



NKANGALA DISTRICT MUNICIPALITY



CONSTRUCTION OF THE GA-MORWE TO MTHAMBOTHI VEHICLE BRIDGE IN DR JS MOROKA LOCAL MUNICIPALITY PROJECT No: 57504

SCOPE OF WORK

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C3.1 DESCRIPTION OF WORKS

C3.1.1 Employer's Objectives

The objectives of the project is to provide the communities of the Ga-Morwe and Mthambothini villages with a new functional vehicle river bridge over the Elands River. The current river crossing structure is prone to overtopping during rainy seasons which makes usage thereof unsafe for the many vehicles and pedestrians using it to cross between the two villages.

C3.1.2 Overview and Location of the Works

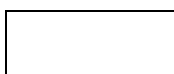
The project site is situated in Ga-Morwe / Mthambothini, within the Dr J.S Moroka Local Municipality under the Nkangala District Municipality. The approximate coordinates of the development area are as follows

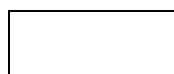
- Latitude **25° 06' 55,29" S**
- Longitude **28° 59' 43,91" E**

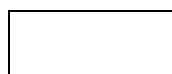
C3.1.3 Background and Extent of Works

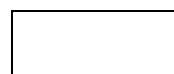
The project was implemented in March 2019 and consisted of the construction of a 60m long, 13.95m wide vehicle bridge with 3 spans of 20m each. The initial scope of the works consisted of the following:

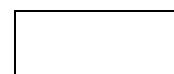
- Setting out of the roads and bridge structure works
- Site Clearance
- Accommodation of traffic (utilizing existing crossing structure as detour)
- Provision of water re-routing measures to provide access to river bed
- Installation of pile foundations for bridge structure
- Construction of cast in-situ bridge elements (Piers and Abutments)
- Construction and pre-stressing of precast bridge elements (Beams)
- Manufacturing and installation of precast permanent formwork units
- Construction of cast in-situ deck slab
- Manufacturing and installation of pre-cast parapet units
- Placement of mass fill for approach road sections
- Construction of road layer works
- Pavement layer works
- Asphaltting or road surface
- Stone pitched Storm Water drains
- Installation of road signs and markings
- Finishing of the road and road reserve
- Paving of the pedestrian walkway facilities along the road way

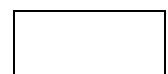

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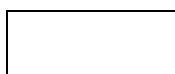
The remaining works not completed under the previous contract is listed as follows:

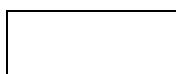
- Concrete remedial works
- Collection and installation of precast parapet units
- Construction of end blocks
- Installation of bridge deck drainage systems
- Construction of pedestrian walkway
- Asphalt to bridge deck
- Installation of deck expansion joints
- Completion of mass fill
- Installation of gabions and stormwater drainage systems
- Construction of road layer works
- Pavement layer works
- Asphalting of road surface
- Stone pitched Storm Water drains
- Installation of road signs and markings
- Finishing of the road and road reserve
- Paving of the pedestrian walkway facilities along the roadway

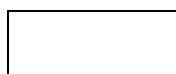
C3.2 ENGINEERING

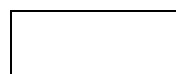
C3.2.1 Design services and activity matrix

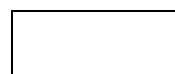
Description	Responsibility
Design of Works	Engineer
Concept, feasibility and overall process	Client
Basic Engineering and detail layouts to tender stage	Engineer
Application for wayleaves	Engineer
Final Design of Works	Engineer
Follow up and maintenance of wayleaves	Contractor
Final Design to approved for construction stage	Client
Preparation of tender documentation & adverts	Engineer
Appointment of soil test / topographical surveyors	Engineer
Appointment of sub-contractors	Contractor
Supervision	Engineer
Preparation of as-built drawings	Contractor / Engineer
Completion certificate	Engineer / Client / Contractor

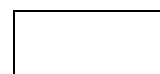

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C3.2.2 Drawings

The drawings contained in the tender document shall be used for tender purposes only. Further drawings are to be provided on an on-going basis by the engineer.

The contractor will be supplied with three (3) sets of construction (working) drawings. These prints are issued free of charge and the contractor shall make any additional prints he may require at his own cost.

Any information in the possession of the contractor, which the resident engineer requires to complete the as-built drawings, shall be supplied to the resident engineer before a certificate of completion will be issued.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the engineer. The engineer will supply all figured dimensions omitted from the drawings.

C3.3 PROCUREMENT

The Tenderers notice is drawn to the fact that the awarding of this tender will be in terms of the Supply Chain Management Policy of the Nkangala District Municipality and The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement (May 2010) (Available on www.cidb.co.za).

C3.4 SUB-CONTRACTING

As the Client's policy there will be an appointment of sub-contractors nominated by the Client for work up to 30% of the project amount. No work may be sub-contracted to another party unless approval is given by the Engineer in writing. The Contractor is to submit to the Engineer in writing a request for appointment of a particular sub-contractor. Accompanying this request is to be the full detail of the sub-contractor, including:

- Previous experience
- Work which will be sub-contracted to him/her
- Approximate value of the work to be sub-contracted

Before the Engineer in terms of Clause 38 hereof issues any certificate that includes any payment in respect of work done or goods supplied by any sub-contractor appointed in accordance with the provisions of Clause 4.4 of the General Conditions of Contract Third Edition (2015), he shall be entitled to call upon the Contractor to furnish reasonable proof that all payments (less retention moneys) included in previous certificates in respect of the work or goods of such sub-contractors have been made or discharged by the Contractor, in default of which, unless the Contractor:

- Informs the Engineer in writing that he has reasonable cause for withholding or refusing such payment; and
- Submits to the Engineer reasonable proof that he has so informed such sub-contractor in writing.
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C3.5 CONSTRUCTION

C3.5.1 Standard Specification

The following specifications shall apply for the construction of the Works.

- (i) The COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998).

The contractor may purchase copies of Volume (i) from the South African Institution of Civil Engineers.

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1685

- (ii) The SANS or BS Specifications and Codes of Practice

Wherever any reference is made to the South African National Standards (SANS) and the British Standards Specification (BSS) in either these Bill of Quantities or the Specification of Materials and Methods to be Used (OOG-001E), this reference shall be deemed to read "SANS or equivalent standard" and BS or equivalent standard" respectively.

- (iii) The Various other specifications specified in the COLTO Standard Specifications or the Project Specifications.

C3.5.2 Plant and materials

All materials shall comply with the requirements of the South African National Standards, and shall bear the official standardization mark. Where SANS standard does not exist for a certain material, or a material does not bear the official standardization mark, the Engineers approval of such material must be gained before use thereof.

C3.5.3 Construction Equipment

All equipment on site shall be in a good working order, and is to be in such a condition that it can achieve production rates which are typical of the industry standards.

Should any equipment, in the opinion of the Engineer, be substandard or breaks down frequently to such an extent that it affects the progress on the project, the Engineer may instruct the Contractor to replace such equipment.

C 3.5.4 Existing Services

The Contractor shall so carry out all his operations as not to encroach on, or interfere with, trespass on, or damage adjoining lands, building properties, roads, structures, places and things

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in the vicinity of the Works, and he shall free and relieve the Employer of any liability that may be incurred in consequence of his failure to do so.

The services existing on the site will be either shown on the drawings or pointed out on site by the Engineer and / or the Municipality. No excavation work will commence unless a representative of the Municipality and/or the Engineer have been requested to point out existing services in the area under construction. Written confirmation of services that have been pointed out by the Municipality is to be obtained by the Contractor.

All existing services on the site may not be shown on the drawings or be visible on the site. The Engineer may order excavation by hand in order to search for and expose services. An item has been included in the Schedule of Quantities to cover the cost of such work if so ordered by the Engineer. Where a service is damaged because of the Contractors negligence he shall be liable for the cost involved in the repair of the services and any other consequent cost that may arise due to the interruption of the damaged services.

The Engineer is to apply for all respective wayleaves from potential existing services owners in the vicinity of the works. The Contractor shall ensure the issue of the applied wayleaves prior to any excavation taking place on site. The Contractor shall furthermore be responsible for the maintenance of all issued wayleaves for the duration of the works and shall ensure compliance to all requirements contained therein. No excavation is to take place until a representative from the Municipality has been contacted and he has pointed out the existing services to the Contractor and confirmed it in writing.

C3.5.5 Site Establishment

Source of Water Supply

A reticulated potable water supply is available in the vicinity of the development site. Should the Contractor wish to utilise such water supply, he shall himself be responsible for making his own arrangements with the responsible water supply authority for the supply of all water that he may require from such reticulation network for construction purposes as well as for domestic consumption.

If so required by the responsible water supply authority, the Contractor shall further be responsible, at his own cost, for making or otherwise providing metered connections to the available services at the positions specified by the water authority, as well as for the removal of such connections on completion of the Contract.

No warranty is offered or given by the Employer that the existing available reticulated water supply will necessarily be adequate for the Contractor's purposes nor that such supply is in any way guaranteed.

All charges as may be levied by the responsible water supply authority in respect of water consumed by the Contractor shall be for the Contractor's account and payment to the Contractor in respect thereof shall be deemed to be included in the sums bid by the Contractor for the various Preliminary and General items listed in the Schedule of Quantities, as well as in the rates bid by

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the Contractor for the various other items listed in the Schedule of Quantities which require the consumption of water.

The Contractor shall, when reasonably required by the Engineer, produce documentary proof that all amounts as may have become due and payable by the Contractor to the responsible water authority have been promptly paid in full.

Sources of power supply

A reticulated electrical power supply is available in the vicinity of the Site. Should the Contractor wish to avail himself of such supply, he shall be responsible for making his own arrangements with the responsible electricity supply authority for the supply of all electrical power he may require from such reticulation network for construction purposes as well as for domestic consumption.

If so required by the responsible electricity supply authority, the Contractor shall, at his own cost, be responsible for making metered connections to the available services at the positions specified by the electricity supply authority, as well as for the removal of such connections on completion of the Contract.

No warranty is offered or given by the Employer that the existing available reticulated electrical power supply will necessarily be adequate for the Contractor's purposes nor that its supply is in any way guaranteed.

All charges as may be levied by the responsible electricity supply authority in respect of electrical power consumed by the Contractor shall be for the Contractor's account and payment to the Contractor in respect thereof shall be deemed to be included in the sums bid by the Contractor for the various Preliminary and General items listed in the Schedule of Quantities, as well as in the rates bid by the Contractor for the various other items listed in the Schedule of Quantities which require the consumption of electricity.

The Contractor shall, when reasonably required by the Engineer, produce documentary proof that all amounts as may have become due and payable by the Contractor to the responsible electricity supply authority have been promptly paid in full.

Location of camp and depot

A specific area in close proximity to or on the Site of the Works will be made available by the Employer to the Contractor for the Contractor's site establishment. The specific area for the Contractor's site establishment will be identified to the Contractor by the Engineer and the Contractor shall have sole use of such area, free of charge, for the duration of the Contract.

The Contractor shall use this area only for the purposes of erecting his site offices, workshops, stores and other facilities required for the execution of the Contract. The Contractor shall not use the area nor allow it to be used for any purposes not directly associated with the execution of the Contract, and the designated area shall not be used for housing the Contractor's employees.

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The Contractor shall be responsible for arranging, at his own cost, for the provision of all services he may require. Electricity, water and sewerage are available in the vicinity of, but not on, the area proposed for the Contractor's site establishment.

