

## **PART B: PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS**

Amendments to the standard specifications are included in this Part B. Project Specifications.

- (i) The project specifications form an integral part of the contract documents and supplement the standard specifications.
- (ii) In the event of any discrepancy between the project specifications and a part of the standard specifications, the schedule of quantities or the drawings, the project specifications shall take precedence.
- (iii) The standard specifications, which form part of this contract, have been written to cover all phases of work normally required for road contracts, and they may therefore cover items not applicable to this particular contract.

In certain clauses the standard specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains some additional specifications required for this particular contract.

The number of each clause and each payment item in this part of the project specifications consists of the prefix B followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications. The number of a new clause or a payment item which does not form part of a clause or a payment item in the standard specifications and which is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.



# COLTO SERIES 1000: GENERAL

## SECTION 1100: DEFINITIONS AND TERMS

### B1115 GENERAL CONDITIONS OF CONTRACT

*Replace clause 1115 with the following:*

"The General Conditions of Contract for Construction Works (2<sup>ND</sup> Edition) 2010 (GCC 2010) published by the South African Institute of Civil Engineering, together with the special conditions of contract forming part of the contract.

All general conditions of contract references in the COLTO Standard Specifications for Road and Bridge Works are to the COLTO General Conditions of Contract for Road and Bridge Works for State Road Authorities. Consequently all references in the COLTO Standard Specifications have to be amended accordingly to reflect the appropriate general conditions of contract relevant for the contract. The COLTO Standard Specifications have been scrutinized and the clauses, which refer to the COLTO General Conditions of Contract, identified. Each COLTO clause reference is tabulated in table 1115/1 below (context of reference is also given) together with the relevant equivalent clause in the SAICE General Conditions of Contract for Construction Works applicable for this contract.

Whereas every effort has been made to include all of the affected clauses in the table, there may be some omissions. In every case, however, the SAICE General Conditions of Contract for Construction Works, as amended by the special conditions of contract in the contract data, shall apply and the contractor shall be responsible for interpretation of the equivalent clause.

Table 1115/1

REFERENCES IN COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 2010

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		SAICE General Conditions of Contract for Construction Works: 2nd Edition 2010	
Clause No	Page No	Clause No	Description or Reference	Clause No	Description or Reference
1115	1100-2		Definition of GCC		Definition of SAICE
1202	1200-2	15	Construction programme	5.6	Programme of the Works
1206	1200-3	14	Setting out of works and beacons		Omitted
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.10.2	Valuation of material brought onto site
1210	1200-5	54	Certificate of practical completion	5.14	Certificate of Practical Completion
1212(i)	1200-7	49(2)	CPA on alternative designs	6.8.2	CPA on alternative designs
1215	1200-9	45	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for completion due to abnormal rainfall.
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.8	Price adjustment Item 13.01 (a)
1303(iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.8	Price adjustment Item 13.01 (b)
1303(iii)	1300-1	53	Variations exceeding 20%	6.11	Variations exceeding 15%
1303(iii)	1300-2	53	Variations exceeding 20%		Variations exceeding 15%
1303	1300-2	12	Payment Item 13.01 (c)	5.2	Commencement of the Works
1303	1300-2	45	Payment Item 13.01 (c)	5.12	Payment Item 13.01 (c)
1403(c)(ii)	1400-4	40(1)	Variation for rented accommodation	6.4	Variation for rented accommodation
1505	1500-3	40(1)	Variation for temporary drainage	6.4	Variation for temporary drainage
Item 15.08	1500-8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Item 15.09	1500/8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Item 15.11	1500-8	48	Payment of Provisional Sum	6.6	Payment of Provisional Sum
Note (2)	3100-4	40	Payment for prospecting for materials	6.5.2	Payment for prospecting for materials
3204(b)(iii)	3200-2	40	Payment for oversize material	6.5.237	Payment for oversize material
3303(b)	3300-2	2	Engineer's decisions, with reference to materials classification	3.1	Engineer's decisions, with reference to materials classification
5803(c)	5800-3	40	Variation, for landscaping	6.4	Variation, for landscaping
5805(d)	5800-4	40	Variation, for grassing	6.4	Variation, for grassing
Item 58.10	5800-10	48	Payment for Extra Work	6.4	Payment for Extra Work
8103(c)	8100-1	40	Variation, for testing material	6.4	Variation, for testing material
Item 81.03	8100-26	22	Clearance of site on completion, with reference to core drilling	5.15	Clearance of site on completion, with reference to core drilling



## **B1155 WORK IN RESTRICTED AREAS**

Add the words "or confined spaces" such that clause 1155 reads "no additional or extra over payments will be made for work in restricted areas or confined spaces not withstanding any indication to the contrary in the standard specifications, unless the items..."

