Eskom Holdings SOC Limited

WATERPROOFING REPAIRS –

drakensberg pumped storage scheme



**DRAKENSBERG POWER STATION**

WORKS INFORMATION

FOR

WATERPROOFING REPAIRS

(SURFACE BUILDING)

**Date of Report:**

**Compiled by: ­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Kamir Lala**

**Accepted by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Plant Manager: Herbie Fielies**

# C3.1 Works Information

**C3.1.1 Description of the *works***

The *works* make provision for waterproofing repairs to the Surface Building Roofs at Drakensberg Pumped Storage Scheme (DPSS). This includes the investigation into the root cause of the roof leaks, preparation, appropriate selection of waterproofing system, sealing and a providing a watertight roof.

**Background**

DPSS straddles the Drakensberg escarpment in the vicinity of the Olivierhoek Pass on the road between Bergville and Harrismith. The Natal/Orange Free State border crosses the headrace tunnels between the intake and the surge shafts. The Scheme is situated on the farms Metz, Poccolan and Kilburn, but the area of the site is restricted to servitudes on the farms Metz and Kilburn.

The surface building roofs that requires remedial work is typically used by Eskom Employees as office space. Access to the surface building is via access. The existing waterproofing appears to have aged and require repairs. Water ingress from the roof has resulted in damage to the paint on the inside of the buildings.

***Employer’s* Objective**

* The *Employer’s* objective is for a competent *Contractor* to perform remedial *works* to the Surface Building Roofs to prevent leaks.
* The waterproofing maintenance work to ensure water tightness as intended to achieve the useful design life of the building.

***Employer’s* Philosophy**

* The *works* should have optimal structural strength as required.
* The *works* must be properly executed and provide high quality and technical performance.
* The *works* must be safe and fit for purpose.
* The execution and construction methods of the *works* to be as per the relevant standards.

**Engineering Philosophy**

The Engineering Philosophy which includes the selection of materials of the structures and the application is performed in accordance with latest accepted standards. A competent *Contractor* will be required to provide the *works* as stated in the Works Information.

**Maintenance Philosophy**

Maintenance of the *works* is kept at a minimum. Maintenance includes ease of inspection and replacement. Maintenance philosophy is to ensure long-term structural health.

**Operating Philosophy**

Perform maintenance and replacement of civil infrastructure to maintain and increase the design and operating life of civil structures.

**C 3.1.2 Scope of work**

The Scope must be read in conjunction with the specifications as stipulated in Section C3.12 to C3.4. Discrepancies or ambiguities are to be reported to the *Employer* prior to submission of tender. The *Contractor* must submit all work methods, procedures and specifications to the *Employer* for acceptance. The Scope of *works* entails the provision of services to waterproof the roof and prevent water ingress into the building in accordance with the Works Information.

The *works* comprises the following:

|  |  |
| --- | --- |
| **Applicable Structure** | **Scope** |
| Surface Building Roofs | * Submission of all work methods and procedures to the *Employer* for acceptance*.* * The *Contractor* to provide resources, equipment and services in compliance with the OSH Act. This includes all working at heights requirements, certification, equipment and compliance needed to perform the *works.* * The *Contractor* to supply and deliver all necessary materials, machinery, tools and equipment required for the repairs as stated in the Works Information. * Inspect the condition of the roof and provide a report, check the slope and drainage requirements, clean drainage system. * Remove existing waterproofing system, perform repairs (repair screed/concrete, sealing cracks, preparation of substrate and testing) and install accepted waterproofing system that will ensure that the roof is watertight. |

***The Contractor assesses the full scope of work at the site inspection meeting and submits tender accordingly. The Contractor shall check and verify the as built condition. The scope is read in conjunction with specifications and the pricelist.***

1. **Disciplines in which services sought:**

Civil Engineering, Buildings, Structures and Maintenance in waterproofing.

**2. Drawings**

|  |  |  |
| --- | --- | --- |
| **Drawing number** | **Revision** | **Title** |
| **0.48/1781** | **5** | **Surface Building- Roof Layout and Concrete Details** |
| **0.48/1149** | **2** | **Drakensberg Pump Storage Scheme Surface Building Structural Details** |
| **0.48/4884** | **0** | **Drakensberg Pump Storage Scheme surface Building Extension Structural Details** |

The drawings provided by the *Employer* are for reference and pricing only. The *Contractor* verifies the correctness of these drawings against the As Built condition prior to commencing with the Works. Nothing in the drawings lessens the *Contractor’s* obligations as detailed in any other documents forming part of the Contract.