Should the Contractor deem the area made available by the Employer to be inadequate or unsuitable for the Contractor's particular needs, then the Contractor shall be at liberty to make his own arrangements with the owners of other sites which he considers are better suited to his needs; provided always that the use by the Contractor of any area other than that made available to him by the Employer shall be subject to the prior written approval of the Engineer, which approval shall not be unreasonably withheld; and provided further that the Contractor shall have no claim against the Employer in respect of any costs incurred by him, either directly or indirectly in consequence of utilising any area other than that made available to him by the Employer, and which costs exceed those costs allowed for by the Contractor in his Bid.

The Contractor shall at all times limit his personnel, plant, equipment and materials to the Site or within the working or travelling areas as may be requested by the Client and approved by the Engineer.

The Contractor shall comply with all regulations and local authority ordinances regarding emissions, noise abatement measures, height restrictions and clearance limits to any obstacles.

Temporary offices

The Contractor shall provide on the Site, for the duration of the Contract and for the exclusive use by the consulting engineer and the construction monitoring staff (as applicable), the various facilities described hereunder.

All such facilities shall be provided promptly on the commencement of the Contract and failure on the part of the Contractor to provide any facility required in terms of this specification shall constitute grounds for the Employer to withhold payment of the Contractor's bid for Preliminary and General items until the facility has been provided or restored as the case may be.

(i) Office Buildings (In accordance with SANS 1200 AB)

The Contractor shall provide 1 office (28m²) and 1 conference room for the consulting engineer and the construction monitoring staff. The conference room shall be big enough to seat 16 people around a table for meeting purposes.

The office and conference room shall be weatherproof, shall have a concrete floor and shall be provided with a ceiling and a lining to the walls, or equivalent insulation, with an acceptance type of door with a secure lock, and two opening windows of glazed area at least 3m². Each office shall be well ventilated and shall be so insulated as to provide comfortable working conditions.

The Engineer and his Representative shall be allowed free use of all the Contractor's site facilities, such as photocopying and toilet facilities. The toilet and washbasin to be used by the

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Engineer and/or his staff shall be kept clean at all times and shall be continuously provided with toilet paper, soap and towels.

A fully stocked first aid kit shall be provided for the Engineer, for which no separate payment will be made. The Contractor shall include the cost for this and for ensuring its contents are kept full and up-to-date in his bid rates for providing facilities for the Engineer.

Sanitary facilities

The contractor shall be responsible for the provision of fully functioning sanitation facilities. Payment to the Contractor for the provision of sanitary facilities shall be deemed to be included in the sums bid by the Contractor for the various Preliminary and General items listed in the Schedule of Quantities

Survey assistant and equipment

The Contractor shall, provide the following survey equipment for the exclusive use of the consulting engineer and construction monitoring staff:

- 1 upright reading automatic level with tripod
- 1 metric levelling staff with protective cover bag;
- 100-meter Stilon tape measure

The Contractor shall also, in accordance with the requirements of sub-clause 5.5 of SANS 1200 AB, make available to the consulting engineer and construction monitoring staff, two (2) survey assistants when required.

C3.5.6 Site Usage

Ground and access to the works

The Contractor shall where necessary on or adjacent to roads which carry traffic, provide all the necessary barricades and signs in accordance with the stipulations of the South African Road Traffic Signs Manual.

The Contractor shall further ensure that all public roads that are used for access to the site are kept free of debris at all times. The Contractor shall also take adequate measures to ensure that dust is kept to an acceptable level. The term acceptable is to be deemed as acceptable to the Engineer.

Care, damage and protection

The Contractor shall at his own cost make full provision for all watching and lighting necessary for the protection of all persons, animals, vehicles, etc., from injury by reason of the Works. He shall provide ample warning signs, guard rails, etc., around open excavations, stacks of materials, excavated material, debris or the like, and he shall be held liable for all claims made upon himself or upon the Employer by reason of his neglect of all such precautions and provisions.

During the periods of construction of the Works and the repair of defects, the Contractor shall, at his own cost, to the satisfaction of the Engineer and the relevant Authority, take sufficient and

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adequate measures to avoid interrupting the use of all roads, footpaths, water courses, drains, pipes, telephones, electric wires and cables, premises, places and works, public or private, which may in any way be interfered with by the operations; and shall also afterwards permanently restore all structures and everything which may have been temporarily displaced or otherwise interfered with, all to the satisfaction of the Engineer and the relevant Authority, without extra charge beyond the Contract price.

Survey beacons

The Contractor shall take care to safeguard any permanent survey beacons such as erf boundary pegs and reference beacons. Should the Contractor disturb any such pegs and beacons, he shall have them replaced at his own cost by a registered Land Surveyor. The Contractor is to provide the Engineer with written confirmation from the Land Surveyor that he has replaced the relevant beacons.

The Contractor's attention is drawn to article 35(i) of the Land Surveying Act No. 9 of 1927 (as amended) in this regard.

Blasting

As the construction takes place in close proximity to a built up area, extreme care is to be taken during any blasting operations. No blasting shall be permitted without prior written consent from the Engineer. Written as well as verbal notice will be given to all house owners in the affected area 24 hours prior to the blast being set off, and the contractor is to do a survey of all the houses (internal and external) in the area prior to blasting.

A full daily report of all blasting operations (in duplicate) is to be completed by the Contractor.

This report shall inter alia contain the following information:

- Date and time of each blast
- Number of holes
- Charge per hole
- Use of relays, etc.

This report is to be submitted to the Engineer on a weekly basis, and is to be countersigned by the Engineer.

The contractor is to be noted that he is not to use or permit any person to use an explosive powered tool, unless—

- (a) it is provided with a protective guard around the muzzle end, which effectively confines any flying fragments or particles; and
- (b) the firing mechanism is so designed that the explosive powered tool will not function unless—
 - (i) it is held against the surface with a force of at least twice its weight; and

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- (ii) the angle of inclination of the barrel to the work surface is not more than 15 degrees from a right angle:

Protection of existing vegetation

Before any tree is cut down and removed from the site, the Contractor shall confirm the necessity of such action with the Engineer or his Representative.

Access to individual erven

Access to all public and private property must be maintained at all times. Where trenches cross the access point to any property, the Contractor is to arrange for adequate and safe vehicular and pedestrian crossings over the trenches.

The Engineer must approve the method of providing access before any excavation commences.

Use of construction vehicles and equipment

The contractor shall ensure that all construction vehicles and mobile plants

- are of an acceptable design and construction;
- are maintained in a good working order;
- are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
- are operated by workers who-
 - (i) have received appropriate training and been certified competent and been authorised to operate such machinery; and
 - (ii) are physically and psychologically fit to operate such construction vehicles and mobile plant by being in possession of a medical certificate of fitness;
- arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
- are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;
- where appropriate, are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
- are equipped with an electrically operated acoustic signalling device and a reversing alarm; and
 - (i) are on a daily basis inspected prior to use, by a competent person who has been appointed in writing and the findings of such inspection is recorded in a register.
- no person rides or be required or permitted to ride on any construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;

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- every construction site is organised in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
- the traffic routes are suitable for the persons using them, sufficient in number, in suitable positions and of sufficient size;
- every traffic route is, where necessary indicated by suitable signs for reasons of health or safety;
- bulldozers, scrapers, loaders, and other similar mobile plant are, when being repaired or when not in use, fully lowered or blocked with controls in a neutral position, motors stopped and brakes set;
- whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
- when workers are working on or adjacent to public roads, reflective indicators are provided and worn by the workers.

C3.6 MANAGEMENT

C3.6.1 Management of the Works

Planning and programme

The Contractor shall deliver to the Engineer within **14 days**, calculated from the commencement date, a realistic programme showing the order of procedure, the duration of activities making up the programme and method which he proposes to use in carrying out the Works in order to meet the due completion date for this project.

The tenderer is to note that the penalty for failing to complete the works is **R 2 000.00** per day.

Setting out of the works

Generally, the positions of the works have been fixed on the plans according to the existing stand boundaries. The Engineer is to approve all setting out prior to commencement of excavation.

Excavation of works & safety

The contractor shall ensure that all excavation work is carried out under the supervision of a competent person who is been appointed in writing. The Contractor will evaluate, as far as is reasonably practicable, the stability of the ground before excavation works begin and he/she shall not permit any person to work in an excavation which has not been adequately shored or braced.

The Contractor will cause convenient and safe means of access to every excavation area in which person are required to work and such access hall not be further than 6m from the point where any worker within the excavation is working.

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The Contractor must ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and shall before the commencement of excavation work that may affect any such service, take the steps that may be necessary to render the circumstances safe for all persons involved;

The Principal Contractor shall cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be:

- (i) adequately protected by a barrier or fence of at least one metre in height and as close to the excavation as is practicable; and
- (ii) provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor;

The Principal Contractor shall cause warning signs to be positioned next to an excavation within which persons are working or carrying out inspections or tests.

Inspection by engineer

No stage of construction shall be proceeded with until the Engineer or his representative has examined and approved the previous stage. If any work is covered or hidden from view before the Engineer has inspected same, the Contractor shall at his own cost open the covered work for inspection. The Contractor shall also be responsible for making good any work damaged by such uncovering.

Employment of local labour

It is a specific criterion of this project that should as far as possible adhere to RDP principles, and to meet these principles the following procedures will be followed:

All labour is to be sourced from the Local Municipal; area of jurisdiction and the Contractor may only bring in key personnel from outside this area. The fixed rate for the appointment of local labour at task grade 2 will be **aligned with national standard**. This will be payable by the Contractor on **monthly** basis. The Contractor's attention is drawn to the standard rates specification ("*Annexure A*" – *Civil Engineering Industry Minimum Wage rates per hour*;) found on the SAFSEC website at www.safcec.org.za. These standard rates should be implemented for payment of all employees of the Contractor.

Exemption of the above is made for the employment of labour on the structural component of the works. All other aspects of the works (roads, stormwater, earthworks) is subject to the above local labour clause.

Key personnel would typically include the Contracts Manager, Site Agent, and Supervisor for each discipline, and operators of plant where the operator must be seated.

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A Monthly labour report on all local labour i.e. payments and labour days should be submitted to the Engineer at the end of each month in order for the Engineer to submit a report to the Employer.

None of the Works shall be executed except between sunrise and sunset on Monday to Saturday, inclusive, of any week, and none of the Works shall be executed on any special non-working days stated in the Contract Data, unless:

- The Engineer's permission in writing is obtained, subject to such conditions as may be laid down by the Engineer; or
- Provision is specifically made for it in the Contract; or
- Work is unavoidable or necessary for the saving of life or property or for the safety of the Works.

Site Meetings

Regular meetings will be held between all relevant parties to establish the progress and / or delays and problems that might occur on site. Any problems of delays will be address accordingly and the Contractor will receive proper instructions with reference to this matter.

Communication

The Engineer on this project will be: **Mr Riaan Fourie**
Contact No: **(011) 421 7233**

The contact person for the Employer is: **Mr. DJD Mahlangu**
Contact No: **(013) 249 2025/2000**

Daily Records

Daily records of resources (equipment and people employed) must be kept and must be available on site at all times. These records will include i.e. site instruction book, site diary, site visit register, contractual documentation and minutes of all project meetings. Labour information should be kept updated at all times.

Compliance with applicable laws

The Contractor shall, in performance of the Contract, comply with all applicable laws, regulations and statutory provisions and agreements, and shall in particular, on the request of the Engineer, provide proof that he has complied therewith with regard to amongst others:

- Wages and conditions of work; and
- Safety

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Employer

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Payment Certificates

As consideration for the construction, completion and defects correction of the Works, the Employer shall pay the Contractor in terms of the provisions of the Contract.