## **B1156 OTHER DEFINITIONS**

The COLTO Standard Specification for Roads and Bridges has been written for all contractors, employers and engineers. Similarly, the works and the site are not defined and the general nature of the entities and elements that collectively constitute construction under a contract are characterized by the use of lower case letters throughout.

These project specifications continue to use lowercase spellings in order to avoid the appearance of the capitalised and non-capitalised words to describe or prescribe the same elements of work required on this project. However, for the purposes of this contract the following definitions shall apply:

- (i) **Contractor**  
The Contractor and the contractor is the same persona defined under clause 1.1.1.9 of the general conditions of contract, but who will only be formally identified by the completed form of Acceptance C1.1 in this document and which will be bound into the final contract document.
- (ii) **Employer**  
The Employer and employer is the same persona, and is defined in C1.2 Contract Specific Data, and clause 1.1.1.15 of the general conditions of contract.
- (iii) **Engineer**  
The Engineer and engineer is the same persona, and is defined in the C1.2 Contract Specific Data, and clause 1.1.1.16 of the general conditions of contract.

In addition the following definitions shall apply:

- (iv) **Schedule of quantities**  
The terms "Schedule of Quantities", (used throughout the standard specifications) and "Bill of Quantities", (used in all other documents forming part of this contract), are synonymous.
- (v) **Specifications**  
All specifications forming part of the contract whether they appear in the standard specifications, the project specifications or on the drawings, or any other specifications referred to in the said specifications, or be they written instructions given to the contractor.
- (vi) **Standard specifications**  
The standard specifications for road and bridge works prescribed by the employer and forming part of the contract.
- (vii) **Project specifications**  
Any specifications appearing under this heading and forming part of the contract, and containing any amendments to, omissions from or additions to the standard specifications that may be required in connection with a specific project."



## SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

### B 1202 SERVICES

*Add the following*

Plans indicating all known services form part of the documentation.

The known services shall not be limited those shown of the drawings and respective wayleaves.

#### (a) Protection of Overhead and Underground Services

Services and sub-surface obstructions likely to be affected by the work, based on available records and surveys, have been shown on the drawings. Although every care has been exercised in the presentation of the available data, the Employer cannot and does not vouch for the accuracy or completeness of the information shown. Whenever the Contractor deems it necessary to determine the exact location of an existing service or obstruction, he shall, at his own expense, make any examination that he may consider desirable in advance of the work, and the Employer does not accept any liability for loss, damage or delay to the Contractor as a result of the non-location or inaccurate location of services or obstructions.

Where no underground services are shown on the drawings or scheduled, but the possibility of their presence can be reasonably inferred, the Contractor shall in collaboration with the Engineer, search for such services to establish their positions well in advance of the work. A full report shall then be submitted in good time to the Engineer, to enable the necessary arrangements for the protection, removal or diversion of the services before work is commenced in their vicinity.

In the event of damage to existing services, the Contractor shall take such immediate action as is necessary to prevent further damage or danger to life or property and shall immediately notify the Engineer who will issue instructions as to the necessary repairs or protective measures to be taken. The cost thereof shall be borne by the Contractor irrespective of whether the repairs or protective measures were carried out by him or by or on behalf of the service authority or department concerned.

As soon as an underground service not shown on the drawings is discovered, it shall be deemed to be a known service and the Contractor will be held responsible for any subsequent damage to it. If such service is damaged during the course of its discovery, the Contractor will be reimbursed for the cost of making good such damage, unless it is established by the Engineer that the Contractor did not exercise reasonable diligence and care and that the damage was avoidable.

#### (b) Existing Services

Without derogating from the ordinary and general meaning of the words "existing service", the words shall be deemed to include any service which has either been suspended or taken out of service to allow for the execution of the works or which has been so suspended or taken out of service as a result of any event which has given rise to or has necessitated the execution of the works.

#### (c) Condition of Existing Services

The Contractor acknowledges that he has inspected and examined all known existing services and all existing services subsequently discovered, as contemplated in (a) above and is satisfied that all such services were in an acceptable and serviceable state at the commencement of the works, alternatively, upon discovery thereof as contemplated in (a) above.

In the event of a dispute as to the acceptability and/or serviceability of an existing service at the commencement of the works or upon the discovery of such service, the Contractor shall bear the onus of proving that the service in question was not in an acceptable and/or serviceable state at the commencement of the works.

#### (d) Maintenance, Protection and Relocation of Existing Services

During the course of the works, all existing services including traffic signals, watermain, sewers and stormwater reticulation, electricity transmission and telephone lines, cables, poles and conduits whether in service or not shall be protected, supported and maintained to the



satisfaction of the service authority or department concerned and the Engineer. The Contractor shall bear all costs in this regard.

Where a bank of underground ducts, cables, etc are crossed over a distance of less than 1.0m they shall be regarded as a single crossing. Hydrants under pressure, watermain valve covers and manholes shall be kept unobstructed and accessible at all times.

