

**SANRAL**

SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD



Reg.No.1998/009584/30

BUILDING SOUTH AFRICA  
THROUGH BETTER ROADS

## **THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED**

**BID NUMBER            NRA 2025/0069**

**CONTRACT SANRAL N.002-180-2018/1R**

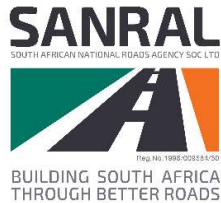
**FOR THE PROVISION OF WORK CONSTRUCTION  
SERVICES FOR THE UPGRADE ON NATIONAL ROUTE  
N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6)  
AND MTHATHA (KM 85.0) FOR A PERIOD OF FIFTY-  
THREE (53) MONTHS INCLUDING FIVE (5) MONTHS  
MOBILISATION**

**DATE: APRIL 2026**

**TENDER DOCUMENT  
VOLUME 3  
BOOK 3 OF 3**

**CHIEF EXECUTIVE OFFICER  
SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED  
48 TAMBOTIE AVENUE  
VAL DE GRACE  
PRETORIA, 0184**

**NAME OF TENDERER: .....**



**NRA 2025/0069**

**CONTRACT SANRAL N.002-180-2018/1R**

**FOR**

**FOR THE PROVISION OF WORK CONSTRUCTION SERVICES FOR THE UPGRADE ON NATIONAL ROUTE N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6) AND MTHATHA (KM 85.0) FOR A PERIOD OF FIFTY-THREE (53) MONTHS INCLUDING FIVE (5) MONTHS MOBILISATION**

**BASE DATE: APRIL 2026**

**TENDER DOCUMENT  
VOLUME 3  
BOOK 3 OF 3**

**PRICING DATA, SCOPE OF WORKS, PROJECT INFORMATION, ANNEXURES**

THIS DOCUMENT COMPILED UNDER THE DIRECTION OF THE PROVINCIAL HEAD

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED

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## LIST OF CONTRACT DOCUMENTS

The following documents form part of this contract:

Volume 1: The Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (1999), published by the Federation Internationale des Ingenieurs-Conseils (FIDIC) which the tenderer shall purchase himself.

Volume 2A: The COTO Standard Specifications for Road and Bridge Works for South African Road Authorities (Draft Standard October 2020 edition), issued by the Committee of Transport Officials which the tenderer shall obtain himself.

Volume 2B: SANS 1200: Standardised Specifications for Civil Engineering Construction (1990, including later editions and amendments).

Volume 2C: SANS 10098-1:2007 or as per latest amendments for South African National Roads Standard public lighting, together with:

- SANS 60598-1:2014 Edition 6 IEC 60598-1:2014 General requirements and tests on lights.
- SANS 10142-1 and SANS 10142-2 Part 2: Medium-voltage installations above 1 kV a.c. not exceeding 22 kV a.c. and up to and including 3 MVA installed capacity.

Volume 3: The Project Document, containing the tender notice, Conditions of Tender, Tender Data, Returnable Schedules, general and particular conditions of contract, project specifications, Pricing Schedule, Form of offer and Project Information is issued by the Employer (see note 3 below). The Employer's Form of Acceptance and any correspondence from the selected tenderer, performance security-demand guarantee, and all addenda issued during the period of tender will also form part of this volume once a successful tenderer has been appointed.

The conditions of tender are the standard conditions of tender as indicated in Book 1.

Volume 4: The road works drawings.

Volume 5: The structural drawings.

Volume 6: Materials investigation and utilisation.

Volume 7: Environmental Management Plan report.

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## **PART C2: PRICING DATA**

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**PART C2: PRICING DATA**

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## C2.1 PRICING INSTRUCTIONS

C2.1.1 Measurement and payment shall be in accordance with the relevant provisions of Chapter 1, Section C1.1 of the COTO Standard Specification for Road and Bridge Works for South African Road Authorities (Draft Standard October 2020 edition) or as amended in the Scope of Works.

C2.1.2 The units of measurement described in the Pricing Schedule are metric units. Abbreviations used in the Pricing Schedule are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
m <sup>2</sup>	=	square metre
m <sup>2</sup> -pass	=	square metre-pass
m <sup>3</sup>	=	cubic metre
m <sup>3</sup> -km	=	cubic metre-kilometre
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC Sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1000kg)
W/day	=	Work day

C2.1.3 For the purpose of the Pricing Schedule, the following words shall have the meanings assigned to them:

Unit:	The unit of measurement for each item of work as defined in the COTO Standard Specification for Road and Bridge Works for South African Road Authorities (Draft Standard October 2020 edition).
Quantity:	The number of units of work for each item.
Rate:	The payment per unit of work for which the Service Provider tenders to do the work.
Amount:	The product of the quantity and the rate tendered for an item.

C2.1.4 Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

C2.1.5 It will be assumed that prices included in the Pricing Schedule are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to [www.sabs.co.za](http://www.sabs.co.za) for information standards)

C2.1.6 The prices and rates in the Pricing Schedule are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that

may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out. The Contractor shall submit to the Engineer within 28 days after the Commencement Date a full breakdown of all rates. The rates are to be clearly referenced to the relevant pay item numbers, with each rate broken down into its labour, materials, plant, fuel, overhead charges and profit components.

- C2.1.7 Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items.
- C2.1.8 A single lump sum will apply should a number of items be grouped together for pricing purposes.
- C2.1.9 The quantities set out in the Pricing Schedule are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Pricing Schedule.
- C2.1.10 Reasonable compensation will be received where no pay item appears in the Pricing Schedule in respect of work required in terms of the Contract and which is not covered in any other pay item.
- C2.1.11 The short descriptions of the items of payment given in the Pricing Schedule are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
- C2.1.12 The item numbers appearing in the Pricing Schedule refer to the corresponding item numbers in the COTO Standard Specification for Road and Bridge Works for South African Road Authorities (Draft Standard October 2020 edition). Where a standard COTO pay item is amended or a new pay item added, the item number is preceded by the letter "P" in the Pricing Schedule.
- C2.1.13 The pricing schedules are provided electronically. A printout of the entire completed pricing schedule must be signed and scanned and saved in .pdf format, and an electronic copy of the priced pricing schedule must be saved in Excel format and the printed copy bound. In the event of any discrepancy between the signed .pdf copy, and the electronically submitted copy in Excel format and the printed hard copy, the tender rates in the printed hard copy will govern. The item numbers and description of the printed hard copy document will govern. For all addenda issued relating to the pricing schedule, the item numbers, description and quantities of the issued document will govern.

## **C2.2      PRICING SCHEDULE (INCORPORATING SBD3)**

# **SCHEDULE A**

## **ROADWORKS**

**Note to tenderer:**

**Schedule A is contained in the Pricing Schedule in Excel format distributed as part of Volume 3 of the Tender Documents.**

## **SCHEDULE B**

### **BRIDGES**

**Note to tenderer:**

**Schedule B is contained in the Pricing Schedule in Excel format distributed as part of Volume 3 of the Tender Documents.**

# **SCHEDULE C**

## **CULVERTS**

**Note to tenderer:**

**Schedule C is contained in the Pricing Schedule in Excel format distributed as part of Volume 3 of the Tender Documents.**



## **SCHEDULE D**

### **STAKEHOLDER AND COMMUNITY LIAISON, AND TARGETED LABOUR AND TARGETED ENTERPRISES UTILISATION AND DEVELOPMENT**

**Note to tenderer:**

Schedule D is contained in the Pricing Schedule in Excel format distributed as part of Volume 3 of the Tender Documents.

## **SCHEDULE E**

### **MSE WALLS-E1/MEDIAN BARRIERS-E2**

**Note to tenderer:**

**Schedule E is contained in the Pricing Schedule in Excel format distributed as part of Volume 3 of the Tender Documents.**

# **SCHEDULE F**

## **STREET LIGHTING**

**Note to tenderer:**

**Schedule F is contained in the Pricing Schedule in Excel format distributed as part of Volume 3 of the Tender Documents.**

## CALCULATION OF TENDER SUM

## C2.3SUMMARY OF PRICING SCHEDULE

### CONTRACT SANRAL N.002-180-2018/1R

**THE PROVISION OF WORK CONSTRUCTION SERVICES FOR THE UPGRADE ON NATIONAL ROUTE N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6) AND MTHATHA (KM 85.0) FOR A PERIOD OF FIFTY-THREE (53) MONTHS INCLUDING FIVE (5) MONTHS MOBILISATION**

SCHEDULE	DESCRIPTION	AMOUNT R
SCHEDULE A1:	ROADWORKS TOTAL	R
SCHEDULE A2:	ACCESS COLLECTOR ROADS	R
SCHEDULE B1:	VIEDGESVILLE PEDESTRIAN OVERPASS BRIDGE B0669 @ KM 67.221	R
SCHEDULE B2:	QOKANA PEDESTRIAN OVERPASS BRIDGE B0670 @ KM 68.883	R
SCHEDULE B3:	MBANE PEDESTRIAN OVERPASS BRIDGE B0671 @ KM 71.642	R
SCHEDULE B4:	NYANDENI PEDESTRIAN OVERPASS BRIDGE B0672 @ KM 74.236	R
SCHEDULE B5:	PAYNE PEDESTRIAN OVERPASS BRIDGE B0673 @ KM 75.103	R
SCHEDULE B6:	MAQHINEBENI UNDERPASS BRIDGE B0674 @ KM 68.193	R
SCHEDULE B7:	QWE-QWE UNDERPASS BRIDGE B0675 @ KM 72.504	R
SCHEDULE B8:	PAYNE PORTAL UNDERPASS BRIDGE B0676 @ KM 75.875	R
SCHEDULE B9:	PAYNE FARM PORTAL UNDERPASS BRIDGE B0677 @ KM 77.153	R
SCHEDULE B10:	IAN WOODS ROAD OVER RAIL BRIDGE B0678 @ KM 78.450	R
SCHEDULE C1:	PEDESTRIAN UNDERPASS CULVERT C0936 @ KM 66. 402	R
SCHEDULE C2:	CATTLE CREEP CULVERT C0941 @ KM 69.618	R
SCHEDULE C3:	AGRICULTURAL UNDERPASS C0937 @ KM 70.773	R
SCHEDULE C4:	AGRICULTURAL UNDERPASS C0943 @ KM 74.598	R
SCHEDULE D:	STAKEHOLDER AND COMMUNITY LIAISON, AND TARGET LABOUR AND TARGETED ENTERPRISES UTILISATION AND DEVELOPMENT	R
SCHEDULE E1:	MSE WALLS, PARAPET AND PARAPET FOUNDATION NWTN1	R
SCHEDULE E2:	CONCRETE MEDIAN BARRIERS (INCLUDING LIGHT MAST FITTINGS) NWTN2	R
SCHEDULE F:	STREETLIGHTING	R
<b>SUBTOTAL A</b>		<b>R</b>
CONTRACT SKILLS DEVELOPMENT GOAL 0.25% of Subtotal A		R
<b>SUBTOTAL B</b>		<b>R</b>
VALUE ADDED TAX 15% of Subtotal B		R
<b>TOTAL CARRIED TO C.1.1.1: FORM OF OFFER</b>		<b>R</b>

SIGNED BY TENDERER: .....

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## **PART C3: SCOPE OF WORKS**

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**PART C3: SCOPE OF WORKS**

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#### **SECTION A1: STANDARD AMENDMENTS ISSUED BY COTO**

**Notes to tenderer:**

- 1. The Standard Specifications for Road and Bridge Works for South African Road Authorities (Draft Standard October 2020 edition) prepared by the Committee of Transport Officials, (COTO), as amended, shall apply to this contract. The amendments are those issued by COTO and reproduced in Section A1, together with additional amendments as set out in Section A2 and Project specific Specification Data as set out in Section B.**

As at APRIL 2026 no amendments have been issued.by COTO.



SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED

CONTRACT SANRAL N.002-180-2018/1R

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**SECTION A2: PROJECT SPECIFICATION AMENDMENTS TO THE COTO STANDARD SPECIFICATIONS**

**Notes to tenderer:**

1. This Section A2 contains amendments to the Standard Specification, including additional clauses, amendment to clauses or deletion of clauses and specifications, required for this particular contract. Where the Standard Specifications allow a choice to be specified in the Contract Documentation or Project Specifications, between alternative materials or methods of construction, and for additional requirements to be specified to suit a particular contract, these selections are not made in this Section A2. Details of such alternatives or additional requirements applicable to this contract are contained in Section B: Specification Data. Section B also contains project specific sections for Sections C, D and E.
2. The number of each clause and each payment item in this part of the project specifications follows the numbering format of the standard specifications.

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## **COTO CHAPTER 1: GENERAL**

### **SECTION 1.1: GENERAL PREAMBLE**

#### **PART A: SPECIFICATIONS**

##### **A1.1.2 DEFINITIONS**

*Replace the Definition for "Site / Site of the Works" with the following:*

"Site / Site of the Works - shall mean the entire road reserve (both new and existing), inclusive of road junctions and property accesses, required for construction of the Works as defined by the limits of construction given in the Contract Documentation. It shall also include areas within statutory building lines where work has to be carried out and any additional lengths of road required for the placement of advanced warning road signs and/or traffic accommodation measures beyond the limits of construction as shown on the drawings. The Site shall also include areas outside of the road reserve required for Construction camps, Engineer's site facilities, Borrow pit areas or quarry areas, haulage and access roads, temporary deviations, storage areas, spoil areas and stockpile areas. The exact extent of the limits of the construction will be verified once the Site is handed over to the Contractor."

#### **PART C: MEASUREMENT AND PAYMENT**

##### **C1.1.3 PAYMENT**

###### **C1.1.3.5 Payment for materials on the Site**

*In the last sentence of the 1<sup>st</sup> paragraph, delete the following:*

" , or, in the case of crushed stone which has not been purchased but has been produced on the site, at 80% of a fair evaluation of such crushed material".