Clearance of site

On completion of the Works, the Contractor shall clear away and remove from the site all Construction Equipment, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and the works clean and in a safe condition. All streams and watercourses (where applicable) shall be cleaned and restored to the condition as at the commencement of the Works. If the Contractor does not, within a reasonable time, comply with this requirement, the Employer may have the site cleared and recover the cost thereof from the Contractor.

Termination of Contract

If application is made for the sequestration of the Contractor's estate, or if the Contractor publishes a notice of surrender of his estate or presents a petition for the acceptance of the surrender of his estate as insolvent, or makes a compromise with his creditors, or assigns in favour of his creditors, or agrees to carry out the Contract under the supervision of a committee representing his creditors, or (being a company) goes into liquidation, whether provisionally or finally (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or if the contractor assigns the contract without having first obtained the Employer's consent in writing, or if execution is levied on his goods or if the Engineer certifies reference to this Clause, that in his opinion the Contractor:

- Has abandoned the contract; or
- Without reasonable excuse has failed to commence the Works in terms of Clause 5.3 of the General Conditions of Contract for Construction Works (2015), or has suspended the progress of the Works for fourteen (14) days after receiving from the Engineer written notice to proceed or
- Has failed to proceed with the Works with due diligence; or
- Has failed to remove materials from the site or to pull down and replace work within fourteen (14) days after receiving from the Engineer written notice that the said materials or work have been condemned and rejected by the Engineer in terms of these conditions; or
- Is not executing the Works in accordance with the Contract, or is neglecting to carry out his obligations under the Contract; or
- Has, to the detriment of good workmanship or in defiance of the Engineer's instruction to the contrary, sublet any part of the Contract; or
- Has assigned the Contract or any part thereof without the Employer's consent in writing; or
- The contractor or anyone on his behalf or in his employ would pay, offered or offer as payment to any person in the employ of the Employer a gratuity or reward or commission; or

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- The contractor furnished inaccurate information in the Schedules forming part of this Contract.

Then the Employer may, after giving fourteen (14) days' notice in writing to the Contractor, terminate the Contract and order the Contractor to vacate the Site and to hand it over to the Employer, and the Employer may then enter upon the site and the Works and expel the Contractor there from without thereby affecting the rights and powers conferred on the Employer of the Engineer by the Contract, and the Employer may himself complete the Works or may employ another contractor to complete the Works.

The Employer or such other contractor may use for such completion so much of the construction equipment, temporary works and materials bought onto the site by the Contractor as the Employer may think proper, and the Employer may at any time sell any of the said construction equipment, temporary works and unused materials and apply the proceeds of sale toward payment of any sums that may be due or become due to the Employer by the Contractor under the Contract.

In such circumstances the Contractor shall forthwith vacate the site and shall not be entitled to remain on the site on the grounds that he is entitled to do so on a right of retention until amounts due to him have been paid, neither will the contractor be entitled to any further payments of this Contract.

C3.7 HEALTH AND SAFETY

Health & Safety Issues

All work is to be carried out in accordance with the Occupational Health and Safety Act and Regulations (Act 85 of 1993) (a copy of which must be kept on site), the Explosive Material Act of (Act 26 of 1956), the Minerals Act of 1991, and the Factories Machinery and Building Work Act (No 22 of 1941).

The Contractor's notice is drawn to the stipulations of the Construction Regulations 2003, a regulation of the Health and Safety Act 1993 (Gov Notice No R1010 of 18 July 2003). The construction regulation will be applied vigorously on the project.

The Contractor to be appointed must have made provision for the cost of health and safety measures during the construction process. The contractor must have the necessary skills, competencies and resources to carry out the work safely. A proper Safety Plan is to be submitted by the Contractor and a copy thereof is to be made available to all applicable appointed labourers and permanent workers on this project.

The Contractor is to ensure that the legal compliance for the Health and Safety issues are in place. Audits will be carried out to ensure that the Contractor is registered and in good standing with the Workmen's Compensation fund and that the Contractor has affected insurance indemnifying the Employer against penalties levied upon the Employer due to the acts of omissions of the Contractor in failing to comply with the provisions of the OHS regulations 2003. A compliance audit will also be carried out to ensure that the Contractor has appointed a full-time competent person in writing to deal with the issues of the OHS and

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that a risk assessment has been conducted and a copy of the Safety plan is on site before any work commences.

Operational audits will be carried out on the following important issues:

- That the Safety Plan is on site at all times
- That the Contractor's Safety file is on site at all times
- That the Safety Officer is on site at all times
- That Safety meetings are conducted as per the Safety Plan
- That employees are working under safe conditions
- That the public is not placed in danger
- That there is no harm to the environment

Accommodation of traffic

It is expected of the Contractor to ensure that the free flow of traffic is possible throughout the construction period.

The Contractor is to provide all necessary barricades, signs and lighting in accordance with the stipulations of the South African Road Signs Traffic Manual, and the Protective Services of the Local Municipality. All work is to be to the satisfaction of the Engineer.

Reporting of accidents

In addition to any statutory regulations, the Contractor shall, as soon as practicable, report to the Engineer every occurrence on the Works or the site causing damage to property or injury or death of persons. If required by the Engineer, the Contractor will submit a report in writing to the Engineer within 48 hours of such requirement setting out full details of the occurrence. The Engineer shall have the right to make any enquiries either on the site or elsewhere as to the cause and results any such occurrence and the Contractor shall make available to the Engineer the necessary facilities for carrying out such enquiries.

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PARTICULAR SPECIFICATIONS

PSA9.1 Provisional Sum for formal training of targeted labour

The contractor shall provide structured (accredited) training as provided for in this document in which the various skills required for the execution and completion of the works are imparted to the labourers engaged thereon, in a programmed and progressive manner.

Labourers shall be trained progressively throughout the duration of the contract, in the various stages of a particular type of work.

(a) Details of in-service and structured training

- (i) The contractor shall attach to form RDP 1(E) basic details of his proposed in-service training programme, which details shall inter alia include the following:
 - the details of training to be provided
 - the manner in which the training is to be delivered
 - the number and details of trainers to be utilised.
- (ii) The in-service training programme shall be submitted with the initial works programme. The progress in relation to this programme will be recorded monthly and attached to the site meeting minutes and payment certificate.
- (iii) The contractor shall provide onsite, sufficient skilled and competent trainers to train all labourers engaged on the contract, in the various skills required for the execution and completion of the works.
- (iv) All labourers shall be remunerated in respect of all time spent undergoing training.
- (v) Every worker engaged on the contract shall on the termination of his participation on the contract, be entitled to receive from the contractor, a certificate of service in which the following information shall be recorded:
 - the name of the contractor
 - the name of the employee
 - the name of the project/contract
 - the nature of the work satisfactorily executed by the worker and the time spent thereon
 - the nature and extent of training provided to the worker
 - the dates of service.

The cost of the above obligations shall be deemed to be covered by the provisional sum provided for items PSA9.1, PSA9.2, PSA9.3 and PSA9.4 in the bill of quantities. The performance of the contractor in providing in-service training, shall be taken into consideration should the contractor fail to reach his CPG at the completion of the project.

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(b) Lead time for training

The training of labour as specified shall, as far as possible, take place before commencement of each activity and the contractor shall take into account in his programme the lead-time he requires for such training. All training herein specified shall be deemed to be a construction activity and a non-negotiable condition of the contract".

PSA9.2 Percentage for charges and profit on the provisional sum for formal training of targeted labour (item PSA9.1 above)

Allowance to be made for the overall management of the training to be provided to the workers. Rate to include costs of:

- Management of training programme
- Provision of technical assistance
- Provision of tools, plant and equipment required for training purposes
- Processing and payment of training costs

Payment of the above item will be made as a percentage of the payment of the stipend to the appointed students

PSA9.3 Transport and accommodation of workers for training where it is not possible to undertake the training in close proximity to the site.

Contractor to provide adequate transportation to workers for the purpose of attending structured training where such training is not conducted on site.

PSA9.4 Percentage for charges and profit on the provisional sum for transport and accommodation of workers for training (Item PSA9.3 above)

Allowance to be made for the overall management related to the organization of transport for the purpose of training.

PSA9.5 Provisional Sum for the employment and training of two tertiary students for the duration of the contract (Built Environment Studies)

The contractor shall, for the duration of the project, take into his employ two local engineering students nominated by the Employer for the purpose of providing experiential training in all aspects of the work. The students are to be paid a stipend which is deemed to be covered in the provisional sum provided for in Item PSA9.5.

PSA9.6 Percentage for charges and profit on the provisional sum for the employment and training of two tertiary students (Item PSA9.5 above)

Allowance to be made for the overall management of the tasks and activities performed by the appointed student trainee. Rate to include costs of:

- Management of student tasks
- Provision of technical assistance
- Processing and payment of student stipend

Payment of the above item will be made as a percentage of the payment of the stipend to the appointed students

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MATTERS RELATING TO THE STANDARD SPECIFICATIONS

SECTION 1200 : GENERAL REQUIREMENTS AND PROVISIONS

SECTION 1300 : CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

SECTION 1400 : HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL

SECTION 1500 : ACCOMODATION OF TRAFFIC

SECTION 1600 : OVERHAUL

SECTION 1700 : CLEARING AND GRUBBING

SECTION 1800 : DAYWORKS

SECTION 3300 : MASS EARTHWORKS

SECTION 3500 : STABILIZATION

SECTION 3800 : BREAKING UP OF EXISTING PAVEMENT LAYERS

SECTION 5700 : ROAD MARKINGS

SECTION 5900 : FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

SECTION 6100 : FOUNDATIONS FOR STRUCTURES

SECTION 6200 : FALSEWORK, FORMWORK AND CONCRETE FINISH

SECTION 6300 : STEEL REINFORCEMENT FOR STRUCTURES

SECTION 6400 : CONCRETE FOR STRUCTURES

SECTION 6600 : NO FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FO RELECTRIFICATION AND

PARAPETS AND DRAINAGE FOR STRUCTURES

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SECTION 1200 : GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Add the following to the fifth paragraph:

“Provision is made in the bill of quantities for payment for searching and exposing of known or unknown services as well as the relocation and/or protection of existing services. No guarantee as to the accuracy of the information can be given and the responsibility lies with the Contractor to determine the exact positions of all existing services.

Before any work is commenced, the Contractor shall contact all private owners or public authorities controlling services so that they may either protect, move or relocate any services as required, or confirm that all such work has been completed.

Any damage of these services as a result of acts by the Contractor, his sub-contractors or their respective employees, shall be repaired at the Contractor's expense.

Wherever, for the proper construction of the works, any telephone or electricity line or poles, or any water supply pipes, conduits, electric cables, sewers, drains or any other services are required to be removed or relocated, or where any of these services requires to be repaired as a result of damage by the Contractor or otherwise, the Contractor shall immediately advise the Engineer thereof, who will further notify the responsible authorities concerned in order that such work as is necessary be undertaken by such authorities. The engineer will also decide the extent of the work, if any to be undertaken by the Contractor in removing, relocating or repairing such services.

B1204 PROGRAMME OF WORK

General requirements

Amend the word “network” in the fourth line of the first paragraph to read as “bar (Gantt) chart”.

Add the following after the third paragraph:

“The bar-chart programme to be provided by the contractor shall show the various activities in such detail as may be required by the engineer. Progress in terms of the programme shall be updated monthly by the contractor in accordance with the progress made by the contractor.

In compiling the programme of work, the contractor shall indicate and make due allowance for the following, as specified elsewhere in the contract documents:

- The requirements regarding the accommodation of traffic and areas that may be occupied at any time for construction purposes
- Requirements regarding the training of labourers and Emerging Contractors (EC's).
- The requirements for work to be undertaken by labourers and work to be undertaken by EC's.