Where the existing stormwater system is affected by the roadworks, drainage pipes and structures will have to be upgraded, adapted or demolished and new drainage pipes and structures constructed.

The covers and frames of service manholes and catchpits will have to be adjusted where they are affected by the roadworks.

**(e) Work in Close Proximity to Existing Services**

The Contractor shall note that no mechanical excavators or vibratory type compactors may be used within three (3) metres of any telecommunications or electrical services. No pegs or stakes shall be driven into the ground in the vicinity of underground services unless their exact positions have been determined.

The Contractor's attention is drawn to the following with regard to work done in the proximity of ESKOM and other electrical services:

MACHINERY AND OCCUPATIONAL SAFETY ACT (Act No 6 of 1983) WITH REGULATIONS

**D16 (7) Excavations**

"The builder or excavator shall ascertain as far as practicable the location and nature of underground services likely to be affected by the excavation and take such steps as may be necessary to prevent danger to persons."

THE ELECTRICITY ACT (Act No 40 of 1958)

**Section 51(3): Offences and Penalties**

"Any person who without legal right (the proof of which shall be upon him) cuts or damages or interferes with any apparatus for generating, transmitting or distributing electricity, shall be guilty of an offence and liable on conviction to a fine not exceeding R1 000,00 or to imprisonment for a period not exceeding twelve months."

The Contractor shall take the above into account in the drawing up of his construction programme and in the calculation of his tendered rates, and shall note that no additional payment or compensation will be allowed for any additional costs or delays incurred as a result of compliance with these regulations, except as measured and paid under the Items listed in the Schedule of Quantities.

The Contractor shall allow all reasonable access to the representatives of any Authority or Department for the purpose of maintaining, laying and/or relaying any services, cables or mains during the period of the Contract.

Permanent alterations to existing services ordered in writing by the Engineer, and for which no separate provision has been made in the Bill of Quantities, will be paid for under dayworks if required.

**(f) Lighting Mast and Appurtenant Works**

Light mast, cabling and electrical equipment will have to be installed by competent resources employed by the Contractor during the Contract. A separate section in the Bill of Quantities has been provided for the replacement, relocation and upgrade of electrical works.

**B 1204 PROGRAMME OF WORK**

**(a) General requirements**

*Delete the first paragraph and replace with the following:*



The Contractor shall submit his programme to the Engineer for approval within the time stated in the Contract Data. The programme shall be in the form of a bar chart (Gantt chart) or any other time-activity form acceptable to the Engineer, and shall clearly show:

- (i) The proposed rate of progress in order to complete the Works within the required period as tendered, showing the various activities, their durations and proposed resourcing levels (major plant and labour) for each element of the Works. Sufficient detail shall be provided to enable the Engineer to be able to gauge construction progress. All activities, including establishment on site, trimming and finishing and the completion of all minor ancillary works are to be included in the programme.
- (ii) A Work breakdown structure that identifies all major work activities,
- (iii) Scheduled start and end dates for each activity,
- (iv) The linkage of activities and any dependencies (time or resource related) between them.
- (v) The sequence of activities clearly identifying floats and critical path activities.
- (vi) Key dates in respect of work to be carried out, information required or due delivery,
- (vii) The anticipated value of work to be done during each month.
- (viii) Other information specifically required by the Engineer.

When drawing up his programme, the Contractor shall, inter alia, take into consideration and make allowance for:

- (i) All special non-working days, shut-down periods and breaks defined in the Contract Data.
- (ii) Expected weather conditions and their effects (high, low tide and spring tide).
- (iii) Known physical conditions and artificial obstructions.
- (iv) The accommodation and safeguarding of public traffic.
- (v) Dealing with, altering and temporary diversion of services.
- (vi) All other actions required in terms of this contract.
- (vii) Potential rain days as indicated in the contract data shall be indicated as float in the programme.

The following details shall be submitted together with the programme:

- (i) The number of working hours per day, working days per week, assumed holiday or shut down periods on which the programme is based.
- (ii) The overall labour and major plant resource levels on which the programme is based.
- (iii) The detailed phase and sequencing of work areas on which the programme is based (phased work areas due to services diversion or lengths of sections to be worked, timing etc.).

The Contractor shall base his initial programme of work on the scope of the work as described in the project specification and the schedule of quantities. This programme shall be reviewed on a regular basis by the Contractor in accordance with changing circumstances, delays and amendments to the work ordered by the Engineer as a result of further examinations made by him.

Minor revisions to the approved programme may be introduced from time to time by mutual agreement between the Contractor and the Engineer. Should the Engineer believe that a major revision of the programme is required, the Contractor will be notified in writing and a revised programme shall be submitted within two weeks of receipt of such notification.

It should be noted that it is in the Contractor's best interest to provide a comprehensive programme giving as much information as possible about the times allowed for the various activities as well as resource or other limitations affecting the programme, since the approved programme may be used to evaluate any claims in terms of the General Conditions of Contract for extensions of time.