*Add the following new subclauses:*

###### **"C1.1.3.9 Reduced payments for substandard work**

Where provision for reduced payments for sub-standard work is made in the Contract Documentation, acceptance of reduced payment for substandard work may be accepted by the Engineer subject to prior approval by the Employer.

###### **C1.1.3.10 Procurement of sub-services and omitted rates (Second tier procurement)**

Second tier procurement include the procurement of any work where either the particulars of the work is not scheduled and priced, or where the process of procurement of the sub-service provider is specified elsewhere in the contract specification. It include the procurement of work where rates have been omitted or where allowance for the work is made under a Provisional sum or Prime cost sum item or where allowance for the work is made under a Provisional sum or Prime cost sum item but the particulars of the work is not scheduled, or where work is instructed under clause 13[Variations and Adjustments] or where work is to be performed by Targeted Enterprises.

The following procurement methods is to be followed as appropriate:

- a) **Where the particulars of the work is not scheduled but existing rates for similar work exist in the contract and the work can therefore be executed by the contractor or his sub-contractor at the existing contract rates.**

No separate procurement process is required. The work is to be quantified and scheduled utilising existing rates and approved through the Works Authorisation process.

- b) **Where the payment calculation is based on a formula specified in the contract document, or where the payment rate is pre-determined or fixed by the client.**
- No separate procurement process is required. The work is to be quantified and approved through the Works Authorisation process.
- c) **Where the supplier is not selected by the contractor and actual cost is reimbursable and/or no procurement process is possible.**
- No separate procurement process is required. The work is invoiced by supplier on completion and approved through the Works Authorisation process at the end of the contract.
- d) **Where there are omitted items as part of the existing scheduled scope of work and no existing rates for similar work exist in the contract, or where there are no existing rates for the materials to be supplied and suitable rates for material to be determined.**
- A proposal for a new rate shall be submitted by the contractor and evaluated by the engineer, by comparing with either adjusted relevant rates in the contract, or by comparing with similar rates on similar contracts, or by comparing three informal quotes to substantiate the rate. The new agreed rate is approved through the Works Authorisation process.
- e) **Where the particulars of the work is not scheduled and the estimated cost of the work (including VAT and excluding Contract Price Adjustment) is equal or less than R1,000,000.00 and there are no existing rates for similar work and the contractor's proposal submitted in terms of FIDIC Variation 13.1 is not accepted and the work is to be performed by a sub-contractor.**
- A minimum of three quotations shall be obtained from Targeted Enterprises (as defined in Section D1000). The following is the minimum requirements for this process:
- Prequalification for Targeted Enterprise. (Approval to deviate must be granted by the Employer, based on market research)
  - Quotation to include form of quotation, CSD registration, CIDB (where applicable),
- A Works Authorisation shall be approved prior to execution of the work.
- f) **Where the particulars of the work is not scheduled and the estimated cost of the work is more than R1,000,000.00 (including VAT and excluding Contract Price Adjustment) and there are no existing rates for similar work and the contractor's proposal submitted in terms of FIDIC Variation 13.1 is not accepted and the work is to be performed by a sub-contractor.**
- The work is to be procured through a tender process. The following is the minimum requirements for this process:
- Prequalification for Targeted Enterprise. (Approval to deviate must be granted by the Employer, based on market research)
  - Tenders to close at the relevant site offices at a specific date and time
  - Tender documents to include form of Offer, CSD registration, Tax compliance, CIDB (where applicable), SBD1, SBD 4, SBD 6.2, BEE certificate, Form A2.2
  - Tenders to be evaluated on price and preference
  - Evaluation by contractor for review by engineer
- A Works Authorisation shall be approved prior to execution of the work.
- g) **Where the particulars of the work is identified by the contractor to be performed by subcontractors who are Targeted Enterprises to form part of the specified Contract Participation Goals for Targeted Enterprises.**

The work is to be procured as per the process specified in clause D1007.

- h) **Where the work is unforeseen, urgent and the relevant procurement method as indicated above will result in a delay to the contract and payment for a claim for extension of time and/or cost, or where the above procurement methods are not applicable or cannot fully be complied with.**

The Employer will determine the most appropriate procurement process to be followed and approved through the Works Authorisation process."

## **SECTION 1.2: GENERAL REQUIREMENTS AND PROVISIONS**

### **PART A: SPECIFICATIONS**

#### **A1.2.3 GENERAL**

##### **A1.2.3.15 Routine maintenance**

*Add the following new paragraphs:*

"The Contractor's responsibility for routine maintenance on this contract is indicated in the Contract Documentation."

The backfilling for patching shall be done as indicated in the Contract Documentation.

The riding quality of gravel deviations shall comply with the requirements indicated in the Contract Documentation."

*Add the following new subclause after A1.2.3.23:*

##### **"A1.2.3.24 Reference Manuals, other specifications and test methods**

In various chapters of this Standard Specification, reference is made to Manuals, other specifications and test methods. If not otherwise indicated in the Contract Documentation, the latest published Manual, other specification and test methods at the time of close of tender will apply. Any changes to be implemented on a project as a result of revisions to manuals, other specifications and test methods, will be handled in terms of the Conditions of Contract.

Certain TRH and TMH documents are published as Sabita Manuals/TRH or Sabita Manuals/TMH publications. Where reference is made to the TRH or TMH document, it shall be read as referring to the latest version of the Sabita Manual/TRH publication or Sabita Manual/TMH publication, respectively."

#### **A1.2.7 EXECUTION OF THE WORKS**

##### **A1.2.7.1 Programme of work**

###### **a) General**

*Add the following new paragraphs:*

"The contractor shall note that the examination of a road with a view to rehabilitation is normally undertaken a considerable period of time before the commencement of the contract, and that conditions may subsequently change. The engineer will make further examinations during the period of contract, and, depending on the results of such examinations, the quantities of any items of work may be drastically increased or decreased.

The contractor shall base his initial programme for road rehabilitation on the scope of the work as described in the project specifications on the quantities contained in the Pricing Schedule (Part C2)."

*Add the following new sub-clause (e):*

**“e) Specified programmed activities**

Where specific activities are indicated in the Contract Documentation to be completed within a specified duration or by a specified date, the Contractor shall programme and complete the items of Work as specified. Failure to comply will result in intra-programme charges.”

**PART C: MEASUREMENT AND PAYMENT**

**(ii) Items that will not be measured separately**

*Replace the wording of item 8 with the following:*

“8. The design of all temporary work and the construction of all temporary work, unless otherwise indicated in the Contract Documentation.”

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

<b>C1.2.7</b>	<b>Road safety audits</b>
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*In the wording of item C1.2.7.2, replace “C1.2.6.1” with “C1.2.7.1”.*

*In the wording of item C1.2.7.4, replace “C1.2.6.3” with “C1.2.7.3”.*

*In the 4<sup>th</sup> paragraph of the item description, replace “C1.2.7.2” with “C1.2.7.3”.*

*Add the following new pay items:*

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

<b>C1.2.10</b>	<b>Dispute Adjudication Board (DAB)</b>
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C1.2.10.1	Employer’s contribution to DAB (50%) .....prime cost (PC) sum
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The unit of measurement for item C1.2.10.1 is the prime cost sum. Payment of the prime cost sum shall be in terms of FIDIC Clause 13.5 for 50% of the amounts invoiced from the appointed DAB. No sum for overhead charges and profit in terms of FIDIC Clause 13.5(ii) is payable for this item.

**SECTION 1.3: CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS**

**PART C: MEASUREMENT AND PAYMENT**

Item	Unit
------	------

**C1.3.1 The Contractor's general obligations**

*Delete subitem C1.3.1.3 and replace with the following:*

"C1.3.1.3 Time related obligations:  
a) Mobilisation period ..... month  
b) Execution of the works ..... month"

*Add the following pay subitems:*

"C1.3.1.4 Suspension Cost  
a) De-establishment ..... Number  
b) Re-establishment ..... Number  
c) Suspension period ..... month  
d) Engineer's cost ..... prime cost sum (PC) sum  
e) Handling cost, profit and all other charges in respect  
of item C1.3.1.4(d) ..... percentage

*Add the following pay subitems:*

"C1.3.1.5 Transportation of Local Labour  
a) To and from site on working days ..... Month  
b) On and around site on working days ..... Month"

C1.3.1.6 Provision of Site Security Services  
a) 24 hour security for protection of the works and personnel on site and  
at site offices ..... Month

*Under the heading "Item C1.3.1.3", delete the 2<sup>nd</sup> paragraph and replace with the following:*

"The contract rate shall include full compensation for that part of the Contractor's general obligations which are mainly a function of construction time. The contract rate shall be deemed to include, leasing costs, hire costs or cost of ownership per month for Contractor's Equipment. For subitem C1.3.1.3(a) the contract rate will be paid monthly, pro rata for parts of a month, from the Commencement Date in terms of the Contract Documentation until the end of the Mobilisation Period. The rate tendered under subitem C1.3.1.3(a) shall represent full compensation for all Costs during the Mobilisation Period, and no other monthly Costs shall be payable. For subitem C1.3.1.3(b) the contract rate will be paid monthly, pro rata for parts of a month, from the end of Mobilisation Period until the end of the original Contract Period specified for completion of the Works."

*Add the following new paragraphs:*

"Item C1.3.1.4

The rates tendered under subitem C1.3.1.4 shall represent full compensation for all Costs for Suspension of Work and all Costs during Suspension of Works period, and no other Costs (including other monthly costs) shall be payable.

Payment of subitems C1.3.1.4(a) and C1.3.1.4(b) shall be made for the number of de-establishments and re-establishments of all Personnel and Goods (Contractor's Equipment, Materials, Plant and Temporary Works) as instructed by the Engineer. Payment of subitems C1.3.1.4(a) and C1.3.1.4(b) shall not apply during the Mobilisation Period.

Payment of subitem C1.3.1.4(c) shall be made monthly, pro rata for parts of a month, from the date on which the Contractor has suspended progress of all of the Works in terms of

Conditions of Contract clause 8.8 and commenced with de-establishment of the site, until permission or instruction to proceed in terms of Conditions of Contract clause 8.12 is given. Payment of subitem C1.3.1.4(c) shall not apply during the Mobilisation Period.

The Prime cost sum in subitem C1.3.1.4(d) is provided to cover the cost of the Engineer during the period of suspension of the works. The amounts certified by the Employer shall be made to the Engineer, within 30 days of it being certified by the Employer.

The percentage under item C1.3.1.4(e) is a percentage of the amount spent under item C1.3.1.4(d) which shall include full compensation for all handling costs, profit and all other charges in connection with arranging payment to the Engineer.”

Item C1.3.1.5

The tendered rates for sub-item C1.3.1.5 (a) and (b) shall include full compensation for all transport related costs, together with handling costs and profit for the Contractor, associated with the Transportation of Local Labour, and no additional costs shall be payable. The Contractor is encouraged to engage with local Taxi Associations in providing this service and to tender market related rates. Tendering of unbalanced rates for these sub-items will not be condoned and should the Tenderer not elect not to accept the proposed rebalancing, the Tenderer will be declared non-responsive per Clause C.3.9.4 of the tender Data.”

Item C1.3.1.6

The tendered rates for sub-item C1.3.1.5 (a) shall include full compensation for costs associated with the provision of site security, together with handling costs and profit for the Contractor associated with the provision of 24 hour security for protection of the works and personnel on site and at site offices, and no additional costs shall be payable.

**SECTION 1.4: FACILITIES FOR THE ENGINEER**

**PART A: SPECIFICATIONS**

**A1.4.3 GENERAL**

*In the 7<sup>th</sup> paragraph, delete:* “All the site accommodation, laboratory and office buildings shall be provided as soon as possible after the Contractor has been given possession of the site of the Works and not later than six weeks after the Contract commencement date.”,

*and replace with the following:* “All the site accommodation, laboratory and office buildings shall be provided as soon as possible after the Contractor has been given possession of the site of the Works but not later than six weeks after the Letter of Access has been issued.

**A1.4.7 EXECUTION OF THE WORKS**

**A1.4.7.1 Offices and laboratories**

**b) Offices**

*Insert the following new sub-clause:*  
“ • Where required by the Engineer, the Contractor shall provide and install a a large screen, 65” television in the board room. The television shall be wall mounted.”.

**PART C: MEASUREMENT AND PAYMENT**

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

<b>C1.4.3</b>	<b>Items measured by numbers</b>
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*Add the following new subitem C1.4.3.39:*

“C1.4.3.39 Large screen (65”) television .....	number (No)”
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**SECTION 1.5: ACCOMMODATION OF TRAFFIC**

**PART A: SPECIFICATIONS**

**A1.5.7 EXECUTION OF THE WORKS**

**A1.5.7.10 Construction of temporary deviations**

**a) General**

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

“The proposed location, layout, temporary drainage, earthworks, pavement layers, surfacing and ancillary works details of all temporary deviations, including the signage and road marking required, shall be agreed with the Engineer before construction of any temporary deviation commences.”.

**b) Drainage works for temporary deviations**

*In the 2<sup>nd</sup> paragraph in the 1<sup>st</sup> sentence delete “specified” and replace with: “approved”.*

**g) Removal of temporary deviations**

*Add the following to the end of the 1<sup>st</sup> paragraph:*

“After removal of the temporary deviation the final levelling and scarifying of the deviation area shall be carried out as specified in Clause A11.9.7.2.”

**PART C: MEASUREMENT AND PAYMENT**

**(iii) Items to be measured and paid for using items specified elsewhere in the specifications**

*In Table C1.5-1 for the “Temporary deviations” Activity, add reference to “A1.5.7.10” under Section 1.5 reference, and add reference to “Chapter 11” under Section item reference.*

Item	Unit
------	------

**C1.5.4 Construction of temporary deviations**

*In the last sentence of the item description, after the words “...include full compensation for the”, add the following: “design and the”.*

Item	Unit
------	------

**C1.5.6 Removal of temporary deviations**

*Add the following at the end of the item description:*

“After removal of the temporary deviation the final levelling and scarifying of the temporary deviation area shall be measured and paid for under pay item C11.9.2.”