**3. Specifications**

|  |  |  |
| --- | --- | --- |
| **Title** | **Date or revision** | **Tick if publicly available** |
| **General Specifications:** |  |  |
| **Health and Safety requirements: OHSA No 85 of 1993** |  |  |
| **Environmental requirements: National Environmental Management Act of 1988** |  |  |
| **Site regulations and access control** |  |  |
| **Eskom’s Procurement and Supply Chain Management Procedure 32-1034** | **Rev 1** |  |
| **Plant Safety Regulations: GGR 0992** |  |  |

## 3.1 Technical specifications:

### Standard specifications

Inspections and assessments must comply with the following specifications. The following SANS specifications for Civil Engineering is applicable to the work.

|  |  |  |
| --- | --- | --- |
| **Reference number** | **Title** | **Tick if**  **Publicly**  **available** |
| SANS 1200 | 1200 series specification for civil work | **√** |
| SANS 2001 | Construction Works | **√** |
| SANS 10400 | The application of the National Building Regulations | **√** |
| SANS 683 | Roof paints | **√** |
| SANS 10021 | The waterproofing of buildings (including damp-proofing and vapour barrier installation) | **√** |
| SANS 10155 | Accuracy in buildings | **√** |
| 240-99527377 | Inspection Manual for Civil Works at Eskom Power Station | **\*** |
| GGS 0315 | Standard drawing practice | **\*** |
| GGS 0441 | Drawing record system | **\*** |
| GGG 0462 | Quality requirements for engineering and construction works | **\*** |
| 32/421 | Eskom Life Saving Rules | **\*** |
|  | The Occupational Health and Safety Act No. 85 of 1993 and Regulations | **\*** |
|  |  |  |
|  | The Compensation for Occupational Injuries and Diseases Act No.130 of 1993, amended by government notices to 30 April 2004 or Equivalent | **\*** |
|  |  |  |
|  |  |  |

\* Available on request

The revisions and amendments of the Specification documents that apply are the latest revisions and amendments in force at the time of the Contract authorisation. Nothing in the Specification documents lessens the *Contractor*’s obligations as detailed in any other documents forming part of the Contract.

### Particular specifications and Performance Requirements

### Materials and Workmanship

* Materials and workmanship are of the best of their respective kinds. Only labour skilled in their trade is employed. Only new and undamaged materials are used in the *works*. Materials to be permanently installed are not used for any temporary purposes on site. *Works* are for the acceptance of the Supervisor and are executed in accordance with the relevant manufacturer's written recommendations and instructions. The *Contractor* to perform a detailed site inspection to note the existing features and as built condition. The *Contractor* takes cognisance of the surroundings that may potentially impact the *works* during implementation.

### Proprietary Product

* For the purpose of submission of tenders, rates for items described in the bills of quantities by trade names, catalogue references, etc., are for the particular type and manufacture specified.
* Once the Contract has been signed the acceptance of the Supervisor is obtained prior to any substitution and where products or materials, etc., other than those specified are used, adjustments in the rates are made, if deemed necessary.

### Waterproofing

* Damp proofing and waterproofing comply with the Specifications and requirements given in the table below. Waterproofing materials are applied in accordance with SANS 10021.

|  |  |  |
| --- | --- | --- |
| **Material** | **SANS** | **Type and/or Additional Requirements** |
| Bituminous damp-proof course to wall, sills,  etc. | 248 | Type FV |
| Polyethylene sheet for the waterproofing of flat roofs | 952 | Type A |
| Polyethylene sheet in damp-proof course to  walls, sills etc. | 952 | Type B |
| Ditto to floors and basements | 952 | Type C |
| Mastic asphalt for roofing | 297 | - |
| Mastic asphalt for damp-proof coursed and  tanking | 298 | - |
| Bituminous roofing felt | 92 | Type 60 |
| Chloroprene rubber sheet (for waterproofing) | 580 | At least 2.5 mm thick and 1200 mm wide |
| Sealing compounds with two-component  polysulphide base | 110 | Type 2 Gun Grade/ as specified on the  drawings |