The Contractor shall submit to the Engineer, at least one working day before each monthly site meeting copies of the following:

- (i) The contract programme with progress charts and programme graphs updated to reflect the actual progress to date and a summary of progress on site over the month preceding the site meeting.
- (ii) Details of activities running late, indicating what steps have been or will be taken to ensure that the work is completed within the specified time.
- (iii) A report on all labour, plant and materials on site.

## **B 1205 WORKMANSHIP AND QUALITY CONTROL**

*Replace the third paragraph with the following:*



The Contractor shall determine his own frequencies at which quality or process control tests are to be undertaken. The Engineer will, however, undertake all acceptance control tests for the judgment of workmanship and quality of products.

*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 relevant sections of the standard specifications and or relevant project specifications referred to. 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.

#### **B 1206 THE SETTING OUT OF THE WORK AND PROTECTION OF BEACONS**

*Add the following after the first paragraph of Clause 1206 of the Specifications:*

It is a specific requirement of this Contract that the Contractor will have to establish his own reference and control beacons for the setting-out and control of the works. The position of the works shall generally be as indicated on the drawings but shall be confirmed on site by the Engineer. The Contractor must carefully verify the base cadastral system used on the drawings and relate his setting out to the same system as was used in the preparation of the drawings. Survey work will not be measured and paid for directly and compensation for any work involved in staking or setting out will be deemed to be covered by the rates tendered and paid for the various items of work included in this contract.

A separate item has been provided for additional survey work as required by the engineer.

*Add the following at the end of the fourth paragraph.*

The contractor to note that co-ordinates shown on all drawing relate to the WGS 84 survey system.

*Add the following paragraph :*

"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 the Contractor's responsibility and included in the tender rates".

#### **B1207 NOTICES, SIGNS AND ADVERTISEMENTS**

*Delete the final paragraph and replace with the following.*

All signboards erected in accordance with the drawings or as approved advertisements for the Contractors establishment, shall be removed at the same time as the Contractors disestablishment. Payment under sub item 13.01 for the final instalment of 15% of the tendered lump sum shall not be made unless all the advertisements, notices and temporary signs have been removed.

For the purposes of this Contract the Contractor shall erect two name boards and two marketing signboards with the legend and at the locations as directed by the Engineer.

#### **B 1209 PAYMENT**

##### **(b) Rates to be inclusive**

No value added tax shall be included in the Contractor's tendered rates or amounts. Payment of value added tax (VAT) shall be made under a separate item in the Summary of Schedule(s) in C2 2 Bill of Quantities in C2 Pricing Data.

##### **(c) The meanings of certain phrases in payment clauses**

###### **(i) Procuring and furnishing (material)**

*Add the following:*

Payment for procuring and furnishing material from commercial sources shall include for all transport costs, irrespective of distance hauled.



*Add the following new subclauses:*

**(g) Work in confined areas**

Except where provided for in the Specification and the Bill of Quantities in the Pricing Data no extra payment shall be made nor shall any claim for additional payment be considered for construction in confined areas. The omission of standard pay items from the Bill of Quantities shall be taken to be deliberate and any additional costs incurred shall be included in the bulk rate.

**(h) Trade names**

Where materials are specified under trade names, tenders must be based on these materials or similar materials approved by engineer.

**(i) Payment Certificates**

With reference to the General Conditions of Contract, 2nd edition 2010 the Contractor shall, at his own expense, submit to the Engineer three sets of A4-sized paper copies of the monthly statement for payment.

**B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS**

*Add the following to subclause (e) before the semicolon:*

"(including road studs)"

*Add the following paragraphs after item (h):*

Notwithstanding that there might be natural or programmed sections of the works that will result in them being completed in their entirety before other sections, no consideration shall be given to the issuing of practical completion certificates for portions of the works except for the market place area between chainage 1020 to 1340. The use of any completed roadway or portions of the work, whether for unhindered use by the public or for accommodation of traffic while other portions are being constructed, shall not constitute use or occupation by the Employer.

In addition to the listed specified items of work and regardless of the degree of beneficial occupation by the Employer, the works shall be considered for practical completion only if the following criteria also have been met:

- (i) The estimated cost to complete the outstanding work is less than 2% of the tendered value of work plus the cost of any variation or extra work orders, but excluding CPA and VAT.
- (ii) The written list of outstanding items of work can be completed within 28 days of the list having been accepted in writing by the Contractor.
- (iii) Any information in the Contractor's possession, which is required by the Engineer and has been requested in writing, has been supplied.

