Employer's Engineers and issue electrical "Certificate of Compliance" (COC) for all work done to the satisfaction of the Employer's Engineers.

### 3.2.7 Commissioning of the fencing installation:

- a) Upon completion of the works, the *Contractor* will ensure that the following requirements are order; The fencing should be free from:
  - Binding;
  - Warping;

- Excessive deflection;
- Distortion;
- Non-alignment; and
- Malfunction.

Should either of the fencing panels experience anyone, or combination, of the above-mentioned defects, it should be corrected accordingly before commissioning.

- b) The Contractor shall successfully demonstrate the following to the Project Manager prior to the commissioning of the Works:
- vi. Completion certificates signed by the *Employer's* Supervisor
  - vii. Compliance testing for all concrete installations (concrete cube tests).
  - viii. Certificates of Compliance for all materials and coatings.
  - ix. Approved warranty/guarantee certificates from relevant Original Equipment Manufacturers (minimum 10 years).

### 3.2.2 Access given by the *Employer* for correction of Defects

The *Contractor* complies with the following constraints and procedures of the *Employer* where the *Project Manager* arranges access for the *Contractor* after completion:

Where the *Contractor* has to return to site after completion to rectify notified defects, the *Employer* may either impose the same site access/egress restrictions as communicated elsewhere under C3.1 *Employer's* Works Information at the starting date/access date stated under Contract Data - Part One, or as the works are now in use or the *Employer's* occupation of the site may be incrementally or substantially changed post completion.

## 4 Plant and Materials standards and workmanship

The *Contractor* provides Plant and Materials for inclusion in the works in accordance with the standard specifications and/or project specifications, unless otherwise stated elsewhere in the Works Information provided by the *Employer*. All Plant and Materials are new, unless the use of old or refurbished goods and/or Materials are expressly permitted as stated elsewhere in this Works Information or as may be subsequently instructed by the *Project Manager*.

The *Contractor* replaces any Plant and Materials subject to breakages (whether in the working areas or not) or any Plant and Materials not conforming to standards or specifications stated and notifies the *Project Manager* and the *Supervisor* on each occasion where replacement is required.

- a. No Plant or Materials will be provided 'free issue' by the *Employer*
- b. The *Contractor* provides all Plant and Materials necessary for the works.
- c. The *Contractor* supplies all certification including test certificates, user manuals, maintenance manuals and data books with respect to Plant and Materials procured for the works.

### 4.1 Investigation, Survey and Site Clearance

The *Contractor* will be responsible for setting out the works.

The *Contractor* validates the information provided by the *Project Manager* and records all existing and final levels on a survey drawing and presents this to the *Project Manager* for acceptance.

#### 4.1.1 The *Contractor* carries out the following investigations at the site

- i. Additional geotechnical investigations as deemed necessary by the *Contractor*, by the *Employer* or by the *Project Manager*.
- ii. Additional underground service investigations as deemed necessary by the *Contractor*, by the *Employer* or by the *Project Manager*.
- iii. Additional topographical surveys where deemed necessary by the *Contractor*, by the *Employer* or by the *Project Manager*.

### 4.2 Civil Engineering and Structural Works

#### 4.1.1 Where the SANS 1200 series of specifications are used within the Works Information, the following interpretations and meanings shall apply:

4.1.1.1 In case of any conflict in interpretation, ambiguity or discrepancy between any SANS 1200 specification (whether standard or written as a particular project specification) contained in the Works Information and the conditions of contract, the conditions of contract take precedence within the ECC contract.

4.1.1.2 In case of any conflict in interpretation, ambiguity or discrepancy between any SANS 1200 specification (whether standard or written as a particular project specification) contained in this

paragraph 4.3 of the *Employer's* Works Information and specific statements contained elsewhere in C3.1 *Employer's* Works Information, the specific statements contained elsewhere shall prevail, without prejudice to the *Project Manager's* express duty to resolve any ambiguity or inconsistency in the Works Information under NEC3 ECC Clause 17.1.

#### 4.1.2 Security fencing

##### 4.1.2.1 Removal of the existing fence and installing of new fence

The current boundary fencing is to be unbolted from the concrete foundations and stockpiled in a designated area specified by the *Employer*. The current concrete foundations and concrete plinths are to be re-used for this project. All exposed concrete surfaces should undergo concrete repair, using suitable methods and materials that are approved by the *Employer's* Engineer, to re-establish their condition before the new fence is installed. Once the concrete has been restored, the new fence is to be secured onto the foundations by means of appropriate galvanised bolts and anchors.

4.1.2.2 In the event that there are no foundations or plinths present in a certain area, the *Contractor* is to obtain permission from the *Project Manager* before any new concrete installation is done. The responsibility lies with the *Contractor* to obtain and verify the underground utility drawings and to ensure that no damage occurs to services or infrastructure during the installation of the foundations and plinths.

4.1.2.3 It is important to note the panel lengths of the current fence to ensure that the new fence fits onto the current foundation. It is expected that the *Contractor* provides an appropriate solution based on the current foundation spacings. If the current foundation spacings do not align with industry standard panel widths, alternative arrangements such as manufacturing or adapting the panels will be required. Any adapting of standard panel widths to fit the current foundation spacings should not compromise on the quality of the fence in any way, shape or form, and no adaptations can be made that will revoke the warranty of the fence from the supplier.

4.1.2.4 The responsibility lies with the *Contractor* to verify the current fence panel lengths before supplying any material.

##### 4.1.2.5 Description of new fence system

###### a. General:

- i. The minimum life span installed shall be a minimum of 10 years prior to any maintenance being required.
- ii. All steel materials shall be of good commercial quality, galvanized steel.
- iii. Zinc coating shall be smooth and essentially free from lumps, globs, or points.
- iv. Miscellaneous material shall be galvanized.