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The programme shall be updated monthly, or as instructed by the Engineer, in accordance with the progress made by the Contractor. Failure to comply with these requirements will entitle the Engineer to use a programme based on his own assumptions for the purpose of evaluating claims for extension of time or additional payments.

B1205 WORKMANSHIP AND QUALITY CONTROL

Add the following to the third paragraph:

"The engineer shall undertake acceptance control tests for the judgement of workmanship and quality, without accepting any obligations vested with the contractor in terms of the contract with specific reference to quality of materials and workmanship. Such acceptance control test done by the engineer shall not relieve the contractor of his obligations to maintaining his own quality control system."

Add the following at the end of this clause:

"The engineer shall, for the purpose of acceptance control on products and workmanship, assess test results and measurements in accordance with the provisions of section 8100 of the standard specifications. Where small quantities of work are involved, a lot shall mean a full day's production for a specific item of work subject to acceptance control testing."

B1206 THE SETTING-OUT OF THE WORK AND PROTECTION OF BEACONS

Add the following:

"The contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith."

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 Engineer. 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.

The cost of replacing all beacons displaced or destroyed during the course of the Contract without the consent of the Engineer shall be borne by the Contractor."

B1209 PAYMENT

(b) Rates to be inclusive

Add the following:

"VAT shall be excluded from the rates and provided for as a lump sum in the Summary of Bill of Quantities".

(e) Materials on the site

Add the following:

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Witness 2

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"In addition, the engineer may at his sole discretion also allow payments under "Materials on Site" in respect of any construction materials if stored off-site providing that:

- The site selected for this purpose is approved by the engineer
- Such land is physically separated from any production plant or operation
- Only materials for use under this contract is stockpiled on such land
- The contractor has provided proof of an agreement with the owner of such land that the owner has no claim whatsoever on any materials stockpiled on such land
- Materials obtained by the contractor for or on behalf of emerging subcontractors (SMME's) shall remain the responsibility of the contractor after payment has been made in respect of materials on site."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Add the following after the first paragraph of this clause:

"For the purposes of this contract, Extension of time resulting from abnormal rainfall or other forms of inclement weather shall be calculated according to the requirements the Critical Path method).

The value of "n" working days per calendar month as specified in this clause shall be as given in the Table below. If no abnormal rainfall or other inclement weather periods occur during a specific calendar month (or months), the n-values as specified shall not be taken as accumulating over the contract period.

If the "n"-days allowed for in the programme of work are not taken up by standing time due to abnormal rainfall or inclement weather conditions, they will fall away and will not be considered in extension of time claims that may arise later during the contract period.

Method (ii) (Critical path method)

Delete "(based on a five-day working week)" in the fifth and sixth lines of the second paragraph of the description of this method.

Delete the last sentence of the second paragraph of the description of this method and replace with the following:

"The value of "n" shall be taken as five (05) working days per calendar month.

If normal rainy or inclement weather, resulting in delays, occurs for less than five (05) working days in any calendar month, the difference between the five (05) working days and the actual number of working days on which normal rainy or inclement weather occurred, shall be ignored and not accumulated for the duration of the contract period for the purposes of determining an extension of time due to normal rainy weather, nor due to any other reason.

Items of work on the critical path of the programme of work which are subject to climatic limitations shall also be considered for extension of time if such items of work are delayed by e.g. cold weather, high winds or other inclement weather conditions.

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In this regard, reference shall be made to weather limitations specified for the application of various bituminous products. However, for months during which seal-work cannot be undertaken in terms of the specifications, no extension of time shall be claimed for.

B1217 PROTECTION OF THE WORKS AND REQUIREMENTS TO BE MET BEFORE CONSTRUCTION OF NEW WORK ON TOP OF COMPLETED WORK IS COMMENCED

Add the following subclause:

"(h) No concrete kerbing or concrete drains directly adjoining the bituminous surfacing shall be constructed prior to the completion of the bituminous surfacing."

B1222 USE OF EXPLOSIVES

Add the following subclause:

"(h) Where blasting operations are undertaken in close proximity of temporary deviations, the contractor shall implement all such safeguarding measures as may be required and instructed by the engineer."

B1224 THE HANDING-OVER OF THE ROAD RESERVE

Add the following:

"The total length of the road reserve between the specified limits of construction will be handed over to the contractor on the commencement date. Reference shall, however, be made to the requirements of section 1500 of these specifications where limitations in respect of work-areas are specified. In the event of the non-adherence by the contractor in terms of the mentioned specifications, the engineer shall withdraw such sections of the road reserve as may be justified to ensure suitable progress of the works or safe passage of traffic."

B1229 SABS CEMENT SPECIFICATIONS

Replace the last paragraph of this clause with the following:

"Where reference is made in this specification or the standard specifications to the cement specifications, eg. SABS 471: Portland cement and rapid hardening Portland cement, it shall be replaced with the new specification:

SABS ENV 197-1: Cement-composition, specifications and conformity criteria.

Part 1: Common cements.

Furthermore, where reference is made in this specification or the standard specifications to the different cement types, the following new names/types shall apply:

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Old product nomenclature	Typical new product nomenclature	
	Cement type	Cement strength class
OPC	CEM I	32,5
	CEM I	32,5R
RHC	CEM I	42,5
	CEM I	42,5R
LASRC	No provision made	No provision made
PC15SL	CEM II/A-S	32,5
	CEM II/A-S	32,5R
	CEM II/A-S	42,5
PC15FA	CEM II/A-V	32,5
	CEM II/A-V	32,5R
	CEM II/A-W	32,5
	CEM II/A-W	32,5R
RH15FA	CEM II/A-V	42,5
	CEM II/A-V	42,5R
	CEM II/A-W	42,5
	CEM II/A-W	42,5R
PBFC	CEM III/A	32,5
	CEM III/A	32,5R
PFAC	CEM II/B-V	32,5
	CEM II/B-W	32,5
RH30SL	CEM II/B-S	32,5R
	CEM II/B-S	42,5
RH40SL	CEM III/A	32,5R
	CEM III/A	42,5

CEM I 32,5, CEM II A-S 32,5, CEM II/A-V 32,5, or CEM III A may be used for the manufacture of reinforced concrete members.”

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B12.31 LOCAL LABOUR AND TRAINING

The Contractor shall limit the utilisation of his permanently employed personnel to Key Personnel, such as Contracts Managers, Site Agents, Foremen, Supervisors, Plant Operators, Materials and Survey Technicians, Trainers, Buyers, Store men and the like should such expertise not be available out of the community. All other personnel and labourers shall be recruited locally

The Contractor shall make maximum use of the human resources existing in the local community. The tenderers shall apply to the employment labour desk, conveyed by the Steering Committee for details of those labourers who are available in the area of work and he shall provide preference to those labourers identified by the Steering Committee.

The employment of labour from outside the local area will only be considered and permitted by the Engineer in the event of:

- a) the unavailability of sufficient numbers of local labourers to execute the work;
- b) the unavailability within the local community of the required skills necessary for the execution of specific portion of work, and where the completion period does not permit the creation of the necessary skills through training.

In both cases the Contractor shall prove to the satisfaction of the Engineer that he has exercised his best endeavours and taken all reasonable actions to recruit local labour.

The Contractor shall maintain accurate and comprehensive daily records of all labour engaged on the contract and shall submit to the Engineer at two weekly intervals detailed labour returns substantiating the actual numbers of labourers employed, the amounts actually paid in respect thereof, and details of the various activities undertaken by the labourers.

The employment of casual labour will be done in co-operation with community leaders and local structures. The minimum wage according to all people employed will be according to the requirements of the Department of Labour.

B1232 COMMUNITY LIAISON OFFICER (CLO)

The contractor or his appointed agent will appoint a Community Liaison Officer (CLO) after consultation with the local communities, the engineer and the employer. The contractor shall direct all his liaison efforts with the local communities through the appointed officer. The contractor shall, however, accept the appointed as part of his management personnel.

(a) Duties of the Community Liaison Officer

The Community Liaison Officer's duties will be:

- (i) To be available on site daily between the hours of 07:00 and 17:00 and at other times as

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the need arises. His normal working day will extend from 07:00 in the morning until 16:00 in the afternoon.

- (ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.
- (iii) To communicate daily with the contractor and the engineer to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.
- (iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a "labour desk".
- (v) To attend all meetings in which the community and/or labour are present or are required to be represented.
- (vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor's requirements.
- (vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.
- (viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- (ix) To keep a daily written record of his interviews and community liaison.
- (x) To attend monthly site meetings to report on labour and RDP matters.
- (xi) All such other duties as agreed upon between all parties concerned.
- (xii) To submit monthly returns regarding community liaison

(b) Payment for the community liaison officer

A special pay item is incorporated in section 1200 of the bill of quantities relating to payment of the liaison officer on a prime cost sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required. The remuneration of the CLO shall be determined by the Employer in terms of the Sectorial determination 2: Civil Engineering Sector (Task grade 3).

(c) Period of employment of the community liaison officer

The period of employment of the community liaison officer shall be as decided upon jointly by the contractor, engineer and employer at a maximum period of a six months basis, but with the option of renewal.

B1233 SUBCONTRACTORS

Over and above the stipulations of clause 4.4 of the General Conditions of Contract 2015, regarding subletting of part of the works, it is a condition of the contract that an approved subcontractor shall not sublet part of his work, covered in his appointment by the main contractor, to another subcontractor without the consent and approval of the engineer. Subletting shall in all cases be critically considered by the engineer.

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In addition to the provisions of clause 4.4 of the general conditions of contract regarding subcontracting of the works, it is a requirement of this contract that an approved subcontractor shall not further subcontract work subcontracted to him by the main contractor, to another subcontractor without the consent and approval of the engineer. Subcontracting shall in all cases be critically considered by the engineer. The engineer reserves the right to limit the extent or the volume of work subcontracted by the contractor, should he deem it necessary in terms of progress or quality of workmanship.

B1235 WORKMEN'S COMPENSATION ACT

All labour employed on the site shall be covered by the Compensation for Occupational Injuries and Deceases Act (COIDA). The contractor shall pay in full, including the payment of the necessary levies, such amounts, as are due in terms of the Act. The contractor at the commencement of the contract shall resolve the manner in which Workmen's Compensation will be handled. Amounts paid by the contractor shall not be included in the wage rates but shall be covered by the Contractor to be deemed as included in his General Obligations rates in Section 1300 of the Bill of Quantities.

B12.35 MEASUREMENT AND PAYMENT

Add the following items:

ITEM	UNIT
B12.01 Locating Existing Services	Provisional
Sum	
ITEM	UNIT
B12.02 Hand Excavation to determine the positions of existing services	Cubic Meter (m³)
To determine the positions of existing services	
Measurement and payment shall be as specified for item 22.01 in the standard specifications.	
ITEM	UNIT
B12.03 Quality Control Test Ordered by the Engineer	Prime Cost Sum
Quality Control Test Ordered by the Engineer	
ITEM	UNIT
B12.06 Provision for a Community Liaison Officer	Month
Provisional sum for the payment of the Community Liaison Officer	
Expenditure of the above item shall be made in accordance with the general conditions of contract.	
ITEM	UNIT
B12.04 Provisional sum for protection and/or relocation of	Provisional Sum

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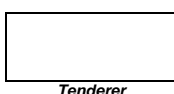
existing services as ordered by the engineer

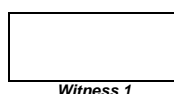
ITEM	UNIT
B12.07 Provisional sum for payment of contract notice board as instructed by the engineer	Provisional Sum

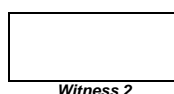
ITEM	UNIT
B12.09 Handling costs and profit in respect of subitems B12.01, B12.03 to B12.06 above Measurement and payment shall be in accordance with the general conditions of contract.”	Percentage (%)

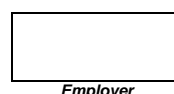
The tendered percentage is a percentage of the amount actually spent under the sub-items B12.01, B12.03 to B12.06, which shall include full compensation for the handling costs of the contractor, and the profit.