**SECTION 1.6: CLEARING AND GRUBBING**

**PART C: MEASUREMENT AND PAYMENT**

**(iii) Items to be measured and paid for using items specified elsewhere in the specifications**

*In Table C1.6-1 for the Preparation of topsoil stockpile sites activity, delete reference to “Chapter 11” and replace with “Chapter 4”.*

## COTO CHAPTER 2: SERVICES

### PART A: SPECIFICATION

#### A2.1.3 GENERAL

##### A2.1.3.2 Location, identification, protection and relocation of existing services

###### b) Location of existing services

*The lead times required to make the necessary arrangements for the protection, removal or relocation of services which the Contractor shall allow are as follows:*

*i) Lifting or relocation of Telkom and Electrical lines:*

*10 months made up as follows*

- 2 months to locate and confirm positions*
- 1 month to prepare and submit wayleave application*
- 1 month for wayleave approval*
- 6 months for relocation*

*ii) Relocation of large diameter watermain crossing or running alongside the road:*

*11 months made up as follows*

- 2 months to locate and confirm positions*
- 1 months to prepare and submit wayleave application*
- 1 months for wayleave approval*
- 6 months for relocation*

All known services on the N2 Peri-urban section, including those requiring removal, realignment, temporary replacement or raising are indicated within Tables **A2.1.3/1 /1A and B** below. **Known services along the Urban Section are included in Appendix 11.**

**Table A2.1.3/1A Water infrastructure along the N2 Peri-urban Section**

start (km)	End (km)	SERVICE	SERVICE OWNER	DESCRIPTION	ACTION REQUIRED
69.2	69.2	Bulk Water	Amatola Water/OR Tambo DM	500mm diameter steel pipeline in 1370mm concrete pipe sleeve	Identify pipe, confirm position per wayleave and that there is no clash with design.
79.43	79.43	Bulk Water	Amatola Water/OR Tambo DM	600mm diameter steel pipeline in 1370mm concrete pipe sleeve	Identify pipe and confirm position per wayleave and that there is no clash with design.

**Table A2.1.3/1B Power lines along N2 Peri-urban Section**

Chainage	Position	Service type	Identity number	Action
km 65.72 to km 65.83	Longitudinal/ crossing	ESKOM	As indicated on utility services drawings	Check height clearance and lift/relocate if necessary. Reloca te poles and services where necessary as indicated on utility services drawings
KM 74.72	Crossing	ESKOM	As indicated on utility drawings	Check height clearance and

				lift/relocate if necessary.
<b>Chainage</b>	<b>Position</b>	<b>Service type</b>	<b>Identity number</b>	<b>Action</b>
km 75.74 to km 76.26	Longitudinal/crossing	ESKOM	As indicated on utility services drawings	Check height clearance and lift/relocate if necessary. Relocate poles and services where necessary as indicated on utility services drawings

**COTO CHAPTER 3: DRAINAGE**

**SECTION 3.1: DRAINS**

**PART C: MEASUREMENT AND PAYMENT**

Item	Description	Unit
------	-------------	------

<b>C3.1.5</b>	<b>Impermeable backfilling to subsoil drainage systems</b>	
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*In item C3.1.5.2, replace: "G5 material", with: "G5A material".*

**SECTION 3.2: CULVERTS**

**PART C: MEASUREMENT AND PAYMENT**

Item	Description	Unit
------	-------------	------

<b>C3.2.2</b>	<b>Backfilling</b>	
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C3.2.2.3	Extra over sub-items C3.2.2.1 and C3.2.2.2 for soil cement backfilling	
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*In sub-item (a), delete "of 3% cement".*

*In sub-item (b), delete "of 3% cement".*

Item	Description	Unit
------	-------------	------

<b>C3.2.13</b>	<b>Removing and relaying existing culverts</b>	
----------------	--	--

*In the 2<sup>nd</sup> paragraph of the item description, delete the wording:  
"transporting for a haul distance within 5,0 km without additional payment,"  
and replace with the following:  
"transporting over a distance of less than and up to 1,0 km,"*

**COTO CHAPTER 4: EARTHWORKS AND PAVEMENT LAYERS: MATERIALS**

**SECTION 4.1: BORROW MATERIALS**

**PART A: SPECIFICATIONS**

**A4.1.7 EXECUTION OF THE WORKS**

**A4.1.7.2 Borrow pit and quarry operations**

**b) Classes of excavation**

*(iv) Hard excavation*

*In the 2<sup>nd</sup> bullet after: "Ripping with a bulldozer" add the following:*

"Ripping shall be carried out typically on moderately weathered soft rock (soft rock as defined in Section 12.1 Table A12.1.7-1) that can be efficiently ripped by a bulldozer with a weight of at least 35 tons and minimum nett power of 220 kW."

**SECTION 4.2: CUT MATERIALS**

**PART A: SPECIFICATIONS**

**A4.2.3 GENERAL**

**A4.2.3.2 Contractor prepared plans for cuttings**

*In 1<sup>st</sup> paragraph at the end of the last sentence, add the following as part of the last sentence:*

*" , unless otherwise indicated in the Contract Documentation."*

**SECTION 4.4: COMMERCIAL MATERIALS**

**PART A: SPECIFICATIONS**

**A4.4.7 EXECUTION OF THE WORKS**

**A4.4.7.1 Selection (design) of the stabilising agent content**

**c) Cementitious stabilising agent for chemical stabilisation**

**Step 2: Determine the Initial Consumption of Stabiliser (ICS) of the material.**

*Add the following after the 1<sup>st</sup> paragraph:*

"The ICS shall be determined for more than one stabilizer agent and the stabilizer agent to be utilised in Step 3 shall be selected by the Engineer based on the ICS results."

## COTO CHAPTER 5: EARTHWORKS AND PAVEMENT LAYERS: CONSTRUCTION

### SECTION 5.3: ROAD PAVEMENT LAYERS

#### PART A: SPECIFICATION

#### A5.3.8 WORKMANSHIP

##### A5.3.8.4 Construction tolerances for pavement layers

*Add the following as a new sub-clause:*

##### “f) Surface texture

The maximum volumetric texture depth (measured as described in SANS 3001-BT11) of the base, shall be as specified in Table A5.3.8-7, for the different seal types or asphalt wearing course to be placed on the base.

**Table A5.3.8-7: Maximum texture of base**

Surfacing type	Max texture depth of the base
Single seal with 10 mm aggregate	0,8
Single seal with 10 mm aggregate (with cover spray)	1,0
Single seal with 14 mm aggregate	0,8
Single seal with 14 mm aggregate (with cover spray)	1,5
Single seal with 14 mm aggregate (with Bitumen rubber)	1,2
Double seal with 10 mm aggregate and sand	1,0
Double seal with 14 mm aggregate and sand	1,5
Cape Seal with 10 mm aggregate and one layer of slurry	1,5
Cape Seal with 14 mm aggregate and one layer of slurry	2,0
Cape Seal with 20 mm aggregate and two layers of slurry	2,5
Double seal with 14 mm aggregate and a layer of 7 mm aggregate	1,5
Double seal with 14 mm aggregate and a layer of 5 mm aggregate	1,5
Double seal with 20 mm aggregate and a layer of 10 mm aggregate	2,0
Double seal with 20 mm aggregate and a layer of 7 mm aggregate	2,0
Double seal with 20 mm aggregate and two layers of 7 mm aggregate	1,5
Asphalt wearing course	2.5

##### A5.3.8.5 Surface regularity

*Add the following to the 1<sup>st</sup> paragraph:*

“The surface regularity shall be assessed on the final prepared layer after all excess fines have been swept off the surface.”

##### c) By using a profiler

*Below Table A5.3.8-6, add the following notes:*

“Notes:

1. The applicable Adjustment factors are indicated in the Contract Documentation.
2. Adjustment factors for “Reworked or Recycled Base” is applicable where only the base layer is reworked or recycled.
3. Adjustment factors for “Recycle existing layers and new base layer” is applicable where one or more of the existing layers is reworked or recycled and a new base layer is imported.
4. Adjustment factors for “New pavement construction” is applicable where two or more new pavement layers are imported.”

*In the paragraph following Table A3.5.8-6, delete the following: " for payment items \*\*\* ", and replace with the following: "for payment items as specified in the Contract Documentation".*

*In the last paragraph, delete the following: "(\*\*\*Note to compiler: Insert the relevant base layer construction pay items but exclude pay items for additives such as cement and bitumen)".*

**COTO CHAPTER 8: PRETREATMENT AND REPAIR OF EXISTING LAYERS**

**SECTION 8.1: PRIME COAT**

**PART A: SPECIFICATION**

**A8.1.5 MATERIALS**

**A8.1.5.1 Bituminous material**

*In Table A8.1.5-1 Delete “the excavated area” in the table caption and heading.*

*In the paragraph after Table A8.1.5-1, add “or subbase” after “base”.*

**A8.1.8 WORKMANSHIP**

**A8.1.8.2 Testing**

*Replace the last sentence of the 1<sup>st</sup> paragraph with the following: “Unless agreed in advance and in writing, the Contractor shall only spray when the Engineer’s representative is present.”*

**COTO CHAPTER 9: ASPHALT LAYERS**

**SECTION 9.1: ASPHALT LAYERS**

**PART A: SPECIFICATION**

**A9.1.5 MATERIALS**

**A9.1.5.4 Aggregates**

**a) Aggregate properties**

*In the 1<sup>st</sup> paragraph, delete the 2<sup>nd</sup> sentence: “Coarse and fine aggregate shall be clean and free from decomposed materials, vegetable matter or any other deleterious substances, and shall meet the requirements listed in Table A9.1.5-1 below unless otherwise specifically stated in the Contract Documentation.”, and replace with the following:*

*“Coarse and fine aggregate shall be clean from excess dust and free from decomposed materials, vegetable matter and any other deleterious substances such as clay lumps and organic matter and shall meet the requirements listed in Table A9.1.5-1 below unless otherwise specifically stated in the Contract Documentation.”.*

**A9.1.8 WORKMANSHIP**

**A9.1.8.4 Surface regularity**



**a) Measured using inertial laser profilometers**

*In the 6<sup>th</sup> paragraph add the following prior to “The applicable Full Payment Bracket ...”:*

“For the Asphalt Base the values in Payment Bracket 6 in Table A9.1.8-3 shall be applied as the payment adjustment factors for the Asphalt Base on the contract or section, and for the Asphalt Surfacing”.

*In the 6<sup>th</sup> paragraph add the following after “...assessment of the base as per Clause A5.3.8.5c) of Chapter 5 for granular bases”:*

“, and this clause A9.1.8.4a) for Asphalt bases.”

*In the 7<sup>th</sup> paragraph, delete: “under 1”.*

*Add the following after the 8<sup>th</sup> paragraph:*

“Where the asphalt surfacing is placed on a surface, other than a granular or asphalt base, constructed by the Contractor through mill and replace or patching, the surface regularity of the replaced or patched surface shall be measured before the surfacing is placed. Should the IRI values per 100m section so determined be better than the IRI values of the original surfacing for the particular 100m section, the measured values shall be used for the  $IRI_{b\ Ave}$  in the above calculation. Should the IRI values per 100m section so determined be worse than the IRI values of the original surfacing for the particular 100m section, the IRI values of the original surfacing shall be used for the  $IRI_{b\ Ave}$  in the above calculation.”

*In the 9<sup>th</sup> paragraph, delete “surfacing”.*

*For Table A9.1.8-3, delete “surfacing” in the heading and add the following additional Payment Bracket to Table A9.1.8-3*

"Target IRI <sub>100m Ave</sub> (m/km)	Payment Bracket 9
< 0.80	1.050
0.81 to 0.90	1.050
0.91 to 1.00	1.050
1.01 to 1.10	1.050
1.11 to 1.20	1.050
1.21 to 1.30	1.050
1.31 to 1.40	1.050
1.41 to 1.50	1.050
1.51 to 1.60	1.050
1.61 to 1.70	1.025
1.71 to 1.80	1.010
1.81 to 1.90	1.000
1.91 to 2.00	0,990
2.01 to 2.10	0,975
2.11 to 2.20	0,955
2.21 to 2.30	0,930
2.31 to 2.40	0,900
2.41 to 2.50	0.865
>2.51	Reject"

**PART C: MEASUREMENT AND PAYMENT**

**(iii) Items that will not be measured separately**

*Delete activity 6, and replace with the following:*

- "6. No separate payment will be made for transporting materials from commercial sources irrespective of the haul distance and no separate payment will be made for transporting asphalt from any source, irrespective of the haul distance."

<b>Item</b>	<b>Description</b>	<b>Unit</b>
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## COTO CHAPTER 10: SURFACE TREATMENTS

### SECTION 10.1: GENERAL REQUIREMENTS FOR SURFACE TREATMENTS

#### PART A: SPECIFICATION

##### A10.1.3 GENERAL

###### A10.1.3.2 Weather limitations

*In the 1<sup>st</sup> paragraph, add the following new sub-clause:*

- "If the permeability of the surface (utilising the Marvil test – SANS 3001-BT12) indicate medium or high permeability (i.e. the water level reached the 50mL mark within 3 minutes), no sealing shall be done for 1000°C.hours after rain."

*Delete the 1<sup>st</sup> sentence of the 2<sup>nd</sup> paragraph, and replace with the following:*

"No seal work will be allowed in the Seal Embargo Period defined in the Contract Documentation, unless otherwise specified in the Contract Documentation."