- v. All fences installed in the coastal zone (within 20 km) measured linear distance from the nearest shoreline shall be coated with a minimum thickness of 250-micron layer thickness.
- vi. Additional plastic type continuous coating, over and above the wire metal coating described above and applied at the source of manufacturing.
- b. Fencing post:
  - i. Post width shall be 85mm - tapering to 45mm with a depth of 85mm.
  - ii. The posts shall match the height requirements of the fencing types.
  - iii. The posts shall be securely bolted onto concrete foundations.
  - iv. The posts shall be black to match the colour of the fencing panels and should be secured correctly to the fencing panels to avoid gaps or loose wires.
  - v. If the posts are hollow, they shall be sealed with a UV stabilized polymer cap to prevent rainwater and other impurities or debris from accumulating within the post.
  - vi. All posts shall be galvanized and coated with a marine-grade coating to prevent corrosion and decrease future maintenance costs.
  - vii. Post shall include 'locking recess mechanism' to secure panel edge.
- c. Panel:
  - i. Panel shall be high density anti-climbing and anti-cut pressed mesh of 3,305mm width.
  - ii. Panel aperture size (centres) shall be 76.2mm x 12.7mm.
  - iii. Wires shall be high tensile galvanized with a minimum diameter of 4mm.
  - iv. The panel shall be reinforced with 4 x 50mm deep 'V' formation horizontal recessed bands (rigidity).
  - v. Panel shall have 2 x 70° flanges along sides (internal fixtures- all fixtures shall be on the inside of fence line).
  - vi. Panel shall have 1 x 90° flange along top and 1 x 30° flange along toe (integrated rigid angle).
  - vii. Panel post shall have a flush panel post finish with no climbing aid.
  - viii. Panel shall be affixed to post over 48-line wires using 8 x double bolt comb clamps and 8 x single bolt comb clamps using 24 x anti-vandal bolts.
  - ix. The panel shall be reinforced with high-tensile toughened steel bar cage to be positioned at 152.4mm intervals. To prevent cutting using common hand tools (minimum test block penetration).
  - x. Panel and fixtures shall be galvanized and coated with a marine-grade coating.



The *Contractor* is to set out the fence line and gate positions in clearly identifiable markers and is to verify the actual positions, sizes and lengths on site with the *Project Manager* prior to manufacturing.

#### 4.1.3 Concrete and formwork

This section covers the construction of all new concrete and associated concrete works requirements for the proposed construction.

##### 4.1.3.1 The following specifications shall apply:

- a. SANS 1200G: Concrete
- b. SANS 2001: CC1 – Construction works: Concrete works (structural)
- c. SANS 1083:2006 – Aggregates from natural stone
- d. SANS 10100-2:2000 – The structural use of concrete – Part 2: Materials and execution of work
- e. SANS 50197-1:2000 – Cement – composition, specification and conformity criteria. Part 1: Common cements
- f. SANS 1491-1:2005 – Portland cement extenders – Part 1 Ground granulated blast furnace slag
- g. SANS 1491-2:2005 – Portland cement extenders – Part 2 Fly ash
- h. SANS 1491-3:2006 – Portland cement extenders – Part 3 Condensed Silica Fume

##### 4.1.3.2 Cement

- a. Common cements, complying with SANS 50197-1 shall be used for all concrete work. On no account shall masonry cements be used for concrete work, even if the strength designations are the same as for common cements.
- b. The *Supervisor* for test purposes may require samples of cement from any one, or from every consignment. Cement in any consignment from which a sample may have been taken for testing shall not be used until it has been approved. Allowance must be made for possible delay in that tests may take 10 days to carry out.
- c. Bags of cement shall be stacked in a waterproof, solidly constructed shed with a central door and a floor rendered damp-proof with a tarpaulin. The bags of cement shall be closely stacked (but not against walls) in order to reduce air circulation in such a manner that the cement is used in the order in which it was received, i.e. first in first out.

##### 4.1.3.3 Aggregates

- a. Fine and coarse aggregate shall comply with the relevant clauses of SANS 1083.
- b. Sand (fine aggregate):
  - i. The fine aggregates shall comply with the requirements of SANS Specification 1083. Other aggregates may be approved if they have a satisfactory history and / or test results.
  - ii. No aggregate may be used until it has been approved. Samples having a mass of 25kg.

- iii. (16.5 litres of the proposed aggregate to be used may be required by the *Supervisor* for test purposes. Samples having a mass of 25kg shall be forwarded every 3 months during concreting work and also if the source of supply is changed. Allowance must be made for possible delay in that the tests may take 14 days to carry out.

#### 4.1.3.4 Admixtures

Admixtures containing chlorides will not be permitted in reinforced concrete.

#### 4.1.3.5 Batching

- a. All cementitious binders shall be batched by full sack or by mass batching with approved precision weighing equipment.
- b. All aggregates shall be precisely measured by mass using approved precision weight-batching equipment, unless otherwise permitted by the *Project Manager*.
- c. Should any variation in the composition of the aggregate become apparent, the *Project Manager* shall be notified and a further sample of aggregate submitted immediately for his approval.

#### 4.1.3.6 Concrete placing

- a. The size, shape and depth of any excavation shall be approved by the *Supervisor* before concrete is placed.

#### 4.1.3.7 Construction joints

- a. Unless otherwise shown on the drawings, the exact position of horizontal construction joints shall be marked on the formwork by means of grout checks in order to obtain truly horizontal joints.
- b. Stub columns, stub walls and stays on footings shall be cast integrally with the footing and not afterwards, even where another class of concrete is being used.
- c. Joint lines shall be so arranged that they coincide with features of the finished work.
- d. Where new concrete is to be cast against a hardened concrete surface, neat cement slurry mixed to a creamy consistency shall be brushed onto the cleaned concrete surface.
- e. Contraction joints shall be smooth and shall have one coat of limewash or PVA applied to the older surface prior to casting the fresher concrete.

#### 4.1.3.8 Movement joints

All movement joints are to be filled in with approved bitumen impregnated soft board or expanded polyethylene strip unless otherwise specified or detailed on drawings. Descriptions (prices) of movement joints shall be deemed to include formwork.

#### 4.1.3.9 Grouting

- a. 25 MPa non-shrink cementitious grout shall be used.
- b. Bedding approximately 25mm thick under base plate including chamfered edges all round.

#### 4.1.3.10 Curing compound

- a. Unless otherwise directed by the *Project Manager*, the curing compound shall be:
- b. An approved trafficable, resin-based, white pigmented, membrane forming for slopes flatter than 1:1.
- c. An approved clear, aesthetically acceptable, membrane forming for all other concrete surfaces, including beam and slab soffits.
- d. The curing compound shall comply with specification ASTM C309, except that the maximum permissible water loss in the test shall be 0,40 kg/m<sup>2</sup>.
- e. Alternatively, the curing compound shall be acceptable if the treated concrete retains 90% or more of its mixing water when subject to the test set out in BS 8110 Part 1 – Chapter 6.6.