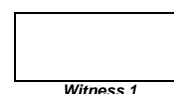
The prime cost sums shall be paid in accordance with the provisions of the General Conditions of Contract. The tendered percentage is a percentage of the amount actually spent under the prime cost items, which shall include full compensation for the profit in connection with providing the specified service.

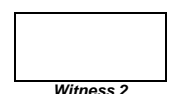

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SECTION 1300 : CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

B1302 GENERAL REQUIREMENTS

(a) Camps, constructional plant and testing facilities

Add the following:

"The contractor shall, at each area where work is being undertaken, provide on a daily basis at least one (1) portable chemical latrine unit per thirty (30) workers for use by construction workers employed on the project.

The latrine units shall be serviced daily and kept in a hygienic and orderly state to the satisfaction of the engineer. No separate payment shall be made for this requirement and shall be deemed to be included in the rates tendered for the contractor's time-related obligations."

And add the following:

The camp shall be fenced off to ensure that no unauthorised persons enter the campsite, and shall always be kept in a neat and tidy condition. The Contractor should also provide own security personnel to enforce the above-mentioned.

B1303 PAYMENT

ITEM

UNIT

B13.01 The contractor's general obligations

(As specified)

Add the following after the fifth paragraph:

"The combined total tendered for sub-items (a), (b) and (c) shall not exceed 15% of the tender sum, excluding VAT.

Should the contractor be of the opinion that 15% is inadequate to cover his costs in terms of section 1300, he shall indicate separately with his tender where such costs have been allowed for in his tender. If no such indication is given, the contractor shall not at any stage during the contract for any reason whatsoever claim additional compensation under this item."

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 1400 : HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL

B1402 OFFICES AND LABORATORIES

(a) General

Add the following:

"The facilities to be provided for the engineer in terms of these specifications shall be fenced off by a two-metre-high veranda type security fence with diamond mesh on the vertical portion and barbed wire on the overhang. A security gate shall be provided in the fence which shall be guarded at all times by an acceptable watchman provided by the contractor. The engineer's establishment may be incorporated within the contractor's establishment provided that the preceding requirements are met to the satisfaction of the engineer.

The cost in respect of the provision of a watchman at all times by the contractor shall be deemed to be included in the contractor's tendered rate for item B13.01(c)."

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 1500: ACCOMMODATION OF TRAFFIC

B15.02 GENERAL REQUIREMENTS

Add the following:

(i) Traffic safety officer

Add the following after subclause (viii):

- “(ix) be responsible for contacting all the relevant authorities in the event of an accident on the site of the Works
- (vi) arrange for the removal of broken-down vehicles that obstruct the normal traffic flow

No separate payment will be made for the traffic safety officer, his vehicle, personnel and equipment and the cost thereof shall be included in the Contractor’s cost for his establishment and general obligations (Section 1300).”

Add the following new subclauses:

“(j) Handing over the site

The total extent of the site between the limits of construction as described in this document and indicated on the drawings will be handed over to the contractor at the commencement of the contract period. The engineer however reserves the right to adjust this arrangement should progress or safe passage of traffic warrant such a change.

“(k) Provision of traffic management plan

The contractor is to provide a detailed traffic management plan for approval by the engineer prior to the commencement of any roadworks activities. The cost thereof shall be included in the Contractor’s cost for item B15.01.

B15.03 TEMPORARY TRAFFIC CONTROL FACILITIES

Add the following after the first paragraph:

“All temporary road signs, devices, sequences, layouts and spacing shall comply with the requirements of the Road Traffic Act, 1996 (Act 93 of 1996), the National Road Traffic Regulations, 2000, the South African Road Traffic Signs Manual, the requirements of the relevant road authority and the drawings. All temporary traffic control facilities shall comply with the guidelines set in SA Road Traffic Signs Manual, Volume 2, Chapter 13: Roadworks Signing, (SARTSM, June 1999, obtainable from the Government Printer, Pretoria).”

(b) Road signs and barricades

Add the following:

“All the temporary road signs are to be mounted on posts as specified in section 5600 of the specifications.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



No separate payment shall be made for road signs and barricades and the cost thereof shall be included in the Contractor's cost for item B15.01.

Temporary road signs and channelization devices shall be manufactured in accordance with the latest edition of the South African Road Traffic Signs Manual (June 1999). Delineators shall be manufactured from a non-metal material and shall be mounted on a base section also manufactured of non-metal material.

The obligation to arrange safe passage of traffic shall always be vested with the contractor regardless what is indicated on the drawings of the engineer."

(c) Channelization devices and barricades

Add the following:

"Drums shall not be used as channelization devices.

The maximum spacing between centres of delineators shall be as shown on the drawings or as directed by the Engineer."

B15.18 MEASUREMENT AND PAYMENT

Renumber item 15.01 as B15.01 and add the following:

The tendered rate shall include for the development and submission of a traffic management plan to the engineer for approval.

"The tendered rate shall also include for all measures necessary to safeguard traffic on temporary deviations during blasting operations as well as all temporary traffic-control facilities for temporary deviations."

Delete all references to half width construction under payment item 15.01.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 1600: OVERHAUL

B1602: DEFINITIONS

B1602 (a) Overhaul material

Add the following new sub-clause.

(vii) General

Any material obtained by the Contractor from the borrow pit, existing ramps, commercial sources, private organisations or his own sources, shall not be deemed as overhaul material.

The tendered rate for the construction of any fills and pavement layers from material as described above, shall also include the transport of the material over an unlimited free haul distance.

B1602 (b) Overhaul

Replace the sub clause with:

"No overhaul will be payable for materials imported from commercial sources and from designated borrow pits alongside the road.

"No overhaul will be measured for any excavated material that is disposed of to spoil, unless otherwise specified."

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 1700: CLEARING AND GRUBBING

B1702 DESCRIPTION OF WORK

a) Clearing

Add the following:

“Clearing shall include the removal of material to a thickness of up to 150mm in-situ material as ordered by the engineer. No payment shall be made for temporary stockpiling of topsoil material in the case where this material is applied as topsoil after completion of road side slopes.

Should the required depth exceed 150mm, the total volume of material removed shall either be classified as “temporary stockpiling of topsoil” or “unsuitable roadbed material” or “cut to spoil” whichever is applicable as allowed for in the standard specifications. In these cases, no payment shall be made for clearing and grubbing.

Clearing as described shall in all cases be undertaken in such a manner that the topsoil is preserved and not contaminated with other debris or rubbish. Cross-sections for the determination of earthworks quantities shall be taken after clearing (topsoil or unsuitable roadbed material) and roadbed preparation if applicable.

B1704 MEASUREMENT AND PAYMENT

Change item 17.01 to read as follows:

ITEM	UNIT
B17.01 Clearing and grubbing of:	
Clearing and grubbing	hectare (ha)

Measurement and payment for item B17.01 shall be as specified for item 17.01 of the standard specifications.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 1800 : DAYWORK SCHEDULE

Note: This is a new section added to the Standard Specifications.

Add the following:

B1801 SCOPE

This section covers the listing of daywork items for use in determining payment for work which cannot be quantified in specific pay item "units" in the bill of quantities or work ordered by the engineer during the construction period which was not foreseen at tender stage for which no applicable rate exists in the schedule or for work of a special or different character warranting special payment as decided by the engineer.

B1802 ORDERING OF DAYWORK

No daywork shall be undertaken unless specific written authorisation is obtained from the engineer.

B1803 MEASUREMENT AND PAYMENT

The unit of measurement shall be the actual number of hours worked by labourers or foremen or an item of plant.

The tendered rates shall include full compensation for all cost items including overheads, head-office expenses and profits as described in subclause 6.5 of the general conditions of contract and shall be subject to contract price adjustment as provided for in the contract.

Prior to the commencement of any work by the labourers described under item B18.01, the contractor must obtain written consent from the engineer regarding the classification and composition of all labourers in terms of "unskilled" and "skilled" labourers required for the work as ordered by the engineer."

SECTION 3300: MASS EARTHWORKS

B3305 TREATING THE ROADBED

(a) Removing unsuitable material

Add the following to the third paragraph:

"For the purpose of this contract, excavation and removal of in-situ clayey material over areas where the road is in a fill condition, shall be classified as removal of unsuitable material, irrespective of the stability or moisture condition of the in-situ material".

(c) Preparing and compacting the roadbed

Delete the last sentence of the first paragraph "If necessary, roadbed.....depth of compaction" and replace as follows:

"Where demarcated by the engineer, prior to the roadbed being scarified, the excess in situ material

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



forming part of the present roadway, and within the limits of the roadbed, and in close proximity of the layer works, but falling within the limits of the layer works, shall be bladed to controlled level in order to achieve the required level and necessary depth of compaction.”

B3307 FILLS

(c) Constructing a pioneer layer

Add the following to the first paragraph:

"For the purpose of this contract, pioneer layers shall be completed by means of eight-pass roller compaction using vibratory rollers as specified in subclause 3304(b) of the standard specifications.”

(d) Benching

Add the following:

“Benching of fill and pavement layer material is required to be undertaken into the existing fill embankments and pavement layers. No additional payment shall be made over and above the normal pay items applicable to earthworks and pavement layers where benching is required for widening of the existing road formation. Benching shall be undertaken as shown on the drawings.

It is a requirement that benching shall always be started at the bottom of the existing fill progressing to the top of the formation. The dimensions and details of benching are shown on the drawings.”

SECTION 3500: STABILISATION

B3503 CHEMICAL STABILISATION

(a) Preparing the layer

Add the following:

Breaking-down and removal of oversize material and addition of material to make to required thickness shall be completed before stabilising agent shall be added.”

B3506 TOLERANCES

(b) Uniformity of mix (chemical stabilisation)

Add the following:

"All pavement layers, especially layers which are to be chemically stabilised, shall, apart from the application of other mixing equipment, include at least two motor grader blade mixing operations to the full depth of the layer.

The in-place mixing of chemical stabilising agents with gravel materials shall be executed in such a manner that the coefficient of variation in the uniformity of the mix shall not exceed 30% when the stabilised layer is subjected to the chemical titration test, TMH1 method A15d. For plant-mixed stabilised materials the coefficient of variation shall not exceed 20%.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



The coefficient of variation, C_v , is calculated by the formula:

$$C_v = \frac{S_n}{X_n} \times 100 \text{ where,}$$

S_n = standard deviation of n determinations of stabilising agent content

X_n = mean percentage of n determinations of stabilising agent content with n = 4 minimum."

B3509 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following:

"The preparation of chemically stabilised material for the determination of the modified AASHTO density of the material shall be executed in accordance with TMH1 test method A16T and compaction thereof in accordance with TMH1 test method A7."

SECTION 3800: BREAKING UP OF EXISTING PAVEMENT LAYERS

B3807: MEASUREMENT AND PAYMENT

ITEM

UNIT

**B38.04 Excavating and spoiling material from an existing pavement
and/or the underlying fill**

(a) Non-cemented material

m³

Rate to include for the removal and spoil of 150mm of the existing roadway section material leading to the existing river crossing structure following removal of the existing structure under Item 64.04. so as to enable top soiling.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



5700: ROAD MARKINGS

B5706 SETTING OUT THE ROAD MARKINGS

Add the following:

“Where road markings are to be replaced after milling/overlay seal, it is essential that all existing barrier lines and other road marking lines be accurately referenced before commencement of milling or other operations which will obliterate the existing road markings. The position of barrier lines shall be re-assessed on site by the Engineer before the Contractor commences with the road marking.”