###### A10.1.3.14 Nominal rates of application for tender purposes

###### e) Nominal binder application and aggregate spread rates for Cape seals (Slurry component)

*Delete Table A10.1.3-7, and replace with the following:*

**"Table A10.1.3-7: Nominal spread rate of slurry for Cape seals**

Nominal size of aggregate (mm)	First layer of slurry (m <sup>2</sup> per m <sup>3</sup> )	Second layer of slurry (m <sup>2</sup> per m <sup>3</sup> )
20	190	365
14	200	-
10	335	-

###### g) Cover sprays

*Replace the 1<sup>st</sup> paragraph with the following:* "The nominal application rate of a diluted emulsion cover spray as specified, shall for tender purposes be 0,35 l/m<sup>2</sup> residual cold bitumen."

##### A10.1.5 MATERIALS

###### A10.1.5.7 Precoating fluid

*Add the following new paragraph:* "The precoating fluid shall be a low viscosity bitumen-based product containing petroleum cutters and a chemical adhesion agent. It shall comply with the specifications as provided in the SABITA Manual 30: Requirements for stone precoating fluids."

##### A10.1.6 CONSTRUCTION EQUIPMENT

###### A10.1.6.1 Binder distributor

*In the last paragraph replace the 1<sup>st</sup> sentence with the following:* "The transverse distribution of spray flares shall be field verified according to SANS 3001-BT25 and Clause A20.1.5.9 of Chapter 20 and by visual observations to ensure a uniform transverse distribution of binder."

###### A10.1.6.2 Chip spreaders

*In the last paragraph delete the 2<sup>nd</sup> bullet and replace with the following:*

"- of spreading Grade C aggregate, Graded aggregate and Sand- or Grit seals."

## PART C: MEASUREMENT AND PAYMENT

### (i) Preamble

*Add the following new paragraph:*

*"Items C10.1.27 and C10.1.28 are only applicable for bituminous surface treatments constructed in terms of Part D: Guarantees and Compliance Certificates."*

Item	Description	Unit
<b>C10.1.2</b>	<b>Single seals including a cover spray, if specified (indicate grade of aggregate and type of binder) spreading the aggregate by (state: walk behind spreader or by hand):</b>	

*Replace the 1<sup>st</sup> two item description paragraphs with the following:*

*"The unit of measurement for item C10.1.1 and C10.1.2 shall be square metre of completed and accepted seal in accordance with the approved method statement and additional instructions.*

*The nominal rates for single seals indicated in A10.1.3.14(a) and for cover sprays indicated in A10.1.3.14(g), shall apply."*

### **C10.1.3 Multiple stone seals including a cover spray, if specified using:**

*Replace the 1<sup>st</sup> sentence of the 2<sup>nd</sup> paragraph of the item description, with the following:*

*"The nominal rates for multiple stone seals indicated in A10.1.3.14(b) and for cover sprays indicated in A10.1.3.14(g), shall apply.*

### **C10.1.4 Embargo period effects**

*In the 1<sup>st</sup> paragraph of the item description, delete reference to: "C10.1.6.1", and replace with: "C10.1.4.1".*

*In the 2<sup>nd</sup> paragraph of the item description, delete reference to: "C10.1.6.2", and replace with: "C10.1.4.2".*

### **C10.1.6 Sand or Grit seals using (state: walk behind spreader or by hand):**

*Replace the 1<sup>st</sup> two item description paragraphs with the following:*

*"The unit of measurement for item C10.1.5 and C10.1.6 shall be square metre of completed and accepted seal in accordance with the approved method statement and additional instructions.*

*The nominal rates for sand or Grit seals indicated in A10.1.3.14(c) shall apply."*

### **C10.1.11 Application of cover spray**

*In the 2<sup>nd</sup> paragraph of the item description, delete reference to: "A10.1.3.15", and replace with: "A10.1.3.14".*

### **C10.1.12 Application of cover spray by hand**

*In the 2<sup>nd</sup> paragraph of the item description, delete reference to: "A10.1.3.15", and replace with: "A10.1.3.14".*



**PART C: MEASUREMENT AND PAYMENT**

Item	Unit
<b>C11.7.3 Thermoplastic road marking</b>	
<i>Amend the retro-reflective luminance unit to be “mcd/m<sup>2</sup>/lux”.</i>	

**COTO CHAPTER 12: GEOTECHNICAL APPLICATIONS**

**SECTION 12.5: SHOTCRETE**

**PART A: SPECIFICATION**

**A12.5.7 EXECUTION OF THE WORKS**

**Preconstruction trial panels**

*Add "A12.5.7.21" before the heading "Preconstruction trial panels".*

**PART C: MEASUREMENT AND PAYMENT**

**Item**

**Unit**

**C12.5.4 Shotcrete (of specified thickness or volume):**

*Amend the unit for item C12.5.4.4 Dental shotcrete, to "cubic metre (m<sup>3</sup>)".*

**SECTION 12.6: MECHANICALLY STABILISED EARTH AND GABIONS**

**PART A: SPECIFICATION**

**A12.6.8 WORKMANSHIP**

**A12.6.8.1 MSE Walls**

**b) Concrete facings**

*Replace the letter "W" with "durability" in the first sentence.*

**SECTION 12.10: HARD EXCAVATION BY BLASTING**

**PART A: SPECIFICATION**

**A12.10.5 MATERIALS**

**A12.10.5.1 Explosives**

**b) Controlled bulk blasting**

*Add the following at the end of the 2<sup>nd</sup> paragraph:*

*"The use of pumped emulsions for controlled bulk blasting will only be permitted if emulsion ingress into rock fissures is prevented and the emulsion is encapsulated and separated from the blast hole."*

**PART C: MEASUREMENT AND PAYMENT**

**Item**

**Unit**

**C12.10.1 Excavation in hard rock using controlled blasting techniques**

*Add the following at the end of the pay item specification:*

*"Where the excavated material is not to be utilised in earthworks or layerworks, the volume measured for payment shall be the tight volume of excavated material."*

*Add the following new pay item:*

**"Item**

**Description**

**Unit**

**C12.10.8 Ground vibration, air blast and fly rock monitoring**

**lump sum**

The unit of measurement for the monitoring as required shall be the lump sum.  
The tendered rate shall include for the monitoring of all blasts as per the specification and shall include the services of an independent specialist, providing and operating all equipment necessary to successfully monitor all blasting operations and for compilation of all reports.”

**SECTION 12.11: GEOSYNTHETICS**

**PART A: SPECIFICATION**

**A12.11.5 MATERIALS**

*Add the following sub-clause:*

**“A12.11.5.4 Grade Classification**

The Grade classification for Geosynthetics is specified in the Contract Documentation.”



**COTO CHAPTER 13: STRUCTURES**

**SECTION 13.1: FOUNDATIONS**

**PART B: LABOUR ENHANCEMENT**

**B13.1.7 EXECUTION OF THE WORKS**

**B13.1.7.4 Utilisation of excavated material**

*Delete reference to: "100 m" and replace with "50 m".*

**SECTION 13.3: STEEL REINFORCEMENT**

**PART A: SPECIFICATION**

**A13.3.8 WORKMANSHIP**

**A13.3.8.4 Tolerances**

**b) Concrete cover**

*Delete reference to "Clause A13.4.8.1a)(iv)" and replace with: "Clause A13.4.8.1a)(v)".*

**SECTION 13.4: CONCRETE**

**PART A: SPECIFICATION**

**A13.4.2 DEFINITIONS**

**Fresh phase of concrete**

*Add the following at the end of the definition of "Fresh phase of concrete":*

*"This is also known as the plastic phase."*

*Add the following definition between "Fresh phase of concrete" and "Hardened phase of concrete":*

**"Hydration or curing phase** – this is concrete that is no longer a semi-liquid but has not yet reached a solid state."

**A13.4.7 EXECUTION OF THE WORKS**

**A13.4.7.12 Placing and Compaction**

**b) Placing**

*Delete the 3<sup>rd</sup> sentence of the 1<sup>st</sup> paragraph and replace with the following:*

*"The Contractor shall not be permitted to pour unless the specific method statement for that pour has been accepted by the Engineer."*

**SECTION 13.7: JOINTS**

**PART A: SPECIFICATION**

**A13.7.4 DESIGN BY CONTRACTOR / PERFORMANCE BASED SYSTEMS**

**A13.7.7.4 Proprietary expansion joints**

**c) Installing the expansion joints**

*Delete the guarantee periods for the deck expansion joints, and replace with the following guarantee periods:*

“Proprietary joints - 15 years  
Asphalt plug type joints - 10 years  
Elastomeric glands - 15 years”.

**SECTION 13.8: ANCILLARY STRUCTURAL ELEMENTS**

**PART A: SPECIFICATION**

**A13.8.7 EXECUTION OF THE WORKS**

**A13.8.7.2 Drainage for structures**

**d) Crushed stone in drainage strips behind walls**

*Delete “19 mm nominal size” and replace with “20 mm nominal size”.*

**COTO CHAPTER 14: REPAIR AND REHABILITATION OF STRUCTURES**

**SECTION 14.2: CORROSION SURVEY METHODS AND TESTING OF NEAR SURFACE CONCRETE PROPERTIES**

**PART C: MEASUREMENT AND PAYMENT**

Item	Unit
------	------

**C14.2.1 Delamination Survey**

*Add the following at the end of the pay item specification:*

“The tendered rate for delamination survey using extracted core samples, shall also include the establishment of coring equipment, the moving of the coring equipment, the coring of samples and the filling and repairing of the cored holes.”

Item	Unit
------	------

**C14.2.3 Concrete compressive strength**

*Add the following at the end of the pay item specification:*

“The tendered rate for concrete compressive strength testing using extracted core samples, shall also include the establishment of coring equipment, the moving of the coring equipment, the coring of samples and the filling and repairing of the cored holes.”

**SECTION 14.3: DEMOLITION AND REMOVAL OF STRUCTURAL CONCRETE**

**PART A: SPECIFICATION**

**A14.3.7 EXECUTION OF THE WORKS**

**A14.3.7.3 Demolition of entire structural members**

**a) Concrete members**

*Add the following after the 3<sup>rd</sup> paragraph:*

“If the concrete is to be re-used and not removed to a disposal site, the requirements shall be indicated in the Contract Documentation.”

## COTO CHAPTER 20: QUALITY ASSURANCE

### SECTION 20.1: TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP PART A: SPECIFICATION

#### A20.1.2 DEFINITIONS

##### **Independent site laboratory**

*In the definition of "Independent site laboratory", add the following:*

"Independent Site laboratory in COTO is equivalent to the combined laboratory in the Employer documentation"

#### A20.1.4 PUBLISHED TEST METHODS

##### **A20.1.4.8 Testing of asphalt**

*Add the following new paragraph:*

"Sabita Manual 39: Laboratory Testing Protocols for Binders and Asphalt, shall be implemented together with the asphalt tests listed."

*Delete reference to:* "Sabita Manual 35 for Design and Use of Asphalt in Road Pavements: Determining the Richness Modulus of EME asphalt mixes."  
*and replace with* "Sabita Manual 33 for Design Procedure for High Modulus Asphalt (EME): Determining the Richness Modulus of EME asphalt mixes."

#### A20.1.7 ACCEPTANCE CONTROL BY STATISTICAL JUDGEMENT PRINCIPLES

##### **A20.1.7.2 Taking samples**

###### **a) Stratified random sampling**

*Add the following new paragraph:*

"Where the SARDS Laboratory module is used, the sampling locations must be as per the software. The Engineer may specify additional sampling locations."

###### **b) Minimum samples per lot**

*Add the following new paragraph:*

"Where the SARDS Laboratory module is used, the number of samples per lot must be as per the software, as a minimum. The Engineer may specify additional numbers of samples. The Number of samples must be sufficient to meet the requirements of TMH5."

##### **A20.1.7.5 Assessment Methods**

###### **b) Judgement plans**

*Add the following new sub-clause (iii) and renumber the existing sub-clause (iii) to (iv) and (iv) to (v):*

*"(iii) Judgement Plan C*

Judgement Plan C is for judging measurements of the levels and thicknesses of pavement layers. In accordance with this plan, the compliance of the individual results only with the specified requirements is determined and the variability of test results is not computed."

*Add the following new sub-clause (e):*

**“(e) Application of Judgement Plan C**

Surface levels and layer thicknesses shall be judged in accordance with the following procedure:

*(i) Taking the levels*

Level measurements shall be taken in a random pattern, before and after a layer has been constructed, and levels shall be taken at exactly the same point before and after construction. Layer thicknesses will then be determinable as the difference between the pre- and post-construction levels but may be supplemented by determinations made by means of holes made in the layer.

The number of measurements of layer thicknesses shall be at least 30 (thirty), and that of surface levels at least 50 (fifty). Larger sample sizes will give more reliable results.

In the case of asphalt layers, the engineer may require that layer thicknesses be determined only by means of measurements taken on drilled cores, in which case the minimum number of cores shall be 20 (twenty) per lot and not 30 (thirty).

For rehabilitation or repair work the number of measurements shall be as specified in the Contract documentation or as directed by the engineer.

*(ii) Calculating the deviations*

Compute the difference between the specified level or thickness and the actual level or thickness. Compute the mean thickness of the layer.

*(iii) Identifying outliers*

Check this work by remeasuring any results which may possibly be defective.

*(iv) Assessing the results*

The following criteria will apply when results are assessed:

1. Surface levels

The lot will comply with the requirements specified for surface levels if at least 90% of all surface levels are within the  $H_{90}$  tolerance specified in each case, before any level corrections are made.

Individual spots, where the surface level deviates by more than the  $H_{max}$  tolerance, specified in each case, shall be repaired to bring them to within the  $H_{90}$  tolerance.

2. Layer thickness

Individual spots, where the actual thickness is less than the specified thickness minus the  $D_{max}$  tolerance specified in each case, shall be locally repaired to bring them within the  $D_{90}$  tolerance.”