* Roofs must be durable and must not allow the penetration of rainwater or any other surface water to the interior. Additionally, the roofs must not allow the accumulation of water on its surface. All the surfaces are to be checked for adequacy of slopes to ensure adequate drainage of the roof.
* The waterproofing system must allow for movement of concrete elements where this may occur ensuring that the waterproofing system is not damaged or comprised in anyway.
* The concrete/screed surfaces that are damaged or defective (cracking, spalling etc.) must be repaired with suitable repair products. The substrate must be stable before the waterproofing is applied. This includes structural and non-structural crack repairs.
* Cracks are to be repaired using crack injection for structural repairs or routing the cracks and filling with suitable concrete repair mortars.
* It is a requirement of the *Contractor* that an unconditional 5 year guarantee is provided. The guarantee must be provided by the *Contractor* and the *Suppliers*. The comprehensive pro forma guarantee must be submitted with the tender. If an additional coating or any maintenance interventions are required to ensure that the system is UV stable, it should be stated. Any maintenance requirements for the above 5-year guarantee shall be clearly indicated in the *Contractor’s* guarantee.
* The proposed waterproofing system must provide the following characteristics:
* Durable
* Bonding with substrate
* Bridge over minor cracks in concrete
* UV stable
* Maintainable
* Provide a guarantee
* The tendered rates to include the following:
* Supplying material
* Testing
* Surface preparation- sealing, cleaning, priming etc.
* Construction and installation
* Supply of equipment to perform the *works*
* Clearing, trimming, disposing of material, tidying and all other work to be done for finishing of the roof.

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

* Restrictions and hours of work may apply. The *Contractor* is required to keep records of his people on site, including those of his Subcontractors which the *Project Manager* or *Supervisor* has access to, at any time. The *Contractor* is required to manage the interface between his Subcontractors and ensure access is granted prior to establishing and commencing work.
* The *Contractor* takes into consideration the site working hours and must align to work hours on site. The *Contractor* to include this in the construction programme.

#### Supplier Documentation

Documentation and information (specific to this project) to be provided by the *Supplier* for *works* includes:

* A Quality Management Policy.
* A Quality Management System that meets or exceeds the requirements of ISO 9001. Relevant and applicable certification and the quality management policy to be submitted.
* Name of company, facility, web address, e-mail address, contact telephone number and physical address.
* Provide verifiable/auditable evidence that the *Contractor* has experience in waterproofing of buildings and waterproofing systems for similarly sized projects in comparable environments.
* Provide an organogram, specific to this particular supply, detailing all the positions and individuals responsible for technical expertise and logistic support. Curriculum vitaes of these key personnel shall be included with the submission. Suitably qualified technical supervisors and inspectors are considered key in the process. In this regard details of personnel number, qualification type, level and experience to be provided as part of the organogram.

The organogram submitted at tender stage is required to contain the following persons as a minimum:

* Site Agent/ Supervisor/ Foreman
* SHEQ Supervisor
* Project Manager
* Site Construction Manager
* Site Manager

#### Pre-job Meeting

* A pre-job meeting to discuss and analyse the procedures and processes to be used on the project shall be held prior to commencement of the work. The purpose of the pre-job meeting would be to ascertain specifics in relation to this specification. Attendance shall include the *Employer*, *Suppliers*, manufacturers , Contractors and all key role players.

#### Contractor Skills and Competency

### The *Contractor* shall ensure that there are at all times sufficient suitably qualified, experienced and skilled staff to carry out and supervise all activities. The skills and competency is referenced to waterproofing of buildings, general building maintenance and construction work.

### Quality Assurance

### Supplier Capability

* The *Employer* may, at his discretion, require a Quality Audit of the *Supplier* to ensure that he has the management, facilities and skilled staff to carry out the work in accordance with the specification.
* The *Supplier* shall retain full responsibility for the quality of his work and of materials used, irrespective of any quality surveillance that may be carried out by the *Employer*

### Quality Control

* The *Supplier* shall have the necessary equipment and qualified staff to carry out the quality control required to ensure compliance with the specification.
* Quality control shall be carried out by a qualified individuals. Quality control cannot be carried out by the site supervisor or any member of staff involved in production and programming.
* These records shall be kept in a format that meets the approval of the *Employer*.
* The cost of quality control shall be included in the *Supplier’s* tender price.
* Before the commencement of the contract, the *Supplier* shall prepare the following:

(i) A Quality Plan detailing each activity to be carried out during the execution of the works. Each activity shall be supported by a detailed Works Procedure/Method Statement for that activity. The Quality Plan will also detail the inspection requirements of each specific activity, listing whether it is a review, witness or hold point, and defining the responsibilities of the various parties at each stage of the works.