**B 1214 CONTRACTOR'S ACTIVITIES IN RESPECT OF PROPERTY OUTSIDE THE ROAD RESERVE AND OF SERVICES MOVED, DAMAGED OR ALTERED**

*Under subclause (e) replace the opening paragraph with:*

Should the Contractor use land not provided by the Employer for the purpose of his own establishment, engineer's offices and laboratory, or storing of equipment or materials required for construction or disposal, it shall be subject to the following:"

*and add the following subclauses:*

- (vi) That lease agreements are concluded with the owner or owners of such land for the full period that such areas are required. The leases shall provide for possible extensions to match the duration of the contract. The lease agreements shall also provide for the contract being terminated by Contractor's default or liquidation and the resulting possibility for them to be taken over by a succeeding Contractor.
- (vii) That copies of lease agreements shall be submitted to the Engineer prior to signature by the signing parties, and copies lodged with the Engineer after signing. Notwithstanding the Engineer's



approval of the conditions of a lease the Contractor shall be solely responsible for adhesion to the terms of the agreements."

(viii) Adherence to the principles of the environmental management plan and legal obligations.

## B1216 INFORMATION FURNISHED BY THE EMPLOYER

Add the following after the second paragraph:

Drawings and quantities regarding the distribution and extent of repair work items were compiled and calculated to the best of the Engineer's knowledge and available information at the time of the design and could be subject to significant variations at the construction stage. Such variations shall, however, not form grounds for a claim by the Contractor in terms of respective clause in GCC 2010 2<sup>nd</sup> edition, for Variations of the General Conditions of Contract.

## B 1229 SABS CEMENT SPECIFICATIONS

Add the following:

All cement used during construction shall comply with SABS EN 197-1 for common cements and SABS EN 413-1 for masonry cement. Any reference to SABS 471 in the standard specifications shall be replaced with the new specification SABS EN 197-1. Cement compositions, specifications and conformity criteria Part 1: Common cements.

Where the old SABS 471 product nomenclature has been used in the standard specifications, the Contractor shall supply and use the relevant new product, in compliance with SABS EN 197-1.

Cement Grade	Cement Type	Approximate old product name	New Alpha	New Blue Circle	New NPC	New PPC	New Slagment
52.5	CEM I	Rapid hardening	Rapid Hard	Duracast	Eagle Super	-	-
42.5R	CEM I	Rapid hardening	-	-	-	Rapo	-
42.5	CEM I	OPC*	Portland cement	Duratech	-	OPC	-
	CEM I	LASRC	-	-	-	LASRC	-
	CEM II A-S	PC 15SL	-	-	Eagle Plus	-	-
	CEM II B-S	RH30SL	-	-	Eagle Plus	-	-
32.5R	-	-	-	-	-	-	-
32.5	CEM II A-V	PC 15FA	All Purpose Cement	-	-	Surebuild	-
	CEM II A-W	PC15FA	-	-	-	Surebuild	-
	CEM II A-L	-	All purpose Cement	-	-	Surebuild	-
	CEM II B-V or W	PC25FA/PFAC**	-	Structrete	-	Surecrete	-
	CEM IIIA	PBFC	-	BFC	Eagle Pro	-	PBFC
	CEM IIIA	RHSL	-	-	-	-	RHSL
22.5	MC 22.5X	PFAC***	Multi Purpose Cement	Durabuild	-	-	-
	MC22.5X	PFAC***	-	Buildcrete	-	-	-
12.5	MC 12.5	Walcrete	Mortar Cement	Wallcrete	-	Masonry	-
	MC 12.5	Mortacem	-	-	-	-	-

Notes: \* OPC cements previously performed approximately as CEM 1 32,5R products  
 \*\* PC25FA cements under the old standards achieved lower compressive strengths than the OPC's of the time  
 \*\*\* Some PFAC cements meet the new standard for MC 22,5X. Others required modification before meeting the requirements for MC 22,5X

The following new clauses shall be added after Clause 1229 of the Specifications:

## B 1230 MATERIALS

The Contractor, when using materials that are required to comply with any standard specification, shall, if so ordered, furnish the Engineer with certificates showing that the materials do so comply. Where so



specified. materials shall bear the official mark of the appropriate authority. Samples ordered or specified shall be delivered to the Engineer's office on the Site free of charge.

Where proprietary products have been specified, similar products may be used subject to the prior written approval of the Engineer.

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's current published instructions.

Unless anything to the contrary is specified, all manufactured articles or materials supplied by the Contractor for the permanent works shall be unused.

Earth, stone, gravel, sand, and all other materials excavated or present on the Site or in borrow areas provided by the Employer shall not become the property of the Contractor, but will be at his disposal only in so far as they are approved for use on the Contract. Existing structures on the Site shall remain the property of the Employer and except as and to the extent required elsewhere in the Contract, shall not be interfered with by the Contractor in any way.

Existing structures on the site shall remain the property of the Employer and except as and to the extent required elsewhere in the contract, shall not be interfered with by the Contractor in any way.