**PART C: MEASUREMENT AND PAYMENT**

**C20.1.5 Financial contribution for an independent site/commercial laboratory**

*Delete reference to: “/commercial”.*

Add the following new pay item:

“Item	Unit
<b>C20.1.6      Payment of independent site laboratory</b>	
C20.1.6.1    Direct payment by contractor ..... prime cost (PC) sum a)      Handling cost and profit in respect of item C20.1.6.1... percentage (%)	

The contractor shall pay the appointed site laboratory monthly for the amount as certified by the Engineer.

The charge or mark-up tendered or allowed for is a percentage of the amount actually paid under the prime cost item. The percentage shall cover all the Contractors' sourcing, handling, profit, and payment of the service provider in providing the services. The Contractor shall forfeit his mark-up when the service provider is not paid in time.”

**SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED**

CONTRACT SANRAL .002-180-2018/1

FOR THE PROVISION OF WORK CONSTRUCTION SERVICES FOR THE UPGRADE ON NATIONAL ROUTE N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6) AND MTHATHA (KM 85.0) FOR A PERIOD OF FIFTY-THREE (53) MONTHS INCLUDING FIVE (5) MONTHS MOBILISATION

**SECTION B: SPECIFICATION DATA**

**Notes to tenderer:**

1. In certain clauses, the Standard Specifications allow a choice to be specified in the Contract Documentation or 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 Section B: Specification Data.
2. The number of each clause and each payment item in this part of the project specifications follows the numbering format of the COTO standard specifications. Where, however, a clause has been amended under Section A2, the clause number is prefixed with a "P" in this Section.

**COTO CHAPTER 1:GENERAL**

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
<b>1</b>			<b>GENERAL</b>	
	<b>A1.1</b>		<b>GENERAL PREAMBLE</b>	
		<b>PA1.1.2</b>	<b>DEFINITIONS</b>	
			<b>Conditions of Contract</b>	The Conditions of Contract for Construction for Building and Engineering Works designed by the Employer as published by the International Federation of Consulting Engineers (FIDIC) First Edition 1999, shall apply.
			<b>Site / Site of the Works</b>	The limits of construction are provided in C.4.1. Description of the Works.
	<b>A1.2</b>		<b>GENERAL REQUIREMENTS AND PROVISIONS</b>	
		<b>A1.2.3</b>	<b>GENERAL</b>	
			<b>A1.2.3.3 Environmental management</b>	The requirements of the Environmental Officer are indicated in Section C.
			<b>A1.2.3.4 Extension of time for delays caused by rainfall</b>	
			<b>c) Method 3 (Critical path method without consequential delays)</b>	<p>Method 3 (Critical path method without consequential delays) is specified.  <b>The value of “N” is 84.</b></p> <p>The calculation of payment for approved extensions of time granted for delays caused by rainfall, shall be calculated in accordance with Clause A20.1 in Part C.1.2.2 – Contract Data.</p>
			<b>A1.2.3.9 Monthly reports</b>	<p>Other information to be included in monthly progress reports are as follows:</p> <ul style="list-style-type: none"> <li>a) Information as required in terms of Conditions of Contract Clause 4.21</li> <li>b) Aerial progress footage (images and video)</li> </ul> <p>Reporting of training, empowerment, capacity building, small contractor development, labour and staff employment and any such aspects shall be extracted from the Employer's Integrated Transportation Information System (ITIS), as required in terms of Conditions of Contract Clause 4.21.</p>



CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA												
				<p>The Contractor shall update the ITIS system with the required information and documentation as required by the ITIS system.</p> <p>ITIS currently consist of the following platforms:</p> <ul style="list-style-type: none"><li>• ITIS Web – Web enabled portal providing online access to various functions, workflows and reports.</li><li>• ITIS Desktop – Offline data capture tool enabling the capture of information offline, validation and then synchronisation of data with the ITIS database.</li><li>• ITIS Mobile – Application (Android 6 or later) that allows the in-field capture of information using a smart phone or tablet (must have camera and GPS), validation and then synchronisation of data with the ITIS database.</li></ul> <p>The Employer has several ITIS modules running on any of the above ITIS platforms which affect the Contractor, who will need to use some of these modules to perform certain procedures and to provide required information. The current module applicable to this contract and its description is as follows:</p> <ul style="list-style-type: none"><li>• Project Information Module – uploading of employment and training data;</li></ul> <p>Users are to register as a service provider utilising the following link: <a href="https://itis.nra.co.za/Portal/">https://itis.nra.co.za/Portal/</a></p> <p>Manuals for the various functions can be downloaded utilising the following links:</p> <p>Project Information User Manual – <a href="https://itis.nra.co.za/Portal/Modules/ProductLicensing/MVC/Manuals/ITIS%20Desktop%20Project%20Information%20Module%20-%20User%20Manual.pdf">https://itis.nra.co.za/Portal/Modules/ProductLicensing/MVC/Manuals/ITIS%20Desktop%20Project%20Information%20Module%20-%20User%20Manual.pdf</a></p> <p>Desktop Installation Manual – <a href="https://itis.nra.co.za/Portal/Modules/ProductLicensing/MVC/Manuals/ITIS%20DeskTop%20-%20Installation%20Manual.pdf">https://itis.nra.co.za/Portal/Modules/ProductLicensing/MVC/Manuals/ITIS%20DeskTop%20-%20Installation%20Manual.pdf</a></p> <p>Support Manual – <a href="https://itis.nra.co.za/Portal/Modules/ProductLicensing/MVC/Manuals/ITIS%20Support%20Service%20Desk%20User%20Manual.pdf">https://itis.nra.co.za/Portal/Modules/ProductLicensing/MVC/Manuals/ITIS%20Support%20Service%20Desk%20User%20Manual.pdf</a></p>												
			<b>A1.2.3.10 Notices, signs and advertisements</b>	Details of the contract sign board are provided in Drawing TD-R-RS-1300.												
			<b>A1.2.3.12 Ownership of assets and disposal of non-usable assets</b>	<p>The Non-usable assets to be disposed by the Contractor is listed in the following disposal plan:</p> <table><tr><th>Asset description</th><th>Estimated quantity</th><th>Disposal requirement</th></tr><tr><td>Guardrails</td><td>2870m</td><td>RRM site</td></tr><tr><td>Fencing materials</td><td>30km</td><td>RRM site</td></tr><tr><td>Road signs</td><td>60m<sup>2</sup></td><td>RRM site</td></tr></table>	Asset description	Estimated quantity	Disposal requirement	Guardrails	2870m	RRM site	Fencing materials	30km	RRM site	Road signs	60m <sup>2</sup>	RRM site
Asset description	Estimated quantity	Disposal requirement														
Guardrails	2870m	RRM site														
Fencing materials	30km	RRM site														
Road signs	60m <sup>2</sup>	RRM site														

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA						
			<b>A1.2.3.13 Prevention of damage to nearby properties and services</b>	Structures that could be affected by excessive ground vibrations is listed in the following table: <table><tr><td>Structure</td><td>Type</td><td>Location</td></tr><tr><td>+140 No. including houses and outbuildings</td><td>Formal dwellings</td><td>Km 66.6 to km74.5</td></tr></table>	Structure	Type	Location	+140 No. including houses and outbuildings	Formal dwellings	Km 66.6 to km74.5
Structure	Type	Location								
+140 No. including houses and outbuildings	Formal dwellings	Km 66.6 to km74.5								
			<b>PA1.2.3.15 Routine maintenance</b>	The Contractor shall take over the specified maintenance responsibility on the date of Access to site  Any potholes which occur on the road surface shall be temporarily repaired within 24 hours after being recorded.						
			<b>A1.2.3.18 Stakeholder liaison</b>	Additional requirements related to structured engagement with project Stakeholders and affected Communities, as well as guidance on the selection and the enhanced utilisation and development of Targeted Labour and Targeted Enterprises is provided in Section D1000.						
			<b>A1.2.3.20 Road safety audits</b>	A Work zone traffic management audit as well as a Pre-opening stage road safety audit, shall be carried out.						
			<b>A1.2.3.22 Wayleaves/Agreements and Permits</b>	The Contractor shall be responsible for applying for the following wayleaves: <ul style="list-style-type: none"><li>• Telkom</li><li>• Fiber</li><li>• Water</li><li>• Power</li></ul>						
		<b>A1.2.7</b>	<b>EXECUTION OF THE WORKS</b>							
			<b>PA1.2.7.1 Programme of work</b>							
			<b>a) General</b>	A scheme 2 programme shall apply.						
			<b>b) Scheme 2</b>	The programme shall be drawn up or be compatible with MS Project 2013  Additional schedules, other than required in terms of Conditions of Contract Clause 8.3, to be provided are: not applicable						
			<b>e) Specified programmed activities</b>	Activities with specific due completion and/or duration are specified as follows:  <u>a) Sequence</u> Construction works in the urban section, which is defined as being from the DR 08269 intersection (km 78.26) to Madeira Street in Mthatha (km 85.4) shall be required to commence within 3 months of Access to Site being granted. However, the sequence of the works is not prescribed for either the urban or the peri-urban sections.						

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
				<p><u>b) Temporary deviations</u> The maximum length and number of temporary deviations in the peri-urban area is not prescribed. They will be implemented per the contractor's method statement and programme, as approved by the Engineer.</p> <p><u>c) Half or partial width sections</u> The number of half or partial width sections allowed at any one time is not prescribed, with the overriding condition that two-way traffic shall be maintained on the N2 at all times during the contract period.</p> <p><u>d) Restricted sections:</u>  <u>i) Urban Section 1</u> The maximum length of the work section in the urban section 1 (as defined above) is 2 km and is limited to the (new) northbound carriageway, with a leeway of 100m on either side. For the southbound (existing) carriageway the maximum length of a work section is 1km and the minimum length between work sections shall be 500m</p> <p><u>ii) Urban Section 2</u> The maximum length of the work section in the urban section 2 (as defined above) is 1 km and is limited to one carriageway, with a leeway of 100m on either side. The minimum length between "urban" work sections shall be 500m.</p> <p><u>e)Other</u> Operation of STOP/GO's, with one-way traffic shall only be permitted for a maximum period of 48 hours for the purposes of switching over of work sequences, and each such instance shall be subject to the Engineer's approval.</p>
			<b>A1.2.7.4 Work on, over, under or adjacent to utilities</b>	<p>Refer to Section A2.1.3.2 Location, identification, protection and relocation of existing services.</p> <p>Wayleaves must be obtained prior to commencing with works adjacent to services or relocation thereof.</p>
	<b>A1.3</b>		<b>CONTRACTOR'S SITE ESTABLISHMENT AND GENERAL OBLIGATIONS</b>	
		<b>A1.3.3</b>	<b>GENERAL</b>	
			<b>A1.3.3.1 Construction camps</b>	The Contractor is to make his own arrangements for a site camp.
	<b>A1.4</b>		<b>FACILITIES FOR THE ENGINEER</b>	
		<b>PA1.4.3</b>	<b>GENERAL</b>	The Contractor is to make his own arrangements for a site camp.

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
		<b>A1.4.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A1.4.7.1 Offices and laboratories</b>	
			<b>a) General</b>	The site laboratory shall be supplied with 440/231 volt three-phase electricity.
			<b>c) Laboratories</b>	The Engineer will provide details of the site laboratory layout to the contractor when the location of the site camp and availability of structures thereon have been confirmed.
			<b>A1.4.7.2 Housing</b>	
			<b>a) Prefabricated houses</b>	Not required.
			<b>A1.4.7.3 Services</b>	
			<b>b) Water, electricity and gas</b>	A standby generator shall be provided on site by the contractor for times when electricity from a power supply authority is not available on site, Ref pay items C1.4.4.13 and C1.4.5.2.
			<b>A1.4.7.5 Office staff</b>	Provision has been made in the bill for a site secretary to assist with ITIS capture and other administrative duties.
	<b>A1.5</b>		<b>ACCOMMODATION OF TRAFFIC</b>	
		<b>A1.5.3</b>	<b>GENERAL</b>	
			<b>A1.5.3.2 General requirements</b>	Refer to C4.1 Site Information and Volume 4.1 for drawings TA001 to TA009 (Peri Urban) and TA100 to TA107 (Urban).
		<b>A1.5.6</b>	<b>CONSTRUCTION EQUIPMENT</b>	
			<b>A1.5.6.1 Traffic control facilities</b>	
			<b>A1.5.6.2 Illuminated traffic signs and safety devices</b>	
		<b>A1.5.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A1.5.7.3 Accommodation of traffic where the road is constructed in half or partial widths</b>	<ol style="list-style-type: none"> <li>Sequence in which sections of the works are to be completed shall be as per contractor's programme, which shall include the following requirements: <ul style="list-style-type: none"> <li>Traffic accommodation shall be implemented according to the methods prescribed in C4.1.2 and C4.1.3. If the contractor wishes to amend these methods, he shall motivate such amendment in writing to the Engineer.</li> <li>Construction works in the urban section, which is defined as being from the DR 08269 intersection (km 78.26) to Madeira Street in Mthatha (km 85.4) shall be required to commence within 3</li> </ul> </li> </ol>

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
				<p>months of Access to Site being granted.</p> <p>2. Maximum length and total number of Temporary deviations that will be allowed to be in operation at any time:</p> <ul style="list-style-type: none"> <li>- Not prescribed, will be as per contractor's programme.</li> </ul> <p>3. Maximum length and total number of half or partial width sections that will be allowed to be in operation at any time:</p> <ul style="list-style-type: none"> <li>- Single direction traffic will not be permitted.</li> </ul> <p>4. Minimum length of full width, unrestricted road sections to be open between half or partial width construction sections</p> <ul style="list-style-type: none"> <li>- N/A, two-way traffic must always be accommodated within the contract limits.</li> </ul> <p>5. Maximum length and total number of half or partial width construction sections where the traffic can only pass in one direction:</p> <ul style="list-style-type: none"> <li>- Not prescribed, will be implemented as per contractor's programme.</li> </ul> <p>6. No STOP/GO, one-way traffic sections shall be in operation for a period longer than 48 hours and each instance shall be subject to the Engineer's approval.</p>
			<b>A1.5.7.6 Maintenance of existing roads used as detours</b>	Existing roads (other than the N2) that are specifically earmarked for use as detours for public and construction traffic, shall be maintained by the Contractor.
			<b>A1.5.7.10 Construction of temporary deviations</b>	
			<b>d) Earthworks and pavement layers for temporary deviations</b>	Refer Pay Items under C1.5.4/C5.3.2, C1.5.4/C5.4.2 and C1.5.4/C5.4.5 in the schedule of quantities.
			<b>e) Surfacing of temporary deviations</b>	Refer Pay Items C1.5.4/C8.1.1, C1.5.4/C9.1.5 and C1.5.4/C10.1.22 in the schedule of quantities.
	<b>A1.6</b>		<b>CLEARING AND GRUBBING</b>	
		<b>A1.6.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A1.6.7.2 Clearing</b>	No significant trees or vegetation on site.
	<b>A1.7</b>		<b>LOADING AND HAULING</b>	
		<b>A1.7.7</b>	<b>EXECUTION OF THE WORKS</b>	The Contractor must provide the Engineer with the certified carrying capacity of each vehicle before any construction materials can be transported.