#### 4.1.3.11 Curing compound application:

- a. The total application rate of the curing compound shall be the greater of the *Supplier's* specification or 0.90 l/m<sup>2</sup>. On textured concrete surfaces, the total application rate shall be 0.90 l/m<sup>2</sup>.
- b. In cases of concrete surfaces with run-off problems, it may be necessary to apply more than one coat of membrane forming curing compound to obtain the specified total or cumulative application rate.
- c. Curing in accordance with SANS 1200G shall commence on all concrete surfaces as soon as it is practical.
- d. On unformed surfaces the curing compound shall be applied after finishing and as soon as the free water on the surface has disappeared and no water sheen is visible, but not so late that the liquid curing compound will be absorbed into the concrete.
- e. On formed surfaces, the exposed concrete shall be wet with water immediately after the forms are removed and kept moist until the curing compound is applied.
- f. Application of the curing compound shall begin once the concrete has reached a uniformly damp appearance with no free water on the surface.
- g. Application of the compound may be done by hand or power spray.
- h. The compound shall be applied at a uniform rate with two applications at right angles to each other to ensure complete coverage.
- i. Pigmented compounds, without a thixotropic agent, shall be adequately stirred to assure even distribution of the pigment during application.
- j. Unless otherwise directed by the *Project Manager*, the initial 24 hour curing of concrete surfaces not covered by formwork shall be carried out by ponding, covering with constantly wetted sand or mats, or continuous spraying in accordance with SANS 1200G when the following climatic conditions occur:
  - i. Wind velocity greater than 5 m/s; and/or
  - ii. Ambient temperature is above 25°C; and/or
  - iii. The relative humidity is below 60%.

- k. If plastic shrinkage occurs, the concrete, while still plastic, shall be re-vibrated, floated and re-coated with curing compound as if no curing has previously taken place.

#### 4.1.3.12 Curing period

- a. The curing period for concrete containing only CEM 1 shall be 7 days.
- b. The curing period for concrete containing CEM 1 plus cement extenders (MGBS, FA) shall be 10 days.
- c. The curing period will start on completion of the concrete pour and for formed surfaces shall include the time for which forms are still in place after the pour.

#### 4.1.3.13 Concrete records

- a. The *Contractor* shall maintain the following daily records for every part of the concrete structure and shall make these available at all times during the progress of the work for inspection by the *Project Manager*:
  - i. The date and time during which concrete was placed.
  - ii. The mixed proportions and specified strength.
  - iii. The type and brand of cement.
  - iv. The slump of the concrete.
  - v. The identifying marks of test cubes made.
  - vi. Curing procedure applied to concrete placed.
  - vii. The times when shuttering was stripped and props removed.
  - viii. The date of dispatch of the cubes to the testing laboratory.
  - ix. The test results.
- b. The records shall be delivered to the *Project Manager* each week except in the case of sub-standard concrete, when the *Project Manager* shall be informed immediately.

#### 4.1.3.14 Tolerances

Deviations shall be within the limits listed in SANS 1200G for degree of accuracy II unless otherwise specified.

#### 4.1.3.15 Testing and monitoring

Frequency of sampling and testing shall be as specified in SANS 1200G.

#### 4.1.3.16 Cost of test

- a. The costs of making, storing and testing of concrete test cubes as required by SANS 1200G shall include the cost of providing cube molds necessary for the purpose, for testing costs and for submitting reports on the tests to the *Project Manager*. The testing shall be

undertaken by an independent firm or institution nominated by the *Contractor* with the approval of the *Project Manager* (test cubes are measured separately).

- b. If the quantity of concrete from which samples were taken exceeds 40m<sup>3</sup>, it shall be subject to the testing of a minimum of 3 sets of samples per day from each grade of concrete placed in each independent structure.
- c. If the quantity of concrete from which samples were taken is less than 40m<sup>3</sup>, it shall be subject to the testing of a minimum of 2 sets of samples per day from each grade of concrete placed in each independent structure.
- d. If the *Contractor* disputes the results of the tests on concrete cubes, the concrete represented by the cubes will be considered acceptable if the *Contractor*, at his own cost, proves to the satisfaction of the *Project Manager* that the estimated actual strength of cores taken from the structure, determined in accordance with SANS Standard Method SM 856, is not less than the specified strength.

### 4.3 Electrical Engineering Works

4.3.1 In addition to the standards and specifications mentioned previously, the Contractor should comply with all standards and specifications mentioned in the table below:

|              |                                                                                     |
|--------------|-------------------------------------------------------------------------------------|
| SABS 1180    | Electrical Distribution Boards                                                      |
| SABS 763     | Hot Dip Zinc (Galvanised) Coatings                                                  |
| SABS 950     | Non-metallic Conduit and Fittings.                                                  |
| SABS IEC 309 | Plugs, Socket Outlets and Couplers for Industrial Purposes                          |
| SABS IEC 439 | Low Voltage Switchgear                                                              |
| SABS IEC 742 | Isolating Transformers and Safety Isolating Transformers                            |
| SANS 172     | Low Voltage Fuses                                                                   |
| SANS 10064   | Code Of Practice for The Preparation of Steel Surfaces for Coating.                 |
| SANS 1012    | Electric Light Dimmers                                                              |
| SANS 10199   | The Design and Installation of Earth Electrodes                                     |
| SANS 10225   | Design and construction of lighting masts                                           |
| SANS 10225   | Glass reinforced polyester Poles                                                    |
| SANS 10313   | Protection against Lightning – Physical damage to structures and life hazard        |
| SANS 10389-1 | Exterior Lighting Part 1: Artificial Lighting of Exterior Areas for Work and Safety |

|             |                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------|
| SANS 1065-1 | Metal Conduits and Fittings for Electrical Wiring                                                |
| SANS 1091   | National Colour Standards for Paints.                                                            |
| SANS 121    | Hot Dip Galvanized coating on fabricated iron and steel articles specifications and test methods |
| SANS 1279   | Floodlight Luminaires                                                                            |
| SANS 1507   | Electric Cables with Extruded Solid Dielectric Installation for Fixed Installations              |
| SANS 767-1  | Earth Leakage Protection Units.                                                                  |
| SANS 890-1  | Ballasts For Fluorescent Lamps:                                                                  |
| SANS10142-1 | Code Of Practice for The Wiring of Premises                                                      |
| SANS152     | Low Voltage Air Breaker Switches, Connectors, Switch Disconnectors, Fuse Combination Units.      |

4.3.2 Where SANS 10142 and/or SANS 10198 specifications are used within the Works Information, then where the term “Equipment” (or the like) is used with the meaning of installation and items left behind in the *works*, then please read this term as “Plant” for ECC defined term compliance.