B5707 APPLYING THE PAINT

Add the following:

“The Contractor’s establishment on site and general obligation shall be deemed to fully include the establishment of the road-marking team, irrespective of the number of times the road-marking team is required to be onsite or is required to move within the site.”

B5711 GENERAL

Insert the following into the last sentence of the last paragraph between “black paint” and “or chemical paint remover”:

“, bituminous emulsion, slurry”

Add the following to the last paragraph:

“Where black paint is used, it shall be matt.”

B5714 MEASUREMENT AND PAYMENT

ITEM

UNIT

B57.06 Setting out and pre-marking the lines (excluding traffic island markings, lettering and symbols)

Add the following:

“Referencing of existing barrier lines and other road marking lines prior to milling and other operations, shall be included in the tendered rate for setting out and pre-marking.”

Add the following item:

Item

Unit

B57.07 Establishment of painting unit during the
construction period

Lump sum

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



The unit of measurement shall be the lump sum to compensate the contractor for the establishment and removal of the painting unit after the retention period.

The tendered lump sum shall include full compensation for the establishment on site and for the removal of all equipment, personnel, etc. as may be required for the application of the road marking.

SECTION 5800 LANDSCAPING AND PLANTING PLANTS

B58.01 LANDSCAPING AND REHABILITATION OF AREA INCLUDING REMOVAL OF CONSTRUCTION PLATFORMS, EMBANKMENT HYDROSEEDING AND VEGETATION RE-ESTABLISHMENT

Add the following:

Rehabilitation is to be conducted over the entire construction footprint and includes, inter alia, the following:

- Shaping of ground to follow natural ground level in the area
- Removal of all imported material utilized for working platforms during construction
- Complete rehabilitation of the entire working area including re-vegetation for both functional and aesthetical purposes
- Rehabilitation works to be inspected and approved by the employer, employer's agent and the appointed OHS and ECO specialist and any other stakeholder with vested interest

Lump Sum to include all materials, plant and resources required for the rehabilitation works including procurement of vegetation for replanting purposes

SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

B5902 FINISHING THE ROAD AND ROAD RESERVE

Add the following to the first paragraph:

"The contractor shall pay special attention to the collection and removal of all waste materials originating from the construction activities. All materials trimmed or excavated from the road shall be collected and removed from the road reserve to the satisfaction of the engineer.

This requirement shall be deemed to be incorporated in the tendered rates for item 59.01 of the bill of quantities or such other items as the contractor may decide upon.

The engineer may order additional finishing of the road reserve which will entail the collection and disposal of loose rocks etc. Payment for this work will be made under daywork items included in section 5900 of the bill of quantities as described in section 1800 of these project specifications."

SECTION 6100: FOUNDATIONS FOR STRUCTURES

B6105 EXCAVATION

(g) The safety of excavations

Add the following:

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



"The design for shoring, signing of the drawings and inspection prior to construction of the permanent works of excavations to ensure it is safe shall be undertaken by the contractor's competent person, who shall be a professional engineer with the relevant experience. The contractor shall ensure that all temporary works undertaken shall comply with the relevant sections of the Occupational Health and Safety Act and the Construction Regulations".

B6106 FOUNDING

Add the following clause at the end of the last paragraph:

"Where foundation slabs or pile caps are cast directly against the face of the excavations, the volume of concrete measured for payment shall be the total volume of concrete placed or the volume based on the plan dimensions detailed on the drawings plus a 100mm allowance for overbreak on each applicable side whichever is the lesser. No formwork to the footing shall be measured when the concrete is cast against the face of the excavations".

B6108 BACKFILL AND FILL NEAR STRUCTURES

(a) General

Add the following:

(iv) "During backfilling within 1,0m of any concrete structure, or as directed by the Engineer, only hand operated mechanical compaction equipment shall be used to achieve the required density."

B6109 FOUNDATION FILL

Add the following after the 3rd paragraph:

"Granular foundation fill shall be constructed from selected subgrade material.

Add the following after the 6th paragraph:

"Concrete screeds shall extend 100mm beyond the horizontal dimensions of all footings to facilitate the placing of formwork, unless otherwise directed by the engineer.

In the case of structures where excessive ground water is encountered, the screed shall extend over the full plan area of the base of the excavation. Payment shall be made for the quantity of concrete calculated as the product of the specified thickness of the screed and the actual area of screed specified by the engineer up to a maximum area of the product of the neat footing length plus 750mm and the neat footing width plus 750mm."

B6113 Foundation Piling

x) Nuclear integrity testing

Delete this subclause and replace it with the following:

"(x) Pile integrity testing (PIT)

(i) Calibration piles

Before piling on any site is commenced with, the contractor shall (per pile construction site) construct a 5.0m long calibration pile of the same pile type, same method of construction as the piles in the bridge or structure or wall, same diameter, and same concrete mix and reinforcing. The location of this calibration pile (at any particular site) will be selected in agreement with the engineer.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



(ii) Provisions with regard to pile cap construction

Results from integrity tests on the piles for each pile cap must be evaluated and submitted to the engineer for approval, before any work on the pile cap itself may commence. Tests on the calibration pile must be done at the same time or before tests on the first working pile are undertaken.

(iii) Pile integrity test method

The purpose of integrity testing is to prove that the construction techniques employed to create a bored or augured pile is satisfactory in terms of quality assurance with respect to aspects such as necking of concrete in the pile shafts, checking concrete cover to reinforcement, checking for honeycombing or grout loss, segregation of aggregate inclusion and for large cracks or voids.

(1) Cross-Hole Sonic Logging (CSL) and optional Base Integrity Test

(aa) Overview

This method is used to verify the integrity of the pile shaft particularly in the case of larger diameter piles. By sending ultrasonic pulses through concrete from one probe to another (probes located in parallel tubes), the CSL procedure inspects the drilled shaft structural integrity and extent and location of defects, if any. At the receiver probe, pulse arrival-time and signal strength are both affected by the concrete. For equidistant tubes, uniform concrete yields consistent arrival times with reasonable pulse wave speed and signal strengths. Non-uniformities such as contamination, soft concrete, honeycombing, voids, or inclusion exhibit delayed arrival times with reduced signal strength.

An optional Base Integrity Test (in order to establish the quality of the pile base/end bearing contact via the CSL tubes) specification is included at the end of this section.

(bb) Personnel Requirements

The CSL consultant shall have a registered professional engineer supervising the testing and interpretation of results. The CSL consultant shall be an independent testing agency with at least 3 years of experience in CSL testing. The consultant's qualifications and the specifications for the equipment used shall be submitted to the engineer for approval prior to beginning bored or augured pile shaft installation.

(cc) Equipment requirements

A Cross Hole Analyser (CHA) that meets the following minimum requirements:

(1) Computer based CSL data acquisition system for display of signals during data acquisition, with a minimum 12 bit A/D converter with a sampling frequency of at least 500 000Hz, and recording of all pulse signals for full analysis and individual inspection.

Note: Converting signals with low noise using high A/D resolution and sampling rates is important to obtain quality data and allow proper full data interpretation.

(2) Ultrasonic transmitter and receiver probes capable of producing records at a minimum frequency of 50 000Hz with good signal amplitude and energy through good quality concrete. The probes shall be less than 28mm in diameter and shall freely descend through the full depth of properly installed access tubes in the drilled shafts.

(3) Two depth sensors to independently determine transmitter and receiver probe depths.

(4) Triggering of the recording system time base with transmitted ultrasonic pulse.

(dd) Access tube preparation

The access tubes in each drilled shaft are indicated on the drawings. Every drilled shaft shall be equipped with access tubes to permit inspection by CSL. All permanent drilled shafts are to be tested by CSL. 50mm (minimum) nominal diameter 3mm wall thickness mild steel tubes are specified for access for the probes in each drilled shaft. Typically, 3 to 4 tubes are used, although up to 6 may be used in larger piles.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Round tubes with regular internal diameter free of defects and obstructions, including any tubes joints, to permit the free, unobstructed passage of the probes shall be used. Tubes shall be watertight and free from corrosion with clean internal and external faces to ensure a good bond between the concrete and tubes. Tubes may be extended with mechanical couplings. Duct tape or other wrapping materials to seal the joints and butt welding of joints are prohibited. Tubes shall be installed by the contractor such that the CSL probes will pass through the entire length of the tube without binding. Ensure that the access tubes are plumb and verify that unobstructed passage of the probes is achievable before the CSL consultant arrives.

Note: If an existing pile does not contain access tubes, access holes can be installed by coring a borehole in the concrete. Locate cored holes about 150mm inside the reinforcement cage. Log core holes and include descriptions of any inclusions or voids. For pile drilled shafts with access tubes that do not allow the probe to pass through the entire length of the tube due to poor workmanship, replacement access holes may be provided by core drilling.

Fit the tubes with watertight shoe in the bottom and a removable cap on the top. Secure the tubes at regular intervals not to exceed 1,0m to the interior of the reinforcement cage. Install the tubes uniformly and equidistantly around the circumference such that each tube is spaced parallel for the full length and at the maximum distance possible from each adjacent tube. Tubes should be spaced as far as possible from the main axial reinforcing steel. Extend the tubes to within 300mm of the bottom of the pile, and at least 1,0m above the drilled shaft tops, and at least 0,6m, but no more than 1,5m above the ground surface. Do not damage the tubes during installation of the reinforcement cage.

Note: Do not allow the tube to rest on the bottom of the drilled shaft excavation.

After placement of the reinforcement cage, fill the access tubes with clean fresh water as soon as possible but within at the latest one hour of concrete placement. Cap the tube tops to prevent debris from entering the access tubes. Do not apply excessive torque, hammering or other stresses that could break the bond between the tube and concrete when removing caps from the tubes.

Note: The tubes should preferably be filled with water prior to concrete placement, but MUST be filled with water within at most 4 hours after placing concrete to prevent debonding of the access tubes due to differential temperatures.

(ee) Test sequence

Test the drilled shaft no sooner than 3 calendar days after placement of all concrete in any drilled shaft, but within 10 days after placement and prior to loading for test drilled shafts, or within 45 days after placement on production drilled shafts.

Note: CSL testing can be performed any time after concrete installation, although 2 days is usually the minimum acceptable wait. Because the concrete strength and quality generally increases as the concrete cures, longer wait times are usually desirable, particularly if minimum pulse wave speeds are specified or to reduce result variability between drilled shafts or even as a function of depth in a single drilled shaft. However, if PVC tubes are used, long wait times increase the tube debonding, which is detrimental to the test. Production of drilled shaft installation and subsequent construction influence the dates of CSL testing.

After all CSL testing has been completed, and after acceptance of the drilled shaft by the engineer, the contractor shall remove the water in the tubes, place grout tubes extending to the bottom of the access tube, and fill all access tubes in the drilled shafts with grout.

(ff) Test procedures

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Prior to CSL testing, the contractor shall provide the engineer and CSL consultant with a record of all drilled shaft lengths with elevations of the top and bottom, and installation dates of all drilled shafts. The access tubes shall be clearly labelled for identification by the CSL consultant.

The CSL testing shall be performed with the transmitter and receiver probes in the same horizontal plane in parallel tubes unless test results indicate potential defects, in which case the questionable zone may be further evaluated with angled tests (source and receiver vertically offset in the tubes). Using the labelling established for the tubes, perform CSL testing between all adjacent perimeter access tube pairs and across at least two major diagonals within the drilled shafts with more than four tubes, additional logs in other diagonal tube pairs may be required to estimate the extent of the defect.