## COTO CHAPTER 2:SERVICES

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
2			<b>SERVICES</b>	
	<b>A2.1</b>		<b>GENERAL REQUIREMENTS AND TRENCHING FOR SERVICES</b>	
		<b>A2.1.1</b>	<b>SCOPE</b>	
			<b>A2.1.1.1 Installation of new services</b>	New Street lighting will be installed along the peri-urban and urban sections.  New Traffic signals will be installed at intersections along the urban section.
			<b>A2.1.1.2 Location, identification, protection and relocation of existing services</b>	
		<b>A2.1.3</b>	<b>GENERAL</b>	
			<b>A2.1.3.2 Location, identification, protection and relocation of existing services</b>	
			<b>a) Existing as-built records</b>	No as-built records are available for the existing services.
			<b>b) Location of existing services</b>	Known services are listed in Part A and reflected on drawings US001 to US016, in Volume 4.1.  Ground Penetration Radar (GPR) shall be used by the Contractor to detect existing services
			<b>d) Protection of services</b>	
			<i>(i) Service owners</i>	Refer Part A A2.1.3.2 b)
			<i>(ii) Protection</i>	Refer Part A A2.1.3.2 b)
			<i>(iv) Relocation</i>	Refer Part A A2.1.3.2 b)
		<b>A2.1.5</b>	<b>MATERIALS</b>	
			<b>A2.1.5.1 Trench backfill material</b>	
			<b>A2.1.5.2 Soil cement and stabilised trench backfill material</b>	
			<b>b) Cement stabilised backfill</b>	G6 material with 5% cement to be used for cement stabilised backfill

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
2			<b>SERVICES</b>	
	<b>A2.1</b>		<b>GENERAL REQUIREMENTS AND TRENCHING FOR SERVICES</b>	

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
		<b>A2.1.1</b>	<b>SCOPE</b>	
			<b>A2.1.1.1 Installation of new services</b>	
			<b>A2.1.1.2 Location, identification, protection and relocation of existing services</b>	Refer to drawings J36259/US001 to US016 for records of existing services.
		<b>A2.1.2</b>	<b>DEFINITIONS</b>	
		<b>A2.1.3</b>	<b>GENERAL</b>	
			<b>A2.1.3.1 Installation of new services</b>	As per A2.1.1 above.
			<b>A2.1.3.2 Location, identification, protection and relocation of existing services</b>	
			<b>a) Existing as-built records</b>	As-built records are only available for the existing Amatola Water/OR Tambo Bulk Water Supply Scheme, Refer to Table A2.1.3/1A Water infrastructure along the route.
			<b>b) Location of existing services</b>	The contractor shall be required to use Ground Penetration Radar (GPR) to detect existing services.
			<b>d) Protection of services</b>	
			<i>(i) Service owners</i>	The lead times required to make the necessary arrangements for the protection, removal or relocation of services which the Contractor shall allow for are stated in Part A, Item A2.1.3.2 (b).
			<b>A2.1.3.5 Programming for services</b>	
			<b>b) Programme and delays</b>	The lead times required to make the necessary arrangements for the protection, removal or relocation of services which the Contractor shall allow are stated in Part A, Item A2.1.3.2 (b)
			<b>A2.1.3.6 Provision of record drawings and details</b>	PLATO registration is not required for the site surveyor.
			<b>A2.1.3.9 Limitations and restrictions</b>	

### COTO CHAPTER 3:DRAINAGE

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
<b>3</b>			<b>DRAINAGE</b>	
	<b>A3.1</b>		<b>DRAINS</b>	
		<b>A3.1.5</b>	<b>MATERIALS</b>	
			<b>A3.1.5.2 Subsoil Drainage Materials</b> <b>a) Pipes</b>	100mm internal diameter, slotted uPVC pipes for subsoil drainage systems and 100mm diameter mesh structured HDPE geopipes for composite drainage systems.
		<b>A3.1.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A3.1.7.5 Manholes, outlet structures and cleaning eyes</b>	Refer to Drawings J36259/TD-D-SD-1001 to 1003.
		<b>A3.3.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A3.3.7.1 Drainage structures</b>	
			<b>a) Prefabricated concrete kerbing and channelling</b>	Refer to Drawings J36259/TD-D-RD-1001 – 1007
			<b>c) Chutes and downpipes on side slopes of fills and cuts</b>	Refer to Drawings J36259/TD-D-RD-1001 – 1007
			<b>d) Cast in situ kerbs and channels</b>	Refer to Drawings J36259/TD-D-RD-1001 – 1007
			<b>e) Cast in situ chutes on cut slopes</b>	Refer to Drawings J36259/TD-D-RD-1001 – 1007
			<b>f) Concrete-lined open drains</b>	Refer to Drawings J36259/TD-D-RD-1001 – 1007



**COTO CHAPTER 4: EARTHWORKS AND PAVEMENT LAYERS: MATERIALS**

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
<b>4</b>			<b>EARTHWORKS AND PAVEMENT LAYERS: MATERIALS</b>	
	<b>A4.1</b>		<b>BORROW MATERIALS</b>	
		<b>A4.1.3</b>	<b>GENERAL</b>	
			<b>A4.1.3.1 Employer identified borrow pits and quarries</b>	<p>The Engineer, acting for the Employer identified 9 No potential material sources, 7No were existing borrow pits, authorised to the Eastern Cape Department of Transport and 2No were new sources. Of these only 4No were deemed to have sufficient quantity of high-quality material with no environmental constraints.</p> <p>However, due to there being sufficient hard and intermediate material available from the new road cuttings to meet all fill requirements as well as most of the pioneer material, a decision was made to source all road layer works material and aggregates from a combination of emerging and established commercial sources, so as to allow local business significant participation in this project. Hence the abovementioned material sources will not be required.</p> <p>Refer to Volume 6 for further information.</p>
			<b>A4.1.3.2 Contractor identified borrow pits and quarries</b>	<p>The contractor will be required to identify emerging and established commercial material suppliers and propose a material supply strategy in his CPG plan for approval by the Project Management Team (PMT).</p> <p>There are several commercial quarries in and around Mthatha, such as Tsolo Quarry, Ngqeleni Quarry, Mdlankomo Quarry (Libode) and Transkei Quarries. All of these quarries supply dolerite aggregates.</p> <p>3No privately owned borrow pits were investigated at the request of the owners. Currently it is unknown whether the owners are in possession of valid mining permits from the DMR.</p> <p>Refer to Volume 6 for further information.</p>
	<b>A4.2</b>		<b>CUT MATERIALS</b>	
		<b>PA4.2.3</b>	<b>GENERAL</b>	
			<b>A4.2.3.2 Contractor prepared plans for cuttings</b>	A M&U plan will be required for box cuts and designated excavations.
		<b>A4.2.7</b>	<b>EXECUTION OF WORKS</b>	
			<b>A4.2.7.1 Excavation operations</b>	

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
			<b>a) Control at the cuttings, designated excavations and box cuts</b>	The contractor shall have a part time materials manager on site who shall have at least 10 years' experience as a site engineer on bulk earthworks for major road construction projects.
			<b>b) Classes of excavation</b>	As per Coto Specification for this item.
			<b>h) Excavation of material in cuttings</b>	As per Coto Specification for this item.
			<b>k) Selection and the use of the cut material</b>	Refer to Volume 6 for proposed utilisation of material from cuttings.
			<b>n) Finishing of the side slopes of cuttings and designated excavations (<i>para 1</i>)</b>	Finishing of cut slopes shall be done in accordance with the conditions identified on site. A combination of topsoil and (gel) hydro seeding, grass sods, netting and shotcrete will be used, as per Engineers instructions.
	<b>A4.3</b>		<b>EXISTING ROAD MATERIALS</b>	
		<b>A4.3.3</b>	<b>GENERAL</b>	
			<b>A4.3.3.1 Employer identified existing road materials</b>	Refer to Volume 6 for geotechnical investigations and centre line test pit data, as well as the proposed materials utilisation for this project.
		<b>A4.3.5</b>	<b>MATERIALS</b>	
			<b>A4.3.5.2 Reclaimed Asphalt Material</b>	The existing peri urban section of the N2 (km 65.8 to km 78) is predominantly a sealed surface with a single asphalt, so it is unlikely produce much reclaimed asphalt (RA). However the urban section (km78 to km85) .has an average asphalt layer thickness of +- 90mm. The available RA will be incorporated in the EME base mix design.
			<b>A4.3.5.3 Bituminous Seal surfacing</b>	Engineer to confirm on site whether thin bituminous seal surfacing's are to be processed together with the underlying layer during reconstruction, or if will be removed by blading or milled off before being taken to spoil or stockpile.

**COTO CHAPTER 5: EARTHWORKS AND PAVEMENT LAYERS: CONSTRUCTION**

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
<b>5</b>			<b>EARTHWORKS AND PAVEMENT LAYERS: CONSTRUCTION</b>	
	<b>A5.1</b>		<b>ROADBED</b>	
		<b>A5.1.2</b>	<b>DEFINITIONS</b>	
			<b>Batter</b>	Batter slopes will be constructed at 1:5 or as instructed by the engineer based on site conditions.
		<b>A5.1.3</b>	<b>GENERAL</b>	
			<b>A5.1.3.1 Roadbed material Investigation</b>	<p>Refer to Volume 6 for details of the centreline materials and geotechnical investigations and their associated laboratory test results.</p> <p>Roadbed treatment shall be as per engineer's instruction, but shall generally consist of three methods:</p> <ul style="list-style-type: none"> <li>i. Remove unsuitable in-situ subgrade and replace with a pioneer layer to a depth of 600mm or deeper as applicable.</li> <li>ii. Roadbed treatment by ripping or blasting in hard rock cuttings.</li> </ul> <p>Where the new pavement is constructed on top of the existing, the existing pavement will be scarified and reshaped to from either the roadbed or top of lower selected.</p>
		<b>A5.1.7</b>	<b>EXECUTION OF WORKS</b>	
			<b>A5.1.7.3 Normal roadbed treatment</b>	
			<b>a) Construction overview</b>	Refer A5.1.3.1 for roadbed treatment.
			<b>b) Removal of unsuitable roadbed material</b>	Unsuitable material shall be disposed of to spoil sites identified by the contractor and approved by the ECO.
			<b>f) Hard material</b>	
			<b>(i) In situ treatment by ripping</b>	If shale or mud rock is located within a depth of less than 500mm below roadbed level, it is to be removed and replaced with a pioneer layer.
	<b>C5.1</b>		<b>ROADBED PART C: MEASUREMENT AND PAYMENT</b>	
		<b>C5.1.13</b>	<b>Construction of a levelling layer</b>	The volume of the levelling layer will be computed as an area with an average thickness of 150mm.
	<b>A5.2</b>		<b>FILL</b>	
		<b>A5.2.3</b>	<b>GENERAL</b>	
			<b>A5.2.3.2 Fill adjacent to existing fill</b>	Refer to Clause C1.1.3.2 b) – No additional compensation will be paid for partial width construction or working in restricted areas.