4.3.3 In addition to the information previously mentioned the Contractor should take the following conditions into account when designing the lightning protection. All lightning protection Plant and Material offered shall be rated to withstand the following conditions:

- i. Current: The peak lightning current and its rate of rise of rise Shall be regarded as severe when  $IMAX = 200kA$ .
- ii. Voltage: The highest cloud potential shall be assumed to be More than 100MV, where;  
 $Q = CV$ , where Q is Assumed at 100C and C to be  $10^{-7}$ .



TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2026/07/0002/114563/RFP

DESCRIPTION OF THE WORKS: DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF AN 11KV MINI SUBSTATION, PERIMETER AND ENTRANCE LIGHTING, AND SECURITY FENCING AT CULEMBORG FOR A PERIOD OF EIGHTEEN (18) MONTHS

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## SECTION 2

### 5 Management and start up

#### 5.1 Management meetings

5.1.1 Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

| Title and purpose                     | Approximate time & interval           | Location          | Attendance by:                                                                                                                                                                     |
|---------------------------------------|---------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kick-off meeting                      | Prior to commencement of construction | Port of Cape Town | <i>Employer, Contractor</i> (key persons) and <i>Project Manager</i> (appropriate delegates)                                                                                       |
| Contract progress meeting             | Fortnightly                           | Port of Cape Town | <i>Employer, Contractor</i> (key persons) and <i>Project Manager</i> (appropriate delegates)                                                                                       |
| Risk Register and Compensation Events | Weekly                                | Port of Cape Town | <i>Project Manager</i> (and appropriate delegates), <i>Supervisor</i> (and appropriate delegates) and <i>Contractor</i> (appropriate key persons)                                  |
| Monthly SHE meeting                   | Monthly                               | Port of Cape Town | <i>Employer, Project Manager</i> (and appropriate delegates), <i>Contractor</i> (line management, site <i>Supervisors</i> , safety officer, environmental officer and safety reps) |
| Safety workshop                       | Bi-weekly                             | On site           | <i>Contractor's site, Supervisors</i>                                                                                                                                              |
| Safety committee meeting              | Every second month                    | Port of Cape Town | <i>Employer, Contractor</i> (key persons) and <i>Project Manager</i> (appropriate delegates)                                                                                       |

5.1.2 Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the *Parties*, the nature and the progress of the works. Records of these meetings are to be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

5.1.3 All meetings are to be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register are not to be used for the purpose of confirming actions or instructions under the contract as these are to be done separately by the person identified in the conditions of contract to carry out such actions or instructions.

## 5.2 Documentation control

- 5.2.1 The *Contractor* provides documentation in accordance with the requirements of the Contractor Documentation Submittal Requirements and the Contractor Documentation Schedule (CDS) and makes specific reference thereto within his Quality Management System and Quality Procedures.
- 5.2.2 The Contractor Document Submittal Requirements is contained within Annexure B (Contractor Documentation Submittal Requirements) of the Works Information.
- 5.2.3 A standard Contractor Documentation set will be issued to the *Contractor* upon award and consists of the following:
- a. Standard Project Drawing Sheet;
  - b. Contractor Document Register (DOC-FAT-0002);
  - c. A4 Review Coversheet for Documents (DOC-FAT-0067);
  - d. Document Deliverable Matrix (DOC-FAT-0075).
- 5.2.4 The *Contractor* shall assign a dedicated person to provide the services required to execute the documentation control function.

## 5.3 Safety risk management

- 5.3.1 The *Contractor* complies with the following H&S specifications and standards:
- a. Annexure C: Health and Safety Project Specification (1124367-02-HS-SP-0001);
  - b. Occupational Health and Safety Act (Act 85 of 1993) and Regulations;
  - c. Transnet Health and Safety policies and procedures;
  - d. National Road Traffic Act.
- 5.3.2 The *Contractor* ensures that its *Subcontractors* comply with the above-mentioned requirements.
- 5.3.3 The *Employer* will acknowledge the achievement of specific safety milestones set for the project with regards to incident statistics, incident recording, safety observation and conversations (SOC's) participation, safety initiatives, etc.
- 5.3.4 The *Contractor* makes the H&S specification available to its employees and *Subcontractors* in the language of this contract and other local languages as required.
- 5.3.5 The *Contractor* conducts a risk assessment and method statement pack prior to carrying out any activity on the site to the approval of the *Project Manager*.
- 5.3.6 The lines of communication of the various personnel acting on behalf of the *Project Manager*, who communicates directly with the *Contractor*, and his key persons with respect to the H&S specification, are contained within Annexure C (Health and Safety Project Specification 1124367-02-HS-SP-0001). One such person is the Clients appointed PrCHSA who will be responsible for obtaining the project construction work permit.

- 5.3.7 The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to the H&S project specification and health and safety issues as per Annexure C (Health and Safety Specification 1124367-02-HS-SP-0001).
- 5.3.8 The *Contractor* shall appoint a full time CHSO per shift, registered with SACPCMP for the duration of the works, the number of which depending on the scope, complexity, and high risk activities involved, as required by the Construction regulations of 2014, regulation 8(5). The Health and Safety Officer(s) must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of *Subcontractors*) have been completed.
- 5.3.9 The Construction Manager (SACPCMP registered) shall be appointed by the Contractor and is responsible, within the context of the H&S project specification, for health and safety on the site and reports to the *Project Manager*. The Construction Manager specific tasks are detailed in Annexure C (Health and Safety project Specification 1124367-02-HS-SP-0001).
- 5.3.10 All items of plant, equipment and vehicles travelling within the site shall be equipped with fully operational amber rotating flashing lights. All vehicles shall be roadworthy and shall at all times adhere to all traffic signage and speed limits.
- 5.3.11 All employees of the *Contractors* will undergo entry medicals before the commencement of the project and thereafter on an annual basis inclusive of exit medicals.
- 5.3.12 Trainings as stipulated in the H&S project specification will be conducted by relevant *Contractors* employees before the commencement of the project.
- 5.3.13 All will comply with PPE requirements as mentioned in this document as well as HS project specification taking note that only long sleeve pants and shirts are allowed to be worn on site.
- 5.3.14 Transportation of employees will not be allowed at the back of bakkies.
- 5.3.15 All permit costs required for any activities relating to the project shall be for the *Contractors* account.
- 5.3.16 The *Contractor* shall further comply with all applicable legislative requirements and standards with respect to his own activities and others on the site. A health and safety file to be submitted by the *Contractor* for approval by the *Employer* or *Employer's* representative before site access can be granted. In addition, sufficient time to be allowed for health and safety file to be approved by the *Employer's* SHEQ Department

## 5.4 Environmental Management Requirements

### 5.4.1 General

- 5.4.1.1 All work is to be conducted in accordance with the principles of the National Environmental Management Act, 1998 (Act no 107 of 1998) as well as all other applicable legislation, regulations and the accepted environmental good practice.