No materials to be included in the works shall be damaged in any way and, should they be damaged on delivery or by the Contractor during handling, transportation, storage, installation or testing they shall be replaced by the Contractor at his own expense.

All places where materials are being manufactured or obtained for use in the Works, and all the processes in their entirety connected therewith shall be open to inspection by the Engineer (or other persons authorised by the Engineer) at all reasonable times, and the Engineer shall be at liberty to suspend any portion of work which is not being executed in conformity with these specifications.

The Contractor shall satisfy himself that any quarry selected for use provides the necessary mined material in accordance with the specification.

**(a) Ordering of Materials**

Immediately upon his Tender being accepted, the Contractor shall order materials which are in short supply or for which the delivery period may be long.

The quantities set out in the Schedule of Quantities have been determined from calculations based on data available at the time and should therefore be considered to be only approximate quantities. The Contractor shall therefore, before ordering materials of any kind, check with the Engineer the quantities required. No liability or responsibility whatsoever shall attach to the Employer for materials ordered by the Contractor except if they have been ordered in accordance with written confirmation issued by the Engineer.

The market place area must be completed by the date required in section C3.1 Description of Works Clause 2.1

**B 1231 SAFETY**

The Contractor shall at all times observe adequate safety precautions on Site to ensure the safety of his own staff as well as that of the public and other persons engaged in or about the Works. In this respect he shall comply with the provisions of the Health and Safety specifications (Part E of the Works Specifications) and observe all laws, ordinances and regulations pertaining to his work.

In terms of the General Conditions of Contract, the Contractor shall enter into an agreement (refer to C1.4 of Volume 3) to complete the work required for the construction of the works in accordance with the provisions of all pertinent legislation and in particular with the provisions of the latest Occupational Health and Safety Act, and the regulations promulgated thereunder.

Where adequate safety precautions are not being observed, the Engineer may order the Contractor to comply with minimum safety requirements at the latter's expense. Compliance with such an order will not absolve the Contractor from any of his responsibilities and obligations under the Contract.



**B1232 MEASUREMENT AND PAYMENT**

Add the following new payment items:

Item	Unit
<b>B12.01 Identification of services</b>	(Sum)

The Contractor will be responsible to confirm the positions of services likely to be affected by the permanent works of the main contract and to liaise with the service authorities in this regard.

The sum tendered shall include full compensation for all costs associated with the above work and to identify in the field all services likely to be affected by construction.

In order to shorten the time required for the issue of wayleaves, the Engineer will endeavour to apply for wayleaves on behalf of the successful Contractor who will be required to take over these wayleaves once the contract has been awarded.

Item	Unit
<b>B12.02 Protection of services.</b>	

The rate rendered shall be deemed to include full compensation for the protection of services that interferes with works during the duration of the contract and the appropriate methodology shall be approved by the engineer

- |                                  |       |
|----------------------------------|-------|
| a) Service Intersecting a trench | (No ) |
| b) Services adjoining a trench   | (m)   |

Item	Unit
<b>B12.03 Additional Survey.</b>	

The rate tendered shall be deemed to include full compensation for obtaining timeous and accurate information to confirm all unknown position of a structure or services invert and or cover levels required by the engineer. The rate is to include to survey and establish the level of the beach levels within the work area up to and including the existing kerb line before the commencement of the works. Rate shall cover to open all structures, excavate to and clear all structures to determine the accurate invert, cover level, soffit and or top of pipe or slab level. The spacing of levels in open areas within the survey shall be in a grid of 10x10m. The survey levels shall be submitted in a proper ascii format as required by the engineer. The rate shall cover any additional survey information as required by the engineer during the contract. Additional fixed points may be requested to be established by the engineer. A separate item has been scheduled for fixed points.

- |  |       |
|--|-------|
| a) Survey as required by the engineer                                      | (km)  |
| b) Fixing control points and reference beacons as required by the engineer | (No ) |

Item	Unit
<b>B12.04 Hand excavation to determine the position of existing services</b>	(m <sup>3</sup> )

The rate shall include excavate, backfill, marking of the services and where no distinction shall be made between hard or soft material, and no distinction shall be made between the type of service.

Item	Unit
<b>B12.05 Fence – Temporary Fencing to Work Areas</b>	(m)

Add the following payment paragraph:

The (m) for sub item (a) is for temporary wire fencing (2m high) with a tubular frame mounted on a sturdy base and includes access gates, fixing, maintenance and removal.



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

### B1402 OFFICES ACCOMODATION

#### (a) General

*Add the following:*

"For this contract the engineer requires the offices and conference room to be positioned adjacent to each other. They may be based on "Kwickspace" or similar approved container type office units provided they are to the satisfaction of the engineer and are weatherproof and provided with a ceiling and a lining to the walls or equivalent suitable insulation. Each office floor shall be at least 150mm above the ground. Ideally they should be included in the contractor's office and camp area sharing the same services and toilets. The toilet structure for the engineers use shall be of a 'kwick space' type or similar approved structure.