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
			<b>A5.2.3.3 Fill layer thickness</b>	Fill layer thicknesses will be determined by the engineer in accordance with the type of fill material being utilised for each section.
			<b>A5.2.3.4 Fill compaction classification</b>	
			<b>a) MDD compaction</b>	
			(ii) Normal fill and Coarse Fill	93% of MDD or method spec (e.g. 8 roller pass) as applicable. Layer thicknesses will be per engineer's instruction.
		<b>A5.2.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A5.2.7.3 Benching for fill construction</b>	The dimensions of benching in each specific instance encountered on site shall be per the Engineer's instruction.
			<b>A5.2.7.4 Widening of fills</b>	<p>In order to obtain sufficient working width for road-building equipment when an existing road fill is widened, it may be necessary to form benches that extend beyond the normal road prism, or to cut back into the existing road fill, or both.</p> <p>The contractor shall submit his proposals in this regard to the engineer for approval before proceeding with such work. The contractor will be paid in accordance with the relevant payment items for work required to obtain a working width of up to 3m.</p> <p>Additional work required to provide a working width in excess of 3m shall be at the contractor's expense.</p>
			<b>A5.2.7.9 Fills higher than 10m</b>	Fills higher than 10m are deemed to be "engineered fills" and the construction methods shall be implemented in accordance with the Engineer's instructions for each such fill and the type of material to be used, (e.g. rockfill).
	<b>A5.3</b>		<b>ROAD PAVEMENT LAYERS</b>	
		<b>A5.3.8</b>	<b>WORKMANSHIP</b>	
			<b>PA5.3.8.4 Construction tolerances for pavement layers</b>	
			<b>f) Surface texture</b>	The maximum texture depth of the base layer should be outlined in Part C3, Table A5.3.8 of this document.
			<b>PA5.3.8.5 Surface regularity</b>	Riding quality should be assessed by method c) – using a profiler.
			<b>c) By using a profiler</b>	<p>The applicable Adjustment factors of Table A5.3.8-6 shall be: "New pavement construction"</p> <p>The payment items for adjustment shall be:</p>

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
				C5.3.2.1 (aa) G1 crushed base layer (150mm thick) compacted at 88% of AD.
	<b>A5.4</b>		<b>STABILISATION</b>	
		<b>A5.4.3</b>	<b>GENERAL</b>	
			<b>A5.4.3.3 Construction limitations</b>	
			<b>e) Traffic limitations</b>	No relaxation to this clause will be considered.
		<b>A5.4.5</b>	<b>MATERIALS</b>	
			<b>A5.4.5.3 Cementitious stabilising agents</b>	Cement for stabilising shall comply with the requirements of SANS 50197. Only extended common cement (CEM II ) with a strength of 32.5N shall be permitted.
	<b>A5.5</b>		<b>RECONSTRUCTION OF PAVEMENT LAYERS</b>	
		<b>A5.5.2</b>	<b>DEFINITIONS</b>	
			<b>Rehabilitation</b>	Refer to C4.1.5 – Urban Section 1 and 2 for the proposed rehabilitation methods.
			<b>Uniform pavement sections</b>	Urban Section 1 (Ian Woods Drive km78.3 to Blakeway Road km82.92) Urban Section 2 (Blakeway Road km82.92to Madeira Street Mthatha km 85.40)
			<b>A5.5.3.4 Existing bituminous seal and/or asphalt layers</b>	Refer to C4.1.5 – Urban Section 1 and 2 for the proposed rehabilitation methods.

**COTO CHAPTER 8:PRETREATMENT AND REPAIR OF EXISTING LAYERS**

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
8			<b>PRETREATMENT AND REPAIR OF EXISTING LAYERS</b>	
	<b>A8.1</b>		<b>PRIME COAT</b>	
		<b>A8.1.5</b>	<b>MATERIALS</b>	
			<b>PA8.1.5.1 Bituminous material</b>	The priming material shall be one of the following as specified in Part C: Measurement and Payment: -MC -30 cut-back bitumen -MC -10 cut-back bitumen -Inverted bitumen emulsion
		<b>A8.1.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A8.1.7.5 Opening to traffic</b>	A binding layer will be instructed by the engineer for sections of base that has been primed and will need to be opened to traffic prior to surfacing.

COTO CHAPTER 9: ASPHALT LAYERS

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
9			ASPHALT LAYERS	
	A9.1		ASPHALT LAYERS	
		A9.1.2	DEFINITIONS	
			Asphalt mix types	<p><b>Medium continuously graded asphalt wearing course</b>, sand skeletal mix, with 14 mm nominal maximum particle size (NMPS) using A-P1 modified binder. Refer Sabita Manual 35.</p> <p><b>High Modulus Asphalt (EME) base</b>, stone skeletal mix, with 14 mm nominal maximum particle size (NMPS) using 10/20 pen grade binder. Refer Sabita Manuals 33 and 35.</p>
			Aggregate	Course and Fine aggregate grading is as follows: Stone Skeletal = Class 1 Sand Skeletal = Class 2 .
		A9.1.3	GENERAL	
			A9.1.3.1 Nominal mix proportions and application rates	
			Table A9.1.3-1: Nominal Mix Proportions of Stone Skeletal Mixes for Tender Purposes	High Modulus Asphalt (EME) base, 14 mm NMPS stone skeletal mix, using 10/20 penetration grade @ 7% nominal binder content.
			Table A9.1.3-1 *Note 2:	The permissible percentage of binder replacement limit is 30% RA, subject to combined 10/20 binder meeting the penetration requirements per Table 11 of Sabita Manual 33.
			Table A9.1.3-2: Nominal Mix Proportions of Sand Skeletal Mixes for Tender Purposes	Medium continuously graded asphalt wearing course, 10mm NMPS sand skeletal mix, using an A-P1 modified binder @ 5.5%nominal.
		A9.1.4	DESIGN BY THE CONTRACTOR	
			A9.1.4.1 Mix Designs	<p><b>Medium continuously graded asphalt wearing course</b>, sand skeletal mix, with 14 mm nominal maximum particle size (NMPS) using A-P1 modified binder</p> <p><b>High Modulus Asphalt (EME) base</b>, stone skeletal mix, with 14 mm nominal maximum particle size (NMPS) using 10/20 pen grade binder.</p>

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
			<b>A9.1.4.2 Mix design requirements</b>	<p><b>Wearing course – Sabita Manual 35</b>  Sand skeletal 10mm NMPS,  Level II design for &gt;10 – 30 million E80s and design speed 20 – 80km/h = Very Heavy conditions  PG Binder required is 58V-22, A-P1 modified binder</p> <p><b>EME Base Sabita Manual 33</b>  Stone skeletal 14mm NMPS  Level II design for &gt;10 – 30 million E80s and design speed 20 – 80km/h = Very Heavy conditions  PG Binder required is 58V-22, 10/20 penetration grade binder</p>
		<b>A9.1.5</b>	<b>MATERIALS</b>	
			<b>A9.1.5.2 Bituminous binders for asphalt mixes</b>	<p>Binder types:  <b>A-P1</b> for medium continuously graded asphalt wearing course, sand skeletal mix.  <b>10/20</b> pen grade binder for High Modulus Asphalt (EME) base, stone skeletal mix.</p> <p>Temperature zone :  Maximum : 58 °C, Minimum: -22 °C</p> <p>Traffic Speed:  20 – 80 km/h</p> <p>Design Traffic:  10 – 30 million E80's</p> <p>Traffic Condition:  V – Very Heavy</p>
			<b>A9.1.5.3 Bitumen bond coat</b>	Bond coat: Stable grade 30% net bitumen emulsion.
			<b>PA9.1.5.4 Aggregates</b>	
			<b>A9.1.5.5 Fillers</b>	
			<b>Table A9.1.5-7: Filler requirements</b>	Nominal 1% Hydrated Lime
			<b>A9.1.5.8 Mix properties</b>	Sand and Stone Skeletal mixes = Level II.
		<b>A9.1.6</b>	<b>CONSTRUCTION EQUIPMENT</b>	
			<b>A9.1.6.5 Rollers</b>	Only oscillating type vibratory compaction equipment may be used on bridge decks.
		<b>A9.1.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A9.1.7.11 Surfacing of bridge decks</b>	N/A.
		<b>A9.1.8</b>	<b>WORKMANSHIP</b>	
			<b>A9.1.8.8 Sampling</b>	
			<b>b) Coring of completed layers</b>	The Contractor shall provide suitable coring machines capable of cutting 100mm or 150mm diameter cores from the completed asphalt layers.



CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA					
	D9.1		ASPHALT LAYERS						
		D9.1.1	SCOPE	The duration of any such performance guarantees shall be as reflected in Table D9.1.3.1 below.					
		D9.1.2	DEFINITIONS						
			Performance Guarantee Period:	Two years and three years after issuing of the Taking-Over Certificate					
			Performance Guarantees:	Contractor shall provide two guarantees, each valued at 5 % of the cost of the layer/s (as per final constructed quantities measured.					
		D9.1.3	GENERAL						
			Table D9.1.3-1: Programme of release of guarantees	<table><tr><td>Acceptable performance of Asphalt WC and EME two years after issuing of the Taking-Over Certificate</td><td>Release of 1st guarantee (5%)</td></tr><tr><td>Acceptable performance of Asphalt WC and EME three years after issuing of the Taking-Over Certificate</td><td>Release of 2nd guarantee (5%)</td></tr></table>		Acceptable performance of Asphalt WC and EME two years after issuing of the Taking-Over Certificate	Release of 1st guarantee (5%)	Acceptable performance of Asphalt WC and EME three years after issuing of the Taking-Over Certificate	Release of 2nd guarantee (5%)
Acceptable performance of Asphalt WC and EME two years after issuing of the Taking-Over Certificate	Release of 1st guarantee (5%)								
Acceptable performance of Asphalt WC and EME three years after issuing of the Taking-Over Certificate	Release of 2nd guarantee (5%)								
		D9.1.10	ACCEPTANCE CRITERIA						
			D9.1.10.1 Visual Assessments	Refer to D9.1.10.1 for the acceptance Criteria listed in Table D9.1.10-1, which shall be applicable at the termination of the product Performance Guarantee Period.					
			D9.1.10.2/3 Deflection and Rut depth	At the end of the Performance Guarantee Period, the structural capacity of the road pavement, as determined in terms of deflection measurements, shall conform to be acceptance criteria presented in Table D9.1.10-2 and Table D9.1.10-3.					

**COTO CHAPTER 10: SURFACE TREATMENTS**

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
<b>10</b>			<b>SURFACE TREATMENTS</b>	
	<b>A10.1</b>		<b>GENERAL REQUIREMENTS FOR SURFACE TREATMENTS</b>	
		<b>A10.1.3</b>	<b>GENERAL</b>	
			<b>PA10.1.3.2 Weather limitations</b>	The Seal Embargo Period (for use of hot sprays) is the period during the months of May, June, July and August.
			<b>PA10.1.3.14 Nominal rates of application for tender purposes</b>	The following Seal types are to be utilised: 20mm Cape Seal with slurry using Cat 30 emulsion for deviations. Nominal application rate as per Tables A10.1.3-6 and A10.1.3-7.
		<b>A10.1.5</b>	<b>MATERIALS</b>	
			<b>A10.1.5.10 Single sized aggregate</b>	
			<b>a) Grading</b>	The Aggregate Grade is indicated in the Pricing Schedule.

**COTO CHAPTER 11:ANCILLARY ROAD WORKS**

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
11			ANCILLARY ROAD WORKS	
	A11.1		PITCHING, STONEMWORK, CAST IN SITU CONCRETE FOR PROTECTION AGAINST EROSION	
		A11.1.5	MATERIALS	
			A11.1.5.6 Geotextiles	Non-woven needle punched type geofabric, grade 3 or approved equivalent to be used for subsoil drains and fin drains.
	A11.2		NON-STRUCTURAL GABIONS	
		A11.2.7	EXECUTION OF WORKS	
			A11.2.7.2 Constructing gabion boxes and mattresses	
			g) Assembly	The final design for gabions will be per the engineer's instructions, to suit conditions on site.
	A11.4		ROAD RESTRAINT SYSTEMS	
		PA11.4.1	SCOPE	<u>Guardrails:</u> Method specification timber post systems shall conform to SANS 1350 and other SANS compliant materials requirements.  <u>Temporary concrete barriers:</u> Performance based systems shall conform to EN 1317
	C11.6		ROAD SIGNS PART C: MEASUREMENT AND PAYMENT	
			ii) Notes on measurement and pay items	Measurements for excavations will be taken from the road shoulder or ground surface as applicable.
	A11.7		ROAD MARKINGS AND ROAD STUDS	
		A11.7.5	MATERIALS	
			PA11.7.5.2 Materials	
			a) Marking materials	
			(iii) Thermoplastic road marking material	The timing for the application of thermoplastic road marking over the previously applied marking will be 6 months into the defect's liability period.
			b) Road studs	RSA-1 road studs to be used for the permanent works.
	A11.8		LANDSCAPING AND PLANTING PLANTS	
		A11.8.5	MATERIALS	
			A11.8.5.2 Materials	
			b) Fertiliser/soil-improvement material	Fertiliser to be recommended by the contractor for engineer's approval.

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA																																													
			d) Grass seeds	<div>Summer Mix</div> <table><tr><th>GRASS SPECIES</th><th>COMMON NAME</th><th>APPLICATION RATE (kg/ha)</th></tr><tr><td><i>Chloris gayana</i></td><td>Rhodes grass</td><td>4</td></tr><tr><td><i>Cynodon dactylon</i></td><td>Couch grass</td><td>5</td></tr><tr><td><i>Desmodium intortum</i></td><td>Green leaf desmodium</td><td>3</td></tr><tr><td><i>Digitaria eriantha</i></td><td>Smutsfinger grass</td><td>8</td></tr><tr><td><i>Eragrostis tef</i></td><td>Teff</td><td>8</td></tr><tr><td><i>Panicum maximum</i></td><td>Guinea grass</td><td>4</td></tr><tr><td>TOTAL</td><td></td><td>32</td></tr><tr><th>Winter mix GRASS SPECIES</th><th>COMMON NAME</th><th>APPLICATION RATE (kg/ha)</th></tr><tr><td><i>Desmodium intortum</i></td><td>Green leaf desmodium</td><td>3</td></tr><tr><td><i>Digitaria eriantha</i></td><td>Smutsfinger grass</td><td>8</td></tr><tr><td><i>Lolium multiflorum</i></td><td>Italian rye grass</td><td>20</td></tr><tr><td><i>Panicum maximum</i></td><td>Guinea grass</td><td>4</td></tr><tr><td><i>Phalaris tuberosa</i></td><td>Harding grass</td><td>3</td></tr><tr><td>TOTAL</td><td></td><td>38</td></tr></table>	GRASS SPECIES	COMMON NAME	APPLICATION RATE (kg/ha)	<i>Chloris gayana</i>	Rhodes grass	4	<i>Cynodon dactylon</i>	Couch grass	5	<i>Desmodium intortum</i>	Green leaf desmodium	3	<i>Digitaria eriantha</i>	Smutsfinger grass	8	<i>Eragrostis tef</i>	Teff	8	<i>Panicum maximum</i>	Guinea grass	4	TOTAL		32	Winter mix GRASS SPECIES	COMMON NAME	APPLICATION RATE (kg/ha)	<i>Desmodium intortum</i>	Green leaf desmodium	3	<i>Digitaria eriantha</i>	Smutsfinger grass	8	<i>Lolium multiflorum</i>	Italian rye grass	20	<i>Panicum maximum</i>	Guinea grass	4	<i>Phalaris tuberosa</i>	Harding grass	3	TOTAL		38
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		A11.8.7	EXECUTION OF THE WORKS																																														
			A11.8.7.3 Grassing																																														
			c) Hydroseeding	Seed mix as per A11.8.5.2d) above.																																													
	A12.5		SHOTCRETE																																														
		A12.5.3	GENERAL																																														
			A12.5.3.2 Materials and materials design approvals	The shotcrete shall be required to be Class SP30 at 28 days.																																													
		A12.5.4	DESIGN BY CONTRACTOR / PERFORMANCE BASED SYSTEMS																																														
			A12.5.4.1 General	For this project shotcrete will be used as a protective layer to cover mudstone layers in road cuttings, which are interspersed with layers of hard sandstone.																																													