5.4.1.2 A project specific Construction Environmental Management Programme (CEMPr) has been compiled and is included under Annexure D (Environmental Management Programme).

5.4.1.3 The CEMPr provides an integrated approach to environmental management. This approach is designed to guide the appropriate allocation of human resources, assign responsibilities, develop procedures and ensure project compliance with regulatory and best practice requirements. The CEMPr is the minimum acceptable standard for the project that shall be complied with at all times. The CEMPr requirements shall be applicable to the *Contractor* and all its service providers.

5.4.1.4 The *Contractor* must sign the declaration of understanding as a commitment to abide with the project CEMPr and the *Employer's* Environmental Governance Framework. Sufficient environmental budget must be allocated to meet all the project environmental requirements for the duration of the contract.

5.4.1.5 The *Contractor* shall perform the works and all construction activities within the site and working areas having due regard for the environment and environmental management practices as more particularly described within the CEMPr.

5.4.1.6 The *Contractor* must appoint a suitably qualified Environmental Officer with a relevant environmental qualification and a minimum of 5 years relevant construction environmental management experience.

5.4.1.7 The roles and responsibilities of the *Contractor's* Environmental Officer are clearly outlined in the CEMPr. The appointed Environmental Officer is required to be on site daily on a full-time basis. The Environmental Officer must be a dedicated resource to the environmental discipline and may not be shared with any other discipline on site such as Health and Safety or Quality.

5.4.1.8 The *Contractor* will be required to submit an environmental file to the *Project Manager* post award of tender. Particular requirements of the *Employer* will be made known on award of the contract. A site access certificate shall not be granted until the environmental file has been approved by the *Employer*.

#### **5.4.2 Environmental obligation:**

5.4.2.1 The overarching obligations of the *Contractor* in terms of the CEMPr before construction activities commence on the site and/or working areas is to provide environmental method statements for all construction operations at the site and/or working area and where requested by the Construction Manager. The *Contractor* shall comply with the following:

- a. The *Contractor* shall identify the kinds of environmental impacts that will occur as a result of their activities and accordingly prepare separate method statements describing how each of these impacts will be prevented or managed so that the standards set out in the CEMPr are achieved.
- b. Environmental method statements must be prepared in accordance with the requirements set out in the CEMPr. These method statements shall form part of the environmental file.

- c. The *Contractor* shall ensure that his management, foremen and the general workforce, as well as all suppliers and visitors to site have attended the Environmental Induction Programme prior to commencing any work on site.
- d. If new personnel commence work on the site during construction, the *Contractor* shall ensure that these personnel undergo the Environmental Induction Programme and are made aware of the environmental specifications on site.
- e. The Project Environmental Management File must be compiled as per requirements outlined under the CEMPr, this file must be approved by the

5.4.2.2 The *Contractor* shall take note of the environmental sensitivity of the project area and surrounding areas and shall erect and maintain a highly visible temporary fence/barrier along the boundaries of the site and around any no-go areas that may be pointed out by the Environmental Manager. Site demarcation must be done and be in place prior to commencement of any construction related activity, to the satisfaction of the Construction Manager and Project Environmental Manager.

5.4.2.3 The *Contractor* must take note of various environmental monitoring requirements during construction, as specified by the CEMPr, and must make adequate allowance for undertaking specified monitoring.

5.4.2.4 During the construction period, the *Contractor* shall comply with the following:

- a. Permits and licenses, CEMPr, SES and method statements shall be available on site, and the *Contractor* shall ensure that all the personnel on site (including *Subcontractors* and their staff) as well as *Suppliers* are familiar with and understand the specifications contained in these documents;
- b. The *Contractor* must sign a Declaration of understanding (T2.2.38) as part of a returnable acknowledging understanding of the environmental requirements for the project. Furthermore, a sufficient environmental budget must be allocated for the implementation of environmental management requirements.
- c. Method statements that are required during construction must be submitted to the *Project Manager* for approval at least 20 days prior to the proposed commencement of the activity. The activities requiring method statements cannot commence if the method statements have not been approved by the *Project Manager*. The scope of the required method statements for completion by the *Contractor* shall, as a minimum, include all such items as are listed within the CEMPr;
- d. Where applicable, the *Contractor* shall provide job-specific training on an ad hoc basis when workers are engaged in activities which require method statements.

5.4.2.2 The *Contractor* shall ensure that anyone making deliveries to site is properly informed of all procedures and restrictions, which access roads to use, no-go areas, speed limits, noise and the like, as required by the relevant project authorisations and the CEMPr, before they arrive at site.

5.4.2.3 The *Contractor* shall be responsible for rehabilitation/reinstatement and cleaning all areas to the satisfaction of the *Employer's* Project Environmental Manager or Environmental Officer as detailed in the CEMPr.

## 5.5 Quality assurance requirements

The *Contractor* shall ensure that all contractual deliverables required to be executed and completed are given due consideration to meet the client's Technical Specifications, Drawings and General Quality Requirements for Contractors and Suppliers (**QAL-STD-0001**).

The *Contractor's* Quality Management System (QMS) shall conform with the requirements of ISO 9001:2015 to ensure and demonstrate that material, workmanship, procedures, and services conform to the specified requirements.

The *Contractor* submits his Quality documents to the Employer as part of his programme under ECC Clause 31.2 to include details of:

1. Quality Manual that is aligned to ISO 9001:2015 QMS requirements.
2. Quality Policy that is aligned to ISO 9001:2015 requirements
3. The Project Quality Plan for the contract SHALL cover project scope and be aligned to QAL-STD-0001 General Quality Requirements for Contractors and Suppliers.
4. Quality Officer with a Quality Diploma / Technical Diploma with ISO 9001:2015 Quality Management System certificates, MUST have a minimum of 3 years' experience in similar projects.
5. Quality Control Plan MUST cover all Engineering disciplines and clearly identify all inspection, test, verification requirements to meet contractual obligations, specification and drawings as required by the project scope.

### 5.5.1 Project Quality Plan

The Project Quality Plan (PQP) shall outline the quality strategy, methodology, quality resource allocation, Quality Assurance and Quality Control co-ordination activities to ensure that the scope meet the standards stated in the Scope Information.