(ii) The Safety File as required in 3.3.

* The *Supplier* shall provide the necessary documentation to be used during all quality control inspections. Such documentation shall be reviewed and approved by the *Employer* before work commences.
* The *Supplier* shall produce evidence that he has copies of, and understands, all reference documents listed under Section 3 ‘Specifications’.

## Clean working Conditions

* The site is kept and left in a clean and orderly condition as the work progresses and upon completion thereof.
* The *Supplier* stores equipment, materials and plant for which he is responsible in an orderly manner.

## Quality management

* The quality requirements are captured in the *Supplier* Quality Management Specification QM 58 (240-105658000), which specify and describe the minimum quality criteria for the selection, evaluation, registration, monitoring and auditing of suppliers. This specification as provided during tender will be seen as part of the works. It will work hand in hand with *(Form A) Tender & Contract Quality Requirements for QM58 and Quality requirements for ISO 9001 Standard*. A *Quality Control Plan / Inspection and Test Plan template* as well as a *Template for a Typical Contract Quality Plan* will be provided.
* The *Supplier* defines the level of QA/QC or inspection imposed on his *Sub-contractors* and *Supplier*s.
* The programming of inspections, hold and witness points is agreed between the *Employer* and the *Supplier* prior to undertaking any work.

## Safety and Occupational Health Management

### General Safety

* The Contractor must submit a detailed and comprehensive Safety Health and Environmental Plan as required by amongst others the Construction Regulations, Hazardous Chemical Substances Regulations, General Administration Regulations, General Safety Regulations of the Occupational Health and Safety Act 85 of 1993, Eskom’s SHEQ Policy 32-727, 167A/271: Health and Safety Requirements for Contractors, etc. which will include amongst others:
* The safety file needs to be signed off by the client before any work can commence.
* Method statements for all activities should be part of the safety file and plan.
* A Letter of Good Standing (compulsory):
* Appropriate statutory appointments;
* Medical Certificates of Fitness issued by registered Occupational Health Practitioners;
* Method Statements/Procedures for all tasks as identified in the Risk Assessments;
* The Contractor and his personnel will attend an induction meeting on site and sign the attendance sheet provided as proof of attendance.
* The *Supplier* shall ensure that adequate precautions are taken to avoid fire hazards, as required by the General Safety Regulations, Construction Regulations of the Act, and any Eskom requirement related to fire risks.

**C3.4. Constraints on how the *Contractor* provides the *Works***

1. **Access**

* The *Employer* will provide access to the site for the *Contractor* to conduct repair works. The site can be accessed via the main access road at DPSS.
* Working space may sometimes be restricted. General access to the power station complex is controlled and it is mandatory that the *Contractor* adheres to all security regulations in force at all times.
* The *Contractor* notes that the Site is a National Key Point and complies with the associated requirements of the National Key Point Act, 102 of 1980.

1. **Functional Requirements**

* The *Contactor* must provide sufficient Equipment and tools to carry out the work. The *Contractor* shall have all the necessary ancillary Equipment and hand tools available for the work. The Engineer shall be entitled to request reserve plant should there be any doubt as to the efficiency or capability of the Equipment provided.
* It is mandatory that the *Contractor* be certified (in terms of the South African Occupational Health and Safety Act of 1993 and Construction Regulations 2014), and has the necessary skills to carry out the *works* as per the Works Information. The structures are safe for use and are structurally sound.

* The *Contractor* shall provide detailed procedures that shall be employed, describing systematically how the Contractor performs the *works*.
* The *Contractor* shall provide an organogram, specific to this particular supply, detailing all the positions and individuals responsible for technical expertise and logistic support. Curriculum Vitaes of these key personnel (e.g. person leading the inspection team, rope access supervisor, corrosion applicators etc.), shall be included with the Safety Plan. Suitably qualified technical backup or support, Quality Assurance and Quality Control personnel are considered key in the execution process. In this regard, details of the personnel number, qualification type, level and experience to be provided as part of the organogram.