Lower the probes from the top, effectively measuring the access tube lengths. Pull the probes simultaneously, taking CSL measurements at intervals of 50mm or less from the bottom to the top of the drilled shaft. Defects indicated by late pulse arrival times and significantly lower amplitude/energy signals shall be immediately reported to the engineer. Additional tests such as the offset elevation CSL testing may be required by the engineer to further evaluate the extent of such defects. If debonding between the access tube and the concrete is indicated by the CSL results, an alternative test method will be required to determine the integrity of the concrete in the de-bonded region.

Note: In case defects are detected, additional tests or analysis options may include CSL tomography, Gamma-gamma nuclear density logging, sonic echo or impact response tests, high strain dynamic pile testing, static load testing, or concrete coring. If the drilled shaft is cored, an accurate log of the cores that include depth and core recovery shall be kept, and core and coring logs shall be properly identified and given to the engineer.

(gg) Results

Present the results of the CSL in a written report within five (5) working days of completion of testing. The report shall include presentation of CSL logs for all tested tube pairs including:

- (1) Presentation of the traditional signal peak diagram as a function of time plotted versus depth.
- (2) Computed initial pulse arrival time or pulse wave speed versus depth.
- (3) Computed relative pulse energy or amplitude versus depth.

A CSL log shall be presented for each tube pair. Defect zones, if any, shall be indicated on the logs and their extent and location discussed in the report text. Defect zones are normally (see Note below also) defined by an increase in arrival time of more than 20% relative to the arrival time in a nearby zone of good concrete, indicating a slower pulse velocity.

Note: Because the tubes might not be perfectly straight or even parallel, a fixed absolute limit of a wave speed value cannot be used for evaluation. It should also be noted that if the referenced good concrete exceeds the specifications, then a concrete with a local 20% wave speed reduction might still exceed the specifications.

The log for each tube pair shall be clearly identified and oriented relative to the structure. The engineer shall have five (5) working days to evaluate the results and determine whether the drilled shaft construction is acceptable or not. The contractor shall not perform any load testing or other construction associated with these drilled shafts until after acceptance by the engineer. If the drilled shaft is accepted by the engineer, the contractor may then proceed with construction. If the engineer determines the drilled shaft is not acceptable, the drilled shaft must be cored, repaired or replaced by the contractor at the contractor's expense and with no increase in contract time.

(hh) Base integrity test

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



In order to establish the quality of the pile/base rock contact, a base integrity test shall be performed. This shall be accomplished in the following manner:

(1) The 85mm diameter tubes for the “Cross Hole Sonic Logging” shall be installed to within 300mm of the base pile of the pile. The base of the tubes shall be sealed square with a water tight seal.

(2) NX (55mm) diameter cores shall be drilled within 85mm diameter tubes, through the remaining 300mm of pile concrete and for a distance of 1200mm into the rock at the toe of the pile. The core shall be carefully retrieved with drill string lengths and datums noted. This core shall be marked and carefully placed inside a plastic sheath such that the actual condition of the interface between pile and rock is not disturbed. The core shall be temporarily stored in a core box for later inspection.

At the completion of the test, and when instructed by the engineer, the complete assembly to the top of the pile shall be filled with non-shrink grout of at least 30MPa strength. The hole shall be filled from the bottom up.

The basis of payment shall be in accordance with pay items 61.37, 61.38 and 61.39.

(2) Impulse or Impact Frequency Response (IFR) or “Tapping” Method

(aa) Overview

These tests have a depth limitation with respect to checking the pile shaft quality, this being typically 20 to 30 pile diameters. The pile head is struck with a hand held hammer, which sends low strain stress waves down the pile shaft. The pile concrete shall have attained an age of at least 3 days. This induced stress wave is reflected off the pile toe, as well as off any other discontinuities along the pile shaft. This reflected wave gets recorded by a hand held accelerometer pressed against the top of the pile, and converted into a velocity-time trace presented on-screen as velocity versus pile depth. This is non-intrusive test and can be implemented on all types of cast in situ or grouted in situ piles of 250mm diameter and upwards.

Interpretation of the resulting graph will typically yield the following:

- (1) Significant inclusions (5-10 % of pile shaft area).
- (2) Horizontal cracks (or joints).
- (3) Pile necking.
- (4) Changes in surrounding soil layers.

(bb) Personnel requirements

The IFR consultant shall have a registered professional engineer supervising the testing and interpretation of results. The IFR consultant shall be an independent testing agency with at least 3 years' experience in IFR testing. The consultant's qualifications and the specifications for the equipment used shall be submitted to the engineer for approval prior to testing.

(cc) Pile head preparation

Piles shall be tested from the cut-off level in sound concrete (about 50mm above pile cap soffit level). Helical shear links shall be removed to allow ample swing area for the hammer. A level hammer area of about 100mm diameter shall be prepared in the pile centre by using scabblers, scutch hammer or hammer and chisel. For the geophone, an area of about 80mm diameter shall be similarly prepared close to the pile perimeter.

(dd) Results

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Tenderer

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Witness 1

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Witness 2

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Employer

--

Witness 1

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Witness 2



Written report in an easy to read and understand format, shall be submitted within five (5) working days of completion of the testing. The report shall include all IFR logs, as well as interpretation of the data.

B6115 MEASUREMENT AND PAYMENT

Item

Unit

B61.06 Overhaul

cubic metre (m³)

Delete the following as shown below in the first paragraph:

"61.08(a) and (c) "

i.e. transport costs for commercial rock-fill must be included in the rock-fill rate, and overhaul for rock-fill will therefore not be measured and paid separately.

Delete pay item 61.50 and replace it with the following items for Pile Integrity Testing (PIT):

"Item

Unit

B61.50 Pile Integrity Testing on bored/augured piles

(a) Constructing 5.0m long reinforced concrete calibration bored piles of 610 mm diameter, inclusive of three 85 mm diameter mild steel tubes

number (No)

(b) Providing and installing 85mm diameter mild steel tubes used for "Cross Hole Sonic Logging" in all designated piles

metre (m)

(c) Impact Frequency Response (IFR) tests and interpreted results

number (No)

(d) Cross-Hole Sonic Logging tests and interpreted results ..

metre of pile (m)

(e) Base integrity tests:

(i) Establishment on the site for core

Drilling lump sum (LS)

(ii) Moving equipment and assembling it at each location/pile position where cores are to be drilled

number (No)

(iii) Drilling the cores, 55 mm diameter in:

(aa) Concrete

metre (m)

(bb) Founding formation, irrespective of hardness

metre (m)

(iv) Log of cored data

number (No)

The unit of measurement shall be the number of cores logged. The tendered rate shall include full compensation for the log of the core data by a qualified person, who shall be approved by the engineer. The core logging shall be done in general accordance with the "Guidelines for soil and rock logging" compiled by the Geotechnology Workshop and published by SAICE in 1990.

(v) Grouting up all CSL tubes after successful testing

cubic metre (m³)

The unit of measurement shall be the volume of grout used to fill all the tubes used for sonic testing and the cores.

The tendered rate shall include full compensation for the grout, equipment and all labour used to fill the tubes and cores. The grout shall have a compressive strength of at least 30MPa.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



The unit of measurement for subitem (a) shall be the number of 4.0m long calibration reinforced concrete bored piles provided complete with the required number (and length) of 85mm mild steel tubes to facilitate CSL testing and constructed similarly to the proposed working piles.

The unit of measurement for subitem (b) for the 85mm nominal diameter mild steel tubes shall be the metre of approved 3mm thick tubes provided and installed into all designated piles of various diameters in accordance with the specification.

The unit of measurement for subitem (c), viz for the Impact Frequency Response tests shall be the number of designated piles tested by the IFR method as compensation for establishment on site, procurement, preparation, conducting and supervising the tests and full compensation for the proper evaluation and reporting of the results and findings to the engineer, by the IFR consultant.

The unit of measurement for subitem d), i.e. the CSL tests, shall be the metre of pile shaft fully tested (for all designated piles) using the Cross-Hole Sonic Logging method, and shall include full compensation for establishment and removal of all specialised equipment and expert personnel as well as for all materials, for the preparation and conducting and supervising the tests as well as full compensation for the proper evaluation and reporting of the results as well as the interpreted findings/conclusions/recommendations to the engineer by the CSL consultant”.

SECTION 6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

B6205 CONSTRUCTION

(b) Formwork

(i) General

Add the following:

“Formwork to faces of structures with a gradient equal to or greater than ten vertical to one horizontal shall be classified as vertical formwork.

Formwork to faces of structures with a gradient of less than ten vertical to one horizontal, or equal to or greater than one vertical to ten horizontal, shall be classified as inclined formwork.

Formwork to faces of structures with a gradient of less than one vertical to ten horizontal shall be classified as horizontal formwork.”

B6210 PAYMENT TO NOMINATED SUBCONTRACTOR FOR SUPPLY AND HIRE OF BRIDGE DECK OVERHANG FALSEWORK

Contractor to compensate nominated subcontractor for the provision and hire of the bridge deck overhang falsework erected on site. Contractor to ensure safeguarding of material during bridge deck placement and curing period. Contractor to facilitate removal of falsework upon completion of curing and to ensure accurate recon of material upon stripping and removal from site

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 6300 : STEEL REINFORCEMENT FOR STRUCTURES

B63.06 Payment to nominated subcontractor:

For fixing only of Steel reinforcement for Deck Slab:

Contractor to compensate nominated subcontractor for the installation of bridge deck reinforcement as required.

B6307 COVER AND SUPPORT

Add the following to the end of the fifth paragraph:

“Concrete cover and spacer blocks shall be made using the same cement and aggregate type as the main concrete with the same water/ cement ratio so that differences in shrinkage, thermal movements and strain are minimised. Cover blocks shall be water cured by submersion for a minimum of 7 days and thereafter kept submerged in water until immediately before fixing onto reinforcing steel.

Where concrete cover blocks, subsequent to fixing, have visually dried out they shall be remoistened by an appropriate method so that they are damp before the placing of concrete. Only semi-spherical concrete cover blocks shall be used. Where fixing wire is inserted into cover blocks, it shall be galvanised. Cover and spacer blocks manufactured from other materials e.g. plastic or wood, shall not be permitted. All cover blocks regardless of the type of material manufactured from, shall not be visible on exposed concrete surfaces.”

SECTION 6400 : CONCRETE FOR STRUCTURES

B6402 MATERIALS

(a) Cement

Replace the colon at the end of the first paragraph with a comma, and add the following:

“taking into account the adoption of the SANS 50197-1:2000 code for cements, add the following new paragraphs:

“The type of cement to be used in any concrete element shall take into account the environmental conditions and durability requirements at the location of the site of the works, and shall be as approved by the engineer.

With the exception of the standard SANS approved cement blends supplied by the primary cement producers, the blending of CEM1 and extenders shall not be permitted unless specifically approved by the engineer on the basis of an acceptable quality assurance procedure.”

b) Aggregates

Delete the remainder of the sentence after “exceed” in sub-clause (i)(1) and replace with the following:

“150% of that of the reference norite aggregate or any of the other three reference aggregates”

Delete the remainder of the sentence after “exceed” in sub--clause (i)(2) and replace with the following:

“200% and of the coarse aggregate 175% of that of the reference norite aggregate or any of the other three reference aggregates”

Delete the remainder of the sentence after “exceed” in the first paragraph of sub-clause (i)(3) and replace with the following:

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



“235% of that of the reference norite aggregate or any of the other three reference aggregates”

Delete the entire last paragraph of sub-sub-sub-clause (i)(3) commencing with “The drying shrinkage of concrete...”