The Contractor's PQP shall provide a description of how documents provided by the *Employer* to the Contractor are to be managed. The *Contractor* develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Project Quality Plan.

The *Employer* indicates those documents required to be submitted for information, review or acceptance and the *Contractor* indicates such requirements within his register of documents.

The register shall indicate the dates of issue of the documents with the *Employer* responding to documents submitted by the *Contractor* for review or acceptance within the period for reply prior to such documents being used by the Contractor.

### 5.5.2 Quality Manual

A copy of the Contractor's Quality Manual will be requested for review by the Employer followed, by a Quality Management Systems (QMS) audit at the Contractor's Head Office to obtain evidence that a satisfactory quality management system is being maintained.

### 5.5.3 Quality Officer

The Contractor shall nominate a suitably experienced quality representative as referenced on Section 5.5(4) above. The Quality representative will be responsible to ensure that the PQP requirements are implemented on site. The Contractor shall submit the CV and qualifications / certificates of his nominated quality representative for the Project Manager's review and approval.

### 5.5.4 Quality Control Plan

- a. The *Contractor* shall provide a Quality Control Plan (Inspection and Test Plan) specifying his proposed quality control activities for the entire scope of supply and scope of works. The Quality Control Plan shall incorporate, as a minimum, an **INSPECTION CHECK LIST**. The Quality Control Plan shall reference the procedures, codes and standards which apply to the listed activities, the acceptance criteria, the records to be produced and similarly it shall incorporate all Sub-contractors and supplier's activities. The Quality Control Plan shall be prepared in the Contractors / Suppliers standard format.
- b. Deviations from this Quality Control Plan may only be permitted following acceptance in writing by the Engineer and/or the appointed Third-Party Inspection Authority.
- c. The Contractor shall not undertake any work in advance of the review and acceptance of the Quality Control Plan without the written consent of Transnet.
- d. During the review of the Quality Control Plan / Inspection and Test Plan, Inspection and Test intervention points will be included by Transnet and, where applicable, the Third-Party Inspection Authority to indicate their intended monitoring during manufacturing, fabrication, and installation.
- e. The *Contractor* / Supplier shall ensure that any work sub-contracted will be covered by Quality Control Plans / Inspection and Test Plans generated by the relevant Sub-contractor or Supplier.

### 5.5.5 Subcontractor

The *Contractor* shall also ensure that all Sub-contractors are suitably qualified and experienced to carry out the work for which they have been sub-contracted.

The *Employer* may, at own discretion, require a Quality Audit of sub-contractor(s) to ensure that the sub-Contractor(s) have the necessary management, facilities, skilled staff, and quality control facilities to carry out the Works to ensure compliance with the Works Information.

The *Contractor* shall accept full responsibility for the quality of his sub-contractor(s) work and of materials used, irrespective of any quality surveillance that may be carried out by the *Employer* or his representative.

## 5.6 Programming and Progress Reporting

#### 5.6.1 General:

The contract programme, progress reports, subsequent updates, revisions and supplementary programmes as detailed in this section are an essential part of the project control system used by the *Employer* for managing the works and in monitoring progress of the works. Key dates and completion dates, as defined in the Contract Data, are incorporated into the programme.

#### 5.6.2 Tender schedule:

5.6.2.1 The *Contractor's* detailed programme, which complies with the requirements as indicated in the Works Information, shall be submitted in both hard and soft copy forms. Primavera P6 is being used by the *Employer* for planning on the project. The *Contractor* shall use a suitable computerised planning package (Primavera, MS Projects), as approved by the *Project Manager*.

5.6.2.2 The activity durations are estimated in working days (Mon-Fri) and shall be realistic and based on quantities and applied resources.

5.6.2.3 The calendars used are based on normal working hours per day and working days per week, or as prescribed by the *Project Manager*.

#### 5.6.3 Network:

5.6.3.1 The Critical Path Method (CPM) technique of planning and scheduling will be used for the project. The *Contractor* shall provide a programme showing the critical path(s), together with a total float report for acceptance by the *Project Manager*.

5.6.3.2 The programme network shall have no fewer activities than the technical and commercial breakdowns listed in the activity programme.

5.6.3.3 Networks are constructed to reflect the sequence of activities, using resource scheduling to stagger the performance of activities into the most probable sequence.

5.6.3.4 The activity durations are estimated in working days and shall be realistic and based on quantities and applied resources.

5.6.3.5 The calendars used are based on normal working hours per day and working days per week, or as prescribed by the *Project Manager* in accordance with the contract.

#### 5.6.4 Structure and methodology

5.6.4.1 The programme layouts shall take into account the approved Facility Breakdown Structure (FBS), reflecting the manner in which the works are to be performed. The following levels of programme are to be used for this project:

- a. Level 3 Project Programme - detailed programme, which is generated for tracking and control of various activities and deliverables for all phases of the project. The activities will be coded in accordance with the FBS. Various layouts and corresponding filters can be developed to reflect the requirements of the project leads and managers.

#### 5.6.5 Progress Reporting and Reports

#### 5.6.5.1 Reporting and Monitoring:

- a. To demonstrate the actual progress and forecast completion of the works, the *Contractor* shall, as agreed upon, update and submit to the *Project Manager* the latest accepted programme and progress report, including histograms and S-curves.
- b. Monitoring and review of the progress of the works shall consist of an assessment of all activities currently in progress to determine percentage complete, forecast completion dates, manning histogram, showing plan versus forecast, deviations from the target programme and actions required for remedy.
- c. Weekly progress review meetings shall be conducted to report and assist control of the works.

#### 5.6.5.2 Reports:

- a. Level 4 programme - showing two separate bars for each task, i.e. the primary bar shall reflect the current forecast dates and the secondary bar the latest accepted programme.
- b. 3-Week look-ahead programme - in the same format as above, updated and issued weekly.
- c. Manpower histogram - updated and issued weekly, showing actual, forecast and planned manpower utilization.
- d. S-curves - updated and issued weekly, showing actual % complete versus planned % for the overall contract and utilizing the earned values as calculated by the detailed progress report.
- e. Detailed progress report - updated and issued weekly, utilizing a spreadsheet to calculate earned progress of activities, as reflected on the Level 4 programme, based on installed quantities. Activities shall be weighted using man-hours. Report shall indicate progress 'this period' and 'progress to date'.
- f. Weekly report - a narrative report consisting of an executive summary, area/facility synopsis of the works that are in progress and critical action items (top 10). The report shall be accompanied by a 3-week look-ahead programme and s-curve. A weekly health and safety report is to be submitted.
- g. Monthly report - a narrative status report submitted a week before the last Friday of each month, or as required by the *Project Manager*. The report shall include, but not be limited to, the following:
  - i. Summary of progress achieved during the reporting period;
  - ii. Latest updated programme;
  - iii. Project milestones table – planned versus actual and forecast;
  - iv. Status and performance of on-site works;
  - v. Status and performance of off-site works;
  - vi. Histograms and s-curves;
  - vii. Critical action items list (top 10).