The offices for the engineer's supervisory staff shall be supplied with burglar bars and security doors of adequate strength the cost of which shall be taken as included in the relevant tendered rates for the provision of the specified building. Each exterior door shall be fitted with a lock equivalent in security to a 5 lever lock.

All furniture, equipment and fittings provided by the contractor shall be new unless otherwise agreed beforehand with the engineer."

#### (b) Offices

*Replace subclause (xii) with the following:*

"A complete telephone service with 2 exchange lines, independent of the contractor shall be provided for the use of the engineer and his staff. The all in one printing machine shall be located in the engineer's office.

The cost of all telephone and cellular phone calls in connection with contract administration, monthly subscriber fees, rentals, including installation and final disconnection, shall be reimbursed through the prime cost sums provided for under subitem B14.03(b)."

*Replace subclause (xvii) with the following:*

"A new all in one machine shall be located in the engineer's office and shall be, capable of scanning and printing A3 & A4 size sheets with automatic feed of a minimum of 20 sheets. The printer apparatus shall be an approved "plain paper" unit connected to the engineer's telephone service and capable of use, including all accessories, paper, etc for making a minimum number of 500 A4 received/transmitted sheets per month."

*Add the following subclauses:*

- (xviii) Wall mounted plan filing systems shall be of the Barhold Wall-Mount Pivot type or similar complete with wall rack, 3 binders and 3 pivot brackets suitable for filing A0 size drawings.
- (xix) An approved plastic type rain gauge shall be supplied and shall be securely mounted on a pole in a position as indicated by the engineer.
- (xx) An approved digital thermometer capable of reading from -10°C to +100°C and suitable for measuring surface temperatures shall be supplied if required by the engineer.
- (xxi) Three metre long aluminium straight edge complete with two aluminium wedges 200mm long, tapering from 0 to 20 mm and calibrated in mm shall be supplied if required by the engineer.
- (xxii) Minimum and maximum atmospheric temperature gauge shall be supplied if required by the engineer.



**B1406 MEASUREMENT AND PAYMENT**

Add the following new payment items:

<b>Item</b>	<b>Unit</b>
-------------	-------------

**B14.02 Office furniture**

Amend sub item (a) to read as follows:

- |   |      |
|---|------|
| (a) Chairs with padded seat and back          |      |
| (i) Office (ordinary) .....                   | (No) |
| (ii) Office chair with arms rest .....        | (No) |
| (x) Site Notice Board as per Std Detail ..... | (m2) |

The rate for the site notice board shall include the supply and installation on site as required by the engineer. The rate shall include the removal of the boards at the of the 12 months maintenance period, failing of which the cost of removal and rehabilitation of shall be deducted from the final account.

Add the following sub items:

<b>Item</b>	<b>Unit</b>
-------------	-------------

**B14.03 Office fittings, installation and equipment:**

- (a) Items measured by number

Add the following sub items.

- |   |      |
|---|------|
| (xix) Movable plan filing rack .....                              | (No) |
| (xx) Supply and install rain gauge .....                          | (No) |
| (xxi) Rechargeable Digital Camera .....                           | (No) |
| (xxii) 3 m aluminium straight edge complete with two wedges ..... | (No) |
| (xxiii) Max/Min Temperature gauge .....                           | (No) |
| (xxiv) Waste paper basket .....                                   | (No) |
| (xxv) Electric kettle .....                                       | (No) |
| (xxvi) Microwave oven (850 watt minimum power output) .....       | (No) |
| (xxvii) First aid kit .....                                       | (No) |

- (b)

Add the following sub items:

- (ix) The provision of 2 cellular telephones including costs of calls in connection with contract administration and rental
- (x) Handling costs and profit in respect of sub item above

- (c) Items measured by area:

Add the following sub item:

- |                         |      |
|-------------------------|------|
| (ix) White boards ..... | (m2) |
|-------------------------|------|

Add the following item:

<b>Item</b>	<b>Unit</b>
-------------	-------------

**B14.11 Provision of commercial laboratory testing**

Add the following to the payment paragraph:

- |  |            |
|--|------------|
| (a) Actual cost of testing .....                           | (Prov sum) |
| (b) Contractors charges in respect to sub item above ..... | (%)        |

The provisional sum for sub item (a) is allowed to cover the cost of additional commercial laboratory testing as requested by the engineer during the contract



## SECTION 1500: ACCOMMODATION OF TRAFFIC

### B1501 SCOPE

*Add the following:*

Wherever the words "South African Road Traffic Signs Manual" appear, it shall be read together with the "SADC Road Traffic Signs Manual".

### B1502 GENERAL REQUIREMENTS

#### (a) Safety

*Add the following .*

The whole of the site will be handed over to the Contractor at the start of the contract.