1. **Modifications**

The *Contractor* does not modify any plant or materials unless accepted by the *Employer* prior to site execution.

1. **Start of Works**

A site inaugural meeting is held between the *Contractor* and the *Employer*, where details of the *Works* are discussed and clarified prior to site execution. The start of *Works* shall be as per the contract documentation.

1. **Transporting of Employees**

The *Contractor* is in all respects responsible for the housing and transporting of employees, and for the arrangement thereof, and no extension of time due to any delays resulting from this, will be granted.

1. ***Others***

The *Contractor* notes that there may be other work taking place during the period when he is providing the *Works*. The *Contractor* liaises with *others* in this regard.

1. **Subcontracting**

All Work done by specialist *Contractor* is the responsibility of the *Principle* *Contractor*. The *Employer* shall accept *works* as provided by the *Contractor*.

1. **Debris**

The *Contractor* must remove all debris generated from and transports it to a designated spoil site. All spoil material generated by the *Works*, is disposed of by the *Contractor* at the municipal designated dumping site and the *Contractor* must provide proof or certification thereof.

1. **Medical facilities**

No medical facilities are available on site.

1. **Sanitation of the Works**

The *Contractor* is responsible for providing all the required sanitary services necessary and ensuring that the toilets are clean, neat and in a hygienic condition. The *Contractor* makes arrangement for the removal and disposal of sewage for duration of the *Works*. The sanitation of the *Works* is arranged and maintained by the *Contractor* to the satisfaction of the *Employer*. The *Contractor* is advised to visit the site to familiarize the nature and position of the site.

1. **Security of Works**

The *Contractor* is entirely responsible for the security of all the *Works*, materials, equipment and lighting and other precautions as necessary to ensure security against theft, loss or damage. The *Contractor* is advised to visit site to familiarize with the nature and position of the site.

1. **Tool and Equipment**

The *Contractor* supplies all tools and Equipment for the *Works* including safety harnesses approved by the *Employer* and step ladders with their inspection records.

1. **Meetings**

Before any work can commence on site, the *Contractor* and all staff is to attend site induction. The *Contractor* is to allow 2 hours for this. All personal will be required to submit copies of their identity documentation at this point.

The *Contractor* will be required to sign on to the workers register each morning and sign out each afternoon. A responsible person (RP) will be appointed by site and will be responsible for the area where the *works* is taking place. The RP will be responsible for ensuring that everyone signs on and off the register, ensure that everyone is aware of the Eskom rules and will confirm that the area is still safe for work. The *Contractor* must notify the RP of the daily work plan prior to execution of works.

The *Contractor* is to hold a toolbox talk each morning before commencing with the *Works* to discuss the previous day’s work and to ensure that everyone understands what is required of them.

*When required, the Contractor* must have a representative at each daily morning meeting.

1. ***Contractor* representation**

The *Contractor’s* Site Supervisor is on site for the entire duration of the *Works*.

1. **Facilities to be provided by the *Contractor***

* If required the *Contractor* is required to provide his own containers to be used as an office or for storage.
* The *Contractor* supplies all tools and Equipment for the *Works*.
* The *Contractor* provides sanitary facilities and potable water for personnel taken into account the duration of *Works*, location and surroundings.
* The *Contractor* is entirely responsible for the security of all the *Works* for 24-hour period.

1. **Title to material**

The *Contractor* has no title to plant and/or materials resulting from him carrying out the *Works*.

1. **Design by the *Contractor***

The *Contractor* does not design any of the work.

1. **Quality Management**

The quality requirements are as per Eskom standard ESKASAAU7: QUALITY REQUIREMENTS FOR THE PROCUREMENMT OF ASSET GOODS AND SERVICES. The *Contractor* utilizes the *Employer*’s forms for requesting access, etc. These request forms are submitted to the supervisor at least one week prior to the requested date.

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the specifications and drawings rests with the *Contractor*, and the *Contractor* shall institute a quality control system and provide suitably qualified staff to ensure adequate supervision and positive control of the works at all times.