- viii. Health and safety monthly report

## 5.7 Contractor's management, supervision and key people

- 5.7.1 The *Contractor* provides an organogram of all his key people, as required by the *Employer* and as stated in the Contract Data, and how such key people communicate with the *Project Manager* and the *Supervisor* and their delegates.

## 5.8 Training workshops and technology transfer

- 5.8.1 The *Contractor* facilitates the following requirements for training workshops:
- a. Pre-mobilization workshop, scheduled for one week prior to site establishment. Workshop will be attended by the site management team including site agents, all *Contractor's Supervisors* and safety personnel.
  - b. Formal training as stipulated in the Health and Safety Project Specification 1124367-02-HS-SP-0001 to be attended by *Contractors* identified personnel before commencement of any works.
- 5.8.2 The *Contractor* provides the following documentation to the *Employer*:
- a. Health and Safety file, including Health and Safety Management Plan but not limited to:
    - i. Valid company letter of good standing
    - ii. Medical certificates of fitness
    - iii. Incident management procedures;
    - iv. Performance reporting;
    - v. Site training packages;
    - vi. Safe work method statements;
    - vii. Safety procedures;
    - viii. Risk assessment process and as well as risk assessments for all activities;
    - ix. Insurance provided by the *Employer*.

## 6 Procurement

### 6.1 Code of conduct

- 6.1.1 The *Employer* aims to achieve the best value for money when buying or selling goods and obtaining services. This however must be done in an open and fair manner that supports and drives a competitive economy. Underpinning our process are several acts and policies that any supplier dealing with Transnet must understand and support. These are:
- i. The Transnet Procurement Procedures Manual (PPM);

- ii. Section 217 of the Constitution - the five pillars of Public PSCM (Procurement and Supply Chain Management): fair, equitable, transparent, competitive and cost effective;
- iii. The Public Finance Management Act (PFMA);
- iv. The Broad Based Black Economic Empowerment Act (B-BBEE); and
- v. The Anti-corruption Act.

6.1.2 This code of conduct has been included in this contract to formally apprise Transnet Suppliers of Transnet's expectations regarding behaviour and conduct of its *Suppliers*.

## **6.2 Prohibition of bribes, kickbacks, unlawful payments, and other corrupt practices**

6.2.1 The *Employer* is in the process of transforming itself into a self-sustaining State-Owned Enterprise, actively competing in the logistics industry. Its aim is to become a world class, profitable, logistics organisation. As such, its transformation is focused on adopting a performance culture and to adopt behaviours that will enable this transformation.

6.2.2 The *Employer* will not participate in corrupt practices and therefore expects its suppliers to act in a similar manner.

- a. The *Employer* and its employees will follow the laws of this country and keep accurate business records that reflect actual transactions with and payments to our suppliers.
- b. Employees must not accept or request money or anything of value, directly or indirectly, to:
  - i. Illegally influence their judgement or conduct or to ensure the desired outcome of a sourcing activity;
  - ii. Win or retain business or to influence any act or decision of any decision stakeholders involved in sourcing decisions; or
  - iii. Gain an improper advantage.
- c. There may be times when a supplier is confronted with fraudulent or corrupt behaviour of the *Employer's* employees. We expect our Suppliers to use our "Tip-offs Anonymous" Hot line to report these acts (0800 003 056).

The *Employer* is firmly committed to the ideas of free and competitive enterprise.

- a. The *Contractor* is expected to comply with all applicable laws and regulations regarding fair competition and antitrust.
- b. The *Employer* does not engage with non-value adding agents or representatives solely for the purpose of increasing B-BBEE spend (fronting).

6.2.3 The *Employer's* relationship with suppliers requires us to clearly define requirements, exchange information and share mutual benefits.

- a. Generally, *Contractors* have their own business standards and regulations. Although Transnet cannot control the actions of our suppliers, we will not tolerate any illegal activities. These include, but are not limited to:
  - i. Misrepresentation of their product (origin of manufacture, specifications, intellectual property rights, etc.);
  - ii. Collusion;
  - iii. Failure to disclose accurate information required during the sourcing activity (ownership, financial situation, B-BBEE status, etc.);
  - iv. Corrupt activities listed above; and
  - v. Harassment, intimidation or other aggressive actions towards Transnet employees.
- b. The *Contractor* must be evaluated and approved before any materials, components, products or services are purchased from them. Rigorous due diligence is conducted, and the supplier is expected to participate in an honest and straight forward manner.
- c. The *Contractor* must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.

## 6.3 Conflicts of interest

6.3.1 A conflict of interest arises when personal interests or activities influence (or appear to influence) the ability to act in the best interests of the *Employer*. These include but are not limited to:

- a. Doing business with family members.
- b. Having a financial interest in another company in our industry.

## 7 The *Contractor's* invoices

When the *Project Manager* certifies payment (see NEC3 ECC Clause 51.1) following the assessment date, the *Contractor* complies with the *Employer's* procedure for invoice submission. The invoice must correspond to the *Project Manager's* assessment of the amount due to the *Contractor* as stated in the payment certificate.

The invoices must be addressed to Transnet SOC Ltd and must state the following:

Invoice addressed to Transnet SOC Ltd;

Transnet SOC Limited's VAT No: 4720103177;

Invoice number;

The Contractor's VAT Number; and

The Contract number.

The invoice is presented electronically, submitted to the *Project Manager*.

Invoices are addressed to:

PORT OF CAPE TOWN

PO BOX 442

PAARDENE ILAND

8001

For the attention of the *Project Manager*

The invoice is presented as an original.

## 8 People

Minimum requirements of people employed on the site include the following:

- a. Employee's medical certificate
- b. Health and Safety induction training

The *Contractor* complies with Annexure F (Industrial Relations Policy and Management Plan), including the following requirements.