*Add the following new subclause:*

#### (j) Failure to comply with provisions for the accommodation of traffic

The failure of or refusal by the Contractor to construct and/or maintain diversions, barricades, traffic signs or road markings at the proper time, or to take the necessary precautions for safety and convenience of public traffic as specified or instructed by the Engineer, shall be sufficient cause suspend payment on this contract until the required construction or maintenance has been completed to the satisfaction of the Engineer. Further, the Engineer will have the right to stop any operation where the traffic accommodation measures are not to specification or as ordered and the Engineer considers that there is a risk to the public. Such stoppage of the work will not be acceptable as a reason for extension of time or additional compensation.

*Add the following new subclause:*

#### (k) During day time, flagmen shall be positioned ahead of the start of the work so that approaching traffic is given advance warning. The flagmen shall use their flags to slow traffic down. Flags shall be a minimum size of 750mm x 750mm.

Each flagmen shall wear a high visibility waistcoat, the cost of which shall be deemed to be included in the rate tendered in section 1500(item 15 03(a).

All flagmen shall be adequately trained.

### B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

*Insert "Volume 2, Chapter 13" after "South African Road Traffic Signs Manual" in the fifth line of the first paragraph.*

*Add the following after the second paragraph:*

"No work may proceed in any section where accommodation of traffic is required until such time as the relevant requirements with regard to signposting are met. The Contractor shall keep sufficient surplus signs, delineators and barricades on the site to allow for the replacement of damaged or missing items within a period of three hours of instructions having been given by the Engineer."

*Insert "Volume 2, Chapter 13" after the latest edition of the South African Road Traffic Signs Manual" the fourth line of the third paragraph.*

#### (c) Channelisation Devices and Barricades

*Add to subclause 1503(c) the following .*

Delineators shall :

- (i) utilise yellow retro-reflective material Class 1 grade, in contrast with a black pattern as indicated in figure 16. A minimum contrast ratio of 4 is required.
- (ii) be mounted on a plastic post and base as indicated in figure 1.7.



- (iii) have the lower edge of the delineator plated mounted not higher than 200 mm above the road surface.
- (iv) be capable of withstanding gusting winds of up to 60 km/h in typical working conditions without falling over and to achieve this the base shall be ballasted by sandbags.
- (v) have smooth and rounded edges.

Traffic cones manufactured in fluorescent red-orange or red plastic material may be used only at short term lane deviations during daylight. Cones used on freeway deviations shall be 750 mm high. Lane closures which continue into night time shall be demarcated by delineators.

Traffic cones and delineators shall be placed at maximum intervals of 10 m on tapers and 20 m on straights unless otherwise authorised by the Engineer.

**(e) Warning Devices**

*Add the following:*

All the Contractor's vehicles and plant as well as the Engineer's vehicles, of whatever type, shall be fitted with amber, revolving strobe type rooflights which shall be in operation at all times that they are on the site. These lights shall be mounted on the roof of all vehicles together with a sign, which reads "CONSTRUCTION VEHICLE" on the one face and 'KONSTRUKSIE VOERTUIG' on the other except that the sign is not required for passenger cars and bakkies.

The Contractor shall provide the Engineer for his own use with one amber flicker light. This shall have a magnetic base, flexible cable and a connection suitable for insertion into a standard 12V automobile cigarette lighter socket.

No additional payment will be made for compliance with this requirement, the costs of which shall be deemed to be included in the rates for establishment on site.

**B1504 WIDTH AND LENGTHS OF TEMPORARY DEVIATIONS**

*Delete the second paragraph and replace with the following.*

The minimum lane width for temporary traffic deviations shall be 3,0m, unless amended in writing by the Engineer. The minimum width for pedestrian traffic shall be 2m.

**B1517 MEASUREMENT AND PAYMENT**

*Change Item 15.01 to read as follows.*

Item	Unit
<b>B15.01 Accommodating traffic and maintaining temporary deviations</b>	(Lump Sum)

*Delete the first and last paragraphs and replace the last paragraph with the following paragraph:*

Payment will be made on a pro-rata time basis and a non-refundable deduction shall be made based on the pro-rata time base value when inadequate and insufficient traffic accommodation is provided as determined by the engineer.

*Add to the following item:*

Item	Unit
<b>B15.03 Temporary traffic-control facilities:</b>	
(n) Other signs or facilities	
(i) Provision of other signs or facilities	(Prov sum)
(ii) Contractors handling charges and profit on sub item above	(%)
(o) Provision of traffic safety equipment for the engineer	
(i) Rotating amber flashing lights	(No)
(ii) High visibility safety jackets	(No)
(iii) Magnetic strips (construction vehicle)	(No)



- (iv) Gumboots
- (v) Rechargeable flashlight

(No)  
(No)

The tendered rate shall include full provision for procuring and maintaining client approved traffic safety equipment for use by the Engineer site staff.