The programming of inspections, hold and witness points of the repairs is to be agreed between the *Employer* and the *Contractor* prior to undertaking any work.

The Contractor’s attention is drawn to the provisions of the various Standardized Specifications regarding the minimum frequency of testing required. The *Contractor* shall, at his own discretion, increase this frequency where necessary to ensure adequate control.

On completion and submission of every part of the work to the *Employer* for inspection, the *Contractor* shall furnish to the *Employer* the results of the relevant tests, measurements and levels to demonstrate the achievement of compliance with the specifications.

1. **Clean working conditions**

Progressive and systematic finishing and tidying will form an essential part of this contract. The *Contractor* must undertake to dispose of the building rubble as there is no capacity on site to dispose. Materials of value belong to the *Employer* and not the *Contractor*.

Under no circumstances shall materials, Equipment or unfinished operations be allowed to accumulate unnecessarily and in the event of this occurring the *Employer* shall have the right to withhold payment for as long as necessary in respect of the relevant works in the area(s) concerned.

The *Contractor* is responsible for Clean Working Conditions, for the duration of the work, and uses the *Employer’s* Standard Reference no 167A-139, as a minimum requirement.

The *Contractor* is responsible to establish and maintain a protected environment around the work area. Only persons authorized by the *Employer* have access to the work area. Precautions are enforced by the *Contractor* to ensure that no foreign objects are lying around at any stage of the work.

The *Contractor* stores materials and Equipment for which he is responsible in an orderly manner.

The *Contractor* ensures that the working area remains clean for the duration of the works.

1. **Health and Safety requirements**

**Health, safety and the environment**

Work conducted in a waterway, which is clearly defined as a confined space, can by its very nature be hazardous. In this regard potential tenderers must be able to demonstrate their ability to conduct work in confined spaces safely by producing and complying with the following:

The *Contractor* shall submit a detailed and comprehensive **Safety, Health and Environmental Plan** as required by amongst others the Construction Regulations, General Administration Regulations, General Safety Regulations of the Occupational Health and Safety Act 85 of 1993, Eskom’s SHEQ Policy 32-727, Eskom’s Permit to Work System, specifically the Plant Safety Regulations that addresses work in confined spaces, 32-418 - Work at Height, 167A/271: Health and Safety Requirements for Contractors, etc. which will include amongst others:

* A **valid and verified** Letter of Good Standing **(mandatory)**:
* Risk Assessments including a Fall Protection Plan that must include a detailed fall rescue plan, especially since work at height will be required; mitigation of slip and fall hazards in the Surge Shaft or waterways; Personal Protective Equipment, etc.;
* Appropriate statutory appointments specific to the risks of the tasks, e.g. a competent fall protection plan developer, competent risk assessment developer, rescuers, first aiders supervisor, etc.;
* Medical Certificates of Fitness issued by a registered occupational health practitioner or occupational medicine practitioner;
* Method Statements/Procedures that specifically address the tasks and their hazards.
* Competencies specific to the tasks, e.g. training in fall arrest systems, maintenance of fall protection equipment, fall rescue, emergency management, risk assessment methods, supervisory skills, etc., issued by accredited safety training service providers;

The *Contractor* and his personnel will attend an induction meeting on site that will detail site health and safety requirements and expectations during the contract, e.g. actions required during an emergency, incident accident reporting, worker identification, security requirement, etc. *Contractor* employees will be required to sign the attendance sheet provided as proof of attendance.

The *Contractor* is responsible for the medical treatment of his/her personnel should it be required, and must adhere strictly to the requirements of COID and the contract.

## Environmental Management

The *Contractor*’s attention is drawn to the fact that the Power Station is situated in a highly sensitive area with respect to the environment.

The *Contractor* acquaints himself with all statutory and local environment regulations and adheres to these without exception, especially the requirements of the National Environmental Act, Number 107 of 1998 and its Regulations.

Any waste that is generated shall be stored, labelled and disposed in the manner prescribed in the applicable legislation governing the management of waste.

The required SHE Plan must be submitted for evaluation **before** any work commences, and no contractor or his/her personnel will be allowed to conduct any work with a duly approved SHE Plan.

1. **Site Clearance**

The *Contractor* removes all his equipment, plant and waste generated during the *Works* on takeover of the *Works*.