### 8.1 *Contractor* liability

- 8.1.1 The *Contractor* warrants that it will be liable to the *Employer* for any loss or damage caused by strikes, riots, lockouts or any labour disputes by and/or confined to the *Contractor's* employees, which loss will include any indirect or consequential damages.
- 8.1.2 The *Contractor* warrants that no negotiations or feedback meetings by the *Contractor's* employees shall take place on the *Employer's* premises, whether owned or rented by the *Employer*.
- 8.1.3 The *Contractor* shall give notice to the *Employer* of any industrial action by the *Contractor's* employees immediately upon becoming aware of any actual or contemplated action that is or may be carried out on the *Employer's* premises, whether owned or rented, and shall notify the *Employer* of all matters associated with such action that may potentially affect the *Employer*.
- 8.1.4 The *Contractor* is responsible for educating its employees on relevant provisions of the Labour Relations Act which deal with industrial action processes and the risks of non-compliance.
- 8.1.5 The *Contractor* is required to develop a contingency strike handling plan, which plan the *Contractor* is obliged to update on a three-monthly basis. The *Contractor* must provide the *Employer* with this plan and all updates to the plan. The *Contractor* is responsible to communicate with its employees on site details of the plan.

### 8.2 Industrial action by *Contractor's* employees

- 8.2.1 In the event of any industrial action by the *Contractor's* employees, the *Contractor* is required to provide competent contingency resources permitted in law to carry out any of the duties that are, or could potentially be, interrupted by industrial action in delivering the service.
- 8.2.2 The *Contractor* warrants that it will compensate the *Employer* for any costs the *Employer* incurs in providing additional security to deal with any industrial action by the *Contractor's* employees.
- 8.2.3 In the event of any industrial action by the *Contractor's* employees, the *Contractor* is obliged to prepare and deliver to the *Employer*, within two (2) hours of the commencement of industrial action, an industrial action report. If the industrial action persists, the *Contractor* is required to deliver the report at 08h30 each day.
- 8.2.4 The industrial action report must provide at least the following information:

- a. Industrial incident report;
  - b. Attendance registers;
  - c. Productivity/progress to schedule reports;
  - d. Operational contingency plan;
  - e. Site security report;
  - f. Industrial action intelligence gathered.
- 8.2.5 The final industrial action report is to be delivered 24 hours after finalization of the industrial action.
- 8.2.6 The management of the *Contractor* is required to hold a daily industrial action teleconference with personnel identified by the *Employer* to discuss the industrial action, settlement of the industrial action, security issues and the impact on delivery under the contract.
- 8.2.7 The resolution of any disputes or industrial action by the *Contractor's* employees is the sole responsibility of the *Contractor*.
- 8.2.8 Access to the *Employer's* premises by the *Contractor* and its employees is only provided for purposes of the *Contractor* delivering its services to the *Employer*. Should the *Contractor* and its employees not, for any reason, be capable of delivering its services, the *Employer* is entitled to restrict or deny access onto its premises and, unless otherwise authorized, such person will be deemed to be trespassing.
- 8.2.9 The *Contractor* performs the works having due regard to the PIRPMP, statutory requirements and industry agreements.
- 8.2.10 The *Contractor* complies with the requirements of the IRCC involving the engineering construction *Contractors* engaged (including all future *Contractors*) by the *Employer*.
- 8.2.11 The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to IR issues are stated in the following paragraphs.
- 8.2.12 The PIRM is responsible for ensuring that the *Contractor* complies with the PIRPMP. The PIRM acts on behalf of the *Project Manager*.
- 8.2.13 The PIRM specific tasks are:
- a. As per Annexure F (Industrial Relations Policy and Management Plan);
  - b. To liaise with the *Contractor* prior to the commencement of construction activities, as per the *Contractor's* programme accepted by the *Project Manager*, with respect to IR issues;
  - c. Responsible, inter alia, for day-to-day IR on the site through the implementation of the PIRPMP;
  - d. The PIRM reports directly to the *Project Manager*.

## 9 Subcontracting

Where the *Contractor* employs a *Subcontractor* who constructs or installs part of the works or who supplies plant and materials for incorporation into the works which involves a *Subcontractor* operating on the site, then the *Contractor* ensures that any such *Subcontractor* complies with the CEMPr as well as health and safety project specification (1124367-02-HS-SP-0001) as described in the Works Information, as appropriate. The subcontract documentation shall place back-to-back obligations on the *Subcontractor*, which reflect the *Contractor's* obligations under the CEMPr, all within the *Contractor's* quality management system, as per the Works Information.

Where the *Contractor* employs a *Subcontractor* who constructs or installs part of the works, or who supplies plant and materials for incorporation into the works which involves a *Subcontractor* operating on the site and/or working areas, then the *Contractor* ensures that any such *Subcontractor* complies with the PIRPMP as appropriate and that the subcontract documentation places back-to-back obligations on the *Subcontractor* which reflect the *Contractor's* obligations under the PIRPMP, all within the *Contractor's* quality management system as per the Works Information.

## 10 Annexures

List of annexures:

Annexure A: Tender drawings

Annexure B: Contractor Documentation Submittal Requirements: DOC-STD-0001

Annexure C: Health And Safety Specification: TNPA965-02-HS-SP-0001

Annexure D: Minimum Environmental Requirements For Construction V2 (009-TCC-CLO-SUS-11385)

Annexure E: Standard Operating Procedure For Construction Environmental Management - Ver.07

Annexure F: General Quality Requirements for Contractors and Suppliers (QAL-STD-0001)

Annexure G: Baseline Risk Assessment for Culemborg Development

## **ANNEXURE A: TENDER DRAWINGS**

**ANNEXURE B: *CONTRACTOR*  
DOCUMENTATION SUBMITTAL  
REQUIREMENTS: DOC-STD-0001**

**ANNEXURE C: HEALTH AND SAFETY  
SPECIFICATION: TNPA965-02-HS-SP-  
0001**

**ANNEXURE D: MINIMUM  
ENVIRONMENTAL REQUIREMENTS FOR  
CONSTRUCTION V2 (009-TCC-CLO-SUS-  
11385)**

**ANNEXURE E: STANDARD OPERATING  
PROCEDURE FOR CONSTRUCTION  
ENVIRONMENTAL MANAGEMENT -  
VER.07**

**ANNEXURE F: GENERAL QUALITY  
REQUIREMENTS FOR *CONTRACTORS*  
AND SUPPLIERS**

**ANNEXURE G: BASELINE RISK  
ASSESSMENT FOR CULEMBORG  
DEVELOPMENT**