Add the following sub-sub-clause:

“(vi) The maximum chloride ion content of fine aggregate shall be 0,03% by mass of aggregate as specified by SANS 1083:2002. Where concrete is situated in a chloride environment the value shall be reduced from 0,03% to 0,01%.”

d) Water

Add the following:

“Water for concrete other than prestressed concrete, shall not contain chlorides, calculated as sodium chloride, in excess of three thousand parts per million (3000ppm) nor sulphates, calculated as sodium sulphate, in excess of two thousand parts per million (2000ppm).

Water for curing concrete shall not contain impurities in sufficient amount to cause discolouration of the concrete or produce etching of the surface.

No water containing salts shall be used.

No water shall be added on site to ready mix concrete prior to placing to improve workability. All concrete delivered to site shall be checked for workability using the slump cone test and slump measured outside of the limit set from the design mix shall be rejected.”

e) Admixtures

Add the following sub-sub-clauses:

“(v) Admixtures, which have a retarding effect on the rate of hydration of the cement, may not be used when the concrete temperature is below 20°C.

(vi) A retarding admixture shall be used if the temperatures of concrete mixes using cements of strength class 42.5 or higher is between 20 to 30°C or where the ambient temperature is between 20 to 30°C.”

Add the following:

“Note: Only admixtures of the type that do not increase the water content of the mix will be considered by the Engineer. In addition, no admixtures shall be added on site to ready mix concrete prior to placing to improve workability.”

B6404 CONCRETE QUALITY

(b) Strength concrete

Add the following paragraph:

“The cement content for any class of structural concrete or mass concrete used in structures shall not be less than 300kg/m³ of concrete.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



The contractor must provide the engineer with complete mix designs and materials test results for strength concrete at least six (6) weeks before the first concrete is cast on the project" on Colto Form D2 complete with all required test results for stone, sand and water.

B6405 MEASURING THE MATERIALS

(c) Aggregates

Add the following:

"All concrete for structures shall be manufactured by mechanical mass batching unless authorised otherwise by the engineer for minor concrete structures or for labour-intensive methods."

B6407 PLACING AND COMPACTING

(a) General

Add the following after the third paragraph:

"Concrete shall only be placed up to 20:00 at the latest. Under exceptional circumstances the Engineer may allow night work on condition that proper lighting arrangements can be made and a new and rested shift for night work is provided, and ambient temperatures are such as to not adversely affect the setting of the concrete."

Contractor to compensate nominated subcontractor for the placement and compaction of bridge deck concrete as required.

B6408 CONSTRUCTION JOINTS

(a) General

Add the following:

"No construction joints other than those indicated on the drawings will be permitted without the written approval of the engineer".

B6409 CURING AND PROTECTING

Add the following:

The surface area of culvert floor slabs, decks and approach road slabs shall be cured as follows:

- (i) The area of freshly cast and finished concrete surface shall be immediately covered as specified in clause 6409(e).
- (ii) After the concrete has set sufficiently the entire area shall be treated with an approved resin-based curing compound as specified in clause 6409(f)."

Any vertical faces where formwork is removed before 7 days must be treated with an approved wax-based curing compound

B6414 QUALITY OF MATERIALS AND WORKMANSHIP

(a) Criteria for compliance with the requirements

Add the following:

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Tenderer

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2



"Quality control shall be carried out by the engineer as specified in Section 8200: Quality Control (Scheme 1)."

Add the following new paragraph:

(d) Concrete cores - strength requirements

"Cores will only be drilled if authorised by the engineer. This will only be considered if the contractor's own cubes, when crushed by the engineer, attained the required 28-day cube strength."

B64.15 DEMOLITION AND REMOVAL OF EXISTING STRUCTURAL CONCRETE

Add the following below last paragraph:

"The above will also apply to the removal of redundant concrete structures and elements requiring complete demolition and removal from site."

B6416 MEASUREMENT AND PAYMENT

ITEM

UNIT

B64.06 Demolishing of existing concrete

Cubic Meter (m³)

(b) Reinforced Concrete in

(i) Existing river crossing structure

The unit rate shall be for the demolition, clearing, loading and safe disposal of the existing river crossing structure. Reinstatement of the area will be covered by Section 5800 under item B58.1

SECTION 6600: NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, AND PARAPETS AND DRAINAGE FOR STRUCTURES

B6603 JOINTS IN STRUCTURES

(g) Installing the expansion joints

Delete the first paragraph and replace with the following:

"All deck expansion joints shall be installed by approved specialist subcontractors only. Installed deck expansion joints shall have the following guarantees:

- Asphalt plug type joints - 10 years
- Joint sealant - 5 years

All deck expansion joints will only be considered for use on this contract if the manufacturer has obtained Agrément certification. New applications for Agrément assessment take up to one year from receipt to acceptance by Agrément South Africa."

B6606 DRAINAGE FOR STRUCTURES

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



(c) Synthetic-fibre filter fabric

Add the following:

"The synthetic-fibre filter fabric used in conjunction with crushed stone in drainage strips shall be Kaymat U24 or an approved equivalent material. An overlap of 300 mm shall be provided at joints."

B6608 MEASUREMENT AND PAYMENT

Add the following payment item:

Item	Unit
B66.27 Joint protection plates number	(No)

The unit rate shall be the number of galvanised cover plates installed over deck expansion joints at the interfaces with concrete barriers.

The tendered rate shall provide full compensation for the manufacturing and galvanizing of the cover plates, transporting it to site and installing it to allow free deck movement at the deck expansion joints.

Add the following payment item:

Item	Unit
B66.28 (a) Precast Parapet Installation Meter	(m)

The unit rate shall be the meters of parapet installed

The tendered rate shall provide full compensation for the installation of pre-procured, pre-cast concrete parapets and shall include all activities required for the installation, jointing and sealing of such parapets to the applicable standards and the satisfaction of the Employer's Agent..

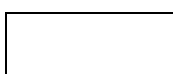
Item	Unit
B66.28 (b) Transportation of precast parapet units from precast manufacturing site to the project site kilometre	(km)

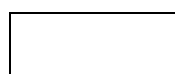
The unit rate shall be kilometres travelled for the purpose of collection

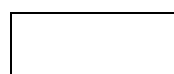
The tendered rate shall include all resources to allow the transportation of precast parapet units from the manufacturing facility to the project site. Rate should include for possibility of numerous trips due to quantity of parapets to be transported. Total transportation distance of 150km payable regardless of trip/resource quantity.

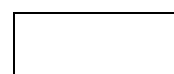
Item	Unit
B66.29 150mm Diameter Sleeves at bridge sidewalk Metre	(m)

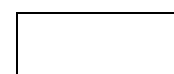
Tendered rates to include procurement, protection and installation of PVC sleeves cast into pedestrian walkway over bridge deck as shown on drawings.

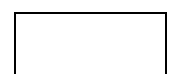

Tenderer


Witness 1


Witness 2


Employer


Witness 1


Witness 2



MATTERS RELATING TO LOCAL CONTENT AND PARTICIPATION

SECTION 1500 : ACCOMODATION OF TRAFFIC

SECTION 1600 : OVERHAUL

SECTION 1700 : CLEARING AND GRUBBING

SECTION 2300 : CONCRETE KERBING, CONCRETE CHANNELING, CHUTES AND DOWNPIPES AND CONCRETE
LININGS FOR OPEN DRAINS

SECTION 3300 : MASS EARTHWORKS

SECTION 3400 : PAVEMENT LAYERS OF GRAVEL MATERIAL

SECTION 3500 : STABILIZATION

SECTION 3600 : CRUSHED STONE BASE

SECTION 3800 : BREAKING UP OF EXISTING PAVEMENT LAYERS

SECTION 4100 : PRIME COAT

SECTION 4200 : ASPHALT BASE AND SURFACING

SECTION 4700 : SURFACING OF BRIDGE DECKS

SECTION 5100 : PITCHING, STONEMWORK AND PROTECTION AGAINST EROSION

SECTION 5200 : GABIONS

SECTION 5400 : GUARDRAILS

SECTION 6500 : ROAD SIGNS

SECTION 5700 : ROAD MARKINGS

SECTION 5800 : LANDSCAPING AND PLANTING PLANTS

SECTION 5900 : FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

SECTION 8500 : RELOCATION OF SERVICES

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 1600 : OVERHAUL

L 16.06 Percentage allowance for Handling and Management Cost in respect of item 16.01 and 16.02

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor safety and environmental aspects
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 1700 : CLEARING AND GRUBBING

L 17.06 Percentage allowance for Handling and Management Cost in respect of items 17.03 and 17.05

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor safety and environmental aspects
- Assistance with sub-contractor method statements
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 2300 : CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS

L 23.16 Percentage allowance for Handling and Management Cost in respect of items 23.01 to 23.15

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 3400 : PAVEMENT LAYERS OF GRAVEL MATERIAL

L 34.08 Percentage allowance for Handling and Management Cost in respect of items 34.01 to 34.07

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 3500 : PAVEMENT LAYERS OF GRAVEL MATERIAL

L 35.05 Percentage allowance for Handling and Management Cost in respect of items 35.01 to 35.04

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 3600 : CRUSHED STONE BASE

L 36.13 Percentage allowance for Handling and Management Cost in respect of items 36.01, 36.02 and 36.12

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 3800 : BREAKING UP OF EXISTING PAVEMENT LAYERS

L 38.09 Percentage allowance for Handling and Management Cost in respect of items 38.01, B38.04 and 38.08

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 4100 : PRIME COAT

L 41.03 Percentage allowance for Handling and Management Cost in respect of items 41.01 and 41.02

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 4200 : ASPHALT BASE AND SURFACING

L 42.06 Percentage allowance for Handling and Management Cost in respect of items 41.01, 41.04 and 41.05

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



SECTION 4700 : SURFACING OF BRIDGE DECKS

L 47.03 Percentage allowance for Handling and Management Cost in respect of items 47.01 and 47.02

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 5100 : PITCHING, STONEWORK AND PROTECTION AGAINST EROSION

L 51.02 Percentage allowance for Handling and Management Cost in respect of item 51.01

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 5200 : GABIONS

L 52.05 Percentage allowance for Handling and Management Cost in respect of items 52.01 to 52.04

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

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Tenderer

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2



SECTION 5400 : GUARDRAILS

L 54.07 Percentage allowance for Handling and Management Cost in respect of items 54.01 to 51.06

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 5600 : ROAD SIGNS

L 56.08 Percentage allowance for Handling and Management Cost in respect of items 56.01 to 56.07

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

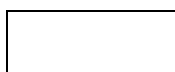
SECTION 5700 : ROAD MARKINGS

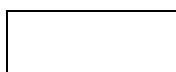
L 57.08 Percentage allowance for Handling and Management Cost in respect of items 57.02 to B57.07

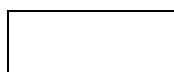
Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

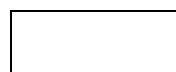
- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

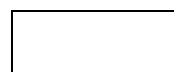
Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

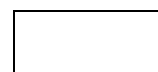

Tenderer


Witness 1


Witness 2


Employer


Witness 1


Witness 2



SECTION 5800 : LANDSCAPING

L 58.02 Percentage allowance for Handling and Management Cost in respect of item 58.01

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor material and works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

SECTION 5900 : FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

L 59.03 Percentage allowance for Handling and Management Cost in respect of items 59.01 and 59.02

Allowance to be made for the overall management of the tasks and activities performed by the appointed local sub-contractor. Rate to include costs of:

- Management of sub-contractor tasks
- Management of sub-contractor documentation
- Management of sub-contractor works quality
- Management of sub-contractor safety and environmental aspects
- Provision of technical assistance
- Processing and payment of sub-contractor claims

Payment of the above item will be made as a percentage of the claim submitted by the local sub-contractor for the portion of the works

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2