**C 3.5 Requirements for the programme**

The *Contractor* submits a bar (Gantt) chart programme in PDF format, detailing how the *Works* is executed within the stipulated dates, including weekends and public holidays. The programme must include the following:

* Lead time from Contract start date to Site Establishment
* Proposed time to complete each activity as per the scope of work.
* Resources needed per activity
* Links between activities indicating predecessors and successors.
* Site establishment and de-establishment duration.
* Health, Safety and Environmental considerations including 2 hours for Induction training.
* Float per activity.
* Quality verification and testing activities.
* Key deliverable dates.

The programme will be subject to acceptance by the *Employer* and must be within the offered timeframes during tender stage.

The schedule needs to be updated on a daily basis and be available to the *Employer* when required. The updated schedule must be presented to the *Employer* by each Friday of each week during the execution phase of the *Works*. An Early Warning must be tabled every time the updated schedule indicates lateness of any activities on the critical path.

The *Contractor* must stick to the agreed programme and any changes to it need to be approved by the *Employer*.

**C 3.6 Services and other things provided by the *Employer***

**Electrical Supply**

* No electrical connections available. The *Contractor* provides the electrical supply to perform the *works*.
* Note: The *Contractor* provides his own extension leads and equipment needed to carry out the *works*.

**Potable Water Supply**

* All points of supply are provided in terms of availability and location.
* The *Employer* indicates which supply points may be used.

**Lightning**

* *Contractor* to provide own lighting where required.

**Designated smoking areas**

* Personnel to smoke only at designated smoking areas.

**Ablution facilities**

* There are no ablution facilities at the work area.

**C 3.7 Requirements from the tenderer**

The tenderer must submit the following information and documentation with his/her tender:

* Detailed qualifications of any deviation from the contents of this specification.
* Evidence of the tenderer’s capability of undertaking that he has successfully completed similar contracts of like size and scope. Additionally provide certification proving competency.
* Provide protection and support to existing equipment where applicable.
* A Quality Control Plan (QCP).
* Method statements
* Protection plan to existing equipment while work is carried out.
* A guarantee of the installed/commissioned work for a period as specified in the specification from the date of issue of the Certificate of Completion.
* A quality assurance document which includes control and management procedures.
* A manual detailing installation care and maintenance procedures where applicable.
* Cleaning and protection during the progress of the works, the *Contractor* shall clean the work area as well as protect his/her work area in strict accordance with the particular standards for such works.
* A technical construction project programme.
* The *Contractor* should be well established and reputed *Contractor (Waterproofing- Building Maintenance)* and should have a minimum of 3 years’ experience in construction of similar W*orks* as well as key personnel with adequate experience and competency to perform work specific to the scope of this project. The key capability is related waterproofing and building works.

C4: Site Information

The site is reached from Harrismith via the R49 to Kestel. The R74 turn-off to Bergville is 2.8 km along the R49. Turn left after 8.7 km and travel 23.5 km to the Natal/Free State boundary at the top of the Oliviershoek Pass. From there, travel 13.1 km down the pass and turn left. Follow the signposted directions to the power station for approximately 9.5 km. The total distance from Harrismith is approximately 60 km.

# C4.1: Information about the *site* at time of tender which may affect the work in this contract

## 1. Access limitations

Access to the Power Station is restricted to authorized personnel only. All *Contractor’s* staff will be required to be cleared by security. *Contractor* gives 24hrs notice to the *Employer* of his intention to enter security controlled areas. Police clearance is a requirement on-site.

All *Contractors* will be tested for the use of alcohol. Any persons found to be above Eskom’s legal limit will not be allowed on site.

## 2. Ground conditions in areas affected by work in this contract

The *Contractor* is to assess the ground condition and work area at the site meeting.

## 3. Hidden and other services within the *site*

The *Contractor* is to assess the area to confirm the presents of services. Prior to commencement of any *works*, the *Contractor* shall ascertain from the relevant authorities the exact position, depth and level of all existing services in the area and shall make whatever provisions may be required by the authority concerned for the support, maintenance and protection of such services.

## 4. Details of existing buildings / facilities which *Contractor* is required to work on

The *Contractor* will not be working on any building when there are the presence of pylons in the area, the *Contractor* is to take caution not to undermine or disturb its foundation in any way.