				<p>Pre-splitting will be done during blasting in order to create as smooth a cut face as possible,</p> <p>On completion of the excavation the cut face will be cleaned by the contractor, under supervision of a geotechnical engineer, who will provide instruction on the areas that will require shotcreting.</p> <p>The mudstone layers will be hand excavated to a depth of +/-150mm and geopipes installed against the cut face, prior to applying fibre reinforced shotcrete.</p> <p>Where cut stability is deemed to be compromised, welded steel mesh and soil nails will be introduced.</p>
		<b>A12.5.5</b>	<b>MATERIALS</b>	
			<b>A12.5.5.8 Reinforcement</b>	Ref 395 welded mesh or polypropylene fibre, according to the application.
			<b>A12.5.5.9 Compressive strength, ultimate flexural strength and energy absorption capacity</b>	The shotcrete shall be required to be Class SP30 at 28 days.
			<b>A12.5.5.10 Drainage systems, geopipe collectors and weepholes</b>	150mm wide geosynthetic drains to be used with 50mm diameter uPVC weepholes
		<b>A12.5.7</b>	<b>EXECUTION OF THE WORKS</b>	
			<b>A12.5.7.17 Aesthetic appearance</b>	Undisturbed nozzle finish.
	<b>A12.6</b>		<b>MECHANICALLY STABILISED EARTH AND GABIONS</b>	
		<b>A12.6.4</b>	<b>DESIGN BY CONTRACTOR / PERFORMANCE BASED SYSTEMS</b>	
			<b>A12.6.4.1 General</b>	<p>There are 19 No new fill retaining walls along the project route, with a total length of 5400m, totalling 27 183 m<sup>2</sup> in area and 13 No cut retaining walls totalling 5485m in length and 26 727m<sup>2</sup> in area.</p> <p>The Contractor is required to provide a comprehensive design for a precast concrete modular gravity retaining wall system, including soil reinforcement.</p> <p>The modular retaining system shall be integrated with cast in situ concrete bridge parapets and foundations which are designed to provide H4b containment as prescribed in TMH24 SA road Restraint Systems Manual.</p> <p>Refer to Volume 5 for the design data related to the MSE walls and concrete parapets.</p> <p>Lateral support by means of geofabric wrapping will be required for the half width construction of fills as part of the traffic</p>

				accommodation strategy. Refer to Chapter C4.1.1 of Volume 3, Book 3, for information related to the proposed traffic accommodation methods.
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**COTO CHAPTER 20:QUALITY ASSURANCE**

CH	SEC	CL	SUB-CLAUSE	SPECIFICATION DATA
20			QUALITY ASSURANCE	
	A20.1		TESTING MATERIALS AND JUDGEMENT OF WORKMANSHIP	
		A20.1.3	TESTING METHODS	
			A20.1.3.3 The Costs of Testing	
			a) Material and workmanship for quality control	<p>Testing will be undertaken by an independent site laboratory as indicated under A20.1.3.3 a)(i).</p> <p>The total estimated cost of the independent site laboratory for the contract period as per Clause A20.1.3.3 a)(ii) is R50 000 000.00 (Fifty million rand).</p>

**SPECIFICATION DATA FOR SANRAL STANDARD SPECIFICATION SECTIONS**



SECTION	CL	SUB-CLAUSE	SPECIFICATION DATA
SECTION C		ENVIRONMENTAL MANAGEMENT PLAN	
	C1004	ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS	
		(d) The Designated / Dedicated Environmental Officer (DEO)	DEO means: Designated Environmental Officer The approved DEO should be full-time and must be dedicated to this function.
	C1012	PROJECT SPECIFIC CONDITIONS	Refer to C1012 for project specific specifications. The Employer will consider monitoring and reporting in terms of a sustainability rating tool and the Contractor will be required to engage through its appointed DEO with the ECO to provide all the relevant information.
SECTION D		STAKEHOLDER AND COMMUNITY LIAISON AND TARGETED LABOUR AND TARGETED ENTERPRISES UTILISATION AND DEVELOPMENT	
	D1002	DEFINITIONS AND APPLICABLE LEGISLATION	
		D1002.01 Definitions	
		(d) Contract Participation Goal (CPG)	<p><b>i) Specific Goal for Targeted Enterprises is:</b></p> <p>Minimum of <b>(30%)</b> of the Final Contract Value by the end of the contract to Targeted Enterprises</p> <p>Targeted Enterprises appointed for the Community Development work shall not contribute towards the CPG for Targeted Enterprise.</p> <p>The Final Contract Value is defined in clause D1003.04.</p> <p><b>ii) Specific Goal for Targeted Labour is:</b></p> <p>Minimum of 8% of the Final Contract Value by the end of the contract to Targeted Labour</p> <p>Targeted Labour appointed for the Community Development work shall not contribute towards the CPG for Targeted Labour.</p> <p>The Final Contract Value is defined in clause D1003.04</p>

		(t) Target Area(s)	For Targeted Labour: <b>King Sabata Dalindyebo Local Municipality – SPECIF.</b>
		(u) Targeted Enterprise	<b>Target Group for Targeted Enterprise:</b> a. EMEs or QSEs which are at least 51% owned by black people.
		(z) Targeted Labour	<b>Target Groups for Targeted Labour:</b> a. Unemployed black people who: i. are citizens of the Republic of south Africa by birth or descent; or ii. became citizens of the Republic of South Africa by naturalisation before 27 April 1994; or iii. became citizens of the Republic of South Africa by naturalisation on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalisation prior to that date; or b. unemployed women who are South African citizens; or c. unemployed youth (not attending and not required by law to attend an educational institution) as defined in the National Youth Commission Act (Act 19 of 1996); or d. unemployed people with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act (Act 55 of 1998); or e. unemployed black military veterans who qualify to be called a military veteran in terms of the Military Veterans Act (Act 18 of 2011);
	<b>D1003</b>	<b>TARGET GROUP PARTICIPATION</b>	
		<b>D1003.04 Contract Participation Goal (CPG)</b>	
		Specific sub-Goals for minimum contributions by specific Target Groups for Targeted Labour:	
		i) Unemployed black persons who are youth	30% of Targeted Labour value
		ii) Unemployed black persons who are people with disabilities	0.5% of Targeted Labour value
		iii) Unemployed black persons who are women;	30% of targeted labour value
		iv) Unemployed black persons who are military veterans	0.5% of Targeted Labour value
		Specific sub-Goals for minimum contribution by specific Target Groups for Targeted Enterprises:	

		i) Targeted Enterprise with ≥51% ownership by Youth	Minimum of 5% of the Final Contract Value
		ii) Targeted Enterprise with ≥51% ownership by Women	Minimum of 5% of the Final Contract Value
		iii) Targeted Enterprise with ≥51% ownership by Military veterans	Minimum of 1% of the Final Contract Value
		iv) Targeted Enterprise with ≥51% ownership by Disabled persons (Differently abled)	Minimum of 0.5% of the Final Contract Value
		v) Targeted Enterprises who are public transport operators	Minimum of 0.5% of the Final Contract Value
		vi) Targeted Enterprise with CIDB 1 or 2 grading	Minimum of 10% of the Final Contract Value
		vii) Targeted Enterprise with CIDB 3 or 4 grading	Minimum of 10% of the Final Contract Value
		viii) Targeted Enterprise Suppliers of blasted and crushed aggregates	Minimum of 5% of the Final Contract Value
	<b>D1007</b>	<b>TENDER PROCESS FOR TARGETED ENTERPRISES</b>	
		<b>D1007.02 Procedures for Targeted Enterprises Subcontracting</b>	
		(b) Tender process	
		(ii) Conduct a tender briefing and tender training session	The Regional Transformation Officer's contact details are: Name: Thandile Makwabe Cell phone: 071 609 3698 E-mail: makwabet@nra.co.za

	<b>D1008</b>	<b>WORK SUITABLE FOR EXECUTION BY TARGETED ENTERPRISES</b>	<ul style="list-style-type: none"> <li>a) Erection and maintenance of the Contractor's camp site.</li> <li>b) Transporting of local labour</li> <li>c) Clearing and grubbing.</li> <li>d) Removal of trees.</li> <li>e) Provision of traffic control facilities.</li> <li>f) Management of traffic control facilities and traffic safety as part of the accommodation of traffic.</li> <li>g) Construction and clearing of drains.</li> <li>h) Installation of prefabricated culverts including inlet and outlet structures.</li> <li>i) Concrete channelling and concrete linings for open drains.</li> <li>j) Construction of concrete paving, kerbs and channels.</li> <li>k) Construction of small concrete and other structures.</li> <li>l) Construction of concrete walkways.</li> <li>m) Pitching, stonework and protection against erosion.</li> <li>n) Construction of gabions.</li> <li>o) Patching and repairing edge breaks.</li> <li>p) Erection of guardrails.</li> <li>q) Landscaping.</li> <li>r) Fencing.</li> <li>s) Road signs.</li> <li>t) Road markings.</li> <li>u) Finishing the road and road reserve.</li> <li>v) Site Security Services.</li> <li>w) Haulage of materials.</li> <li>x) Supply of plant.</li> <li>y) Supply of fuel, materials and crushed aggregates.</li> <li>z) Transport of all local labour (TEs and main contractor's).</li> <li>aa) Specialised sub-contract work such as: <ul style="list-style-type: none"> <li>i) Construction of concrete pavements.</li> <li>ii) Laying of asphalt using asphalt pavers.</li> <li>iii) Structural concrete such as culvert and bridges.</li> <li>iv) Crushing of materials.</li> <li>v) Precast manufacture.</li> <li>vi) Batch plant erection and operations.</li> <li>vii) Earthworks, layerworks construction.</li> </ul> </li> </ul> <p>Refer to D1008 for a project specific list of possible work types suitable for Targeted Enterprises.</p>
	<b>D1010</b>	<b>TRAINING, COACHING, GUIDANCE, MENTORING AND ASSISTANCE</b>	
		<b>D1010.02 Developing the TSDP</b>	
		<b>a) Skills Development Requirements</b>	
		i) Contract Skills Development Goals (CSDG)	<p>The CSDG shall not be less than 0.25% of the Final Contract Value.</p> <p>The Final Contract Value for purposes of this clause is defined in clause D1003.04</p>

<b>SECTION E</b>		<b>REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS</b>	
<b>SECTION F</b>			Refer to Section F for the Street Lighting specification, which is not contained in COTO.

**SANRAL STANDARD SPECIFICATION SECTIONS**

**SECTION C: ENVIRONMENTAL MANAGEMENT PLAN**

**SECTION C: ENVIRONMENTAL MANAGEMENT PLAN**

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## C1001 SCOPE

The South African National Roads Agency SOC Limited (SANRAL) recognises environmental management as a key component of road infrastructure development and as part of its Environmental Sustainability Framework has developed this Environmental Management Plan (EMP) as a tool for continual improvement in environmental performance.

This EMP prescribes the methods by which proper environmental controls are to be implemented by the Contractor for construction and maintenance projects. The duration over which the Contractor's controls shall be in place cover the construction period of the project as well as the limited time after contract completion defined by the Conditions of Contract for Construction for Building and Engineering Works Designed by SANRAL published by the Federation Internationale des Ingenieurs-Conseils (FIDIC) as the Defects Notification Period (maintenance period).

The provisions of this EMP are binding on the Contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contract, particularly the conditions of any environmental authorisation and associated site-specific Environmental Management Programme (EMPr). In the event that any conflict occurs between the terms of the EMP and the project specifications or environmental authorisation, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification. Any changes to the EMP and/or environmental authorisation cannot occur without being submitted to SANRAL who will manage the process of amending the EMP.

The EMP identifies the following:

- Relevant parties and their responsibilities;
- Construction activities that will impact on the environment;
- Specifications with which the Contractor shall comply in order to protect the environment from the identified impacts; and
- Actions that shall be taken in the event of non-compliance.

## C1002 DEFINITIONS

**Alien Vegetation:** undesirable plant growth which includes but is not limited to all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA), 1983 and the National Environmental Management: Biodiversity Act (Act No. 10 of 2004). Other vegetation deemed to be alien are those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

**Construction Activity:** any action taken by the Contractor, his sub-contractors, suppliers or personnel during the construction process as defined in the contract documents.

**Environment:** the surroundings within which the contract exists and comprises land, water, atmosphere, micro-organisms, plant and animal life (including humans) in any part or combination thereof as well as any physical, chemical, aesthetic or cultural inter-relationship among and between them.

**Environmental Aspect:** any component of a contractor's construction activity that is likely to interact with the environment.

**Environmental authorisation:** a written statement from a Competent Authority, with the general and specific conditions and the EMPr recording its approval of an application for a planned undertaking that triggers listed activities in the Environmental Impact Assessment (EIA) regulations of the National Environmental Management Act (NEMA).

**Environmental Impact:** any change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.



**Environmental Impact Assessment (EIA):** a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and scoping and environmental impact reporting.

**Environmental Management Plan:** An Environmental Management Plan (EMP) is an environmental management tool used to ensure that adverse impacts of the construction and operation and decommissioning of a project are prevented and/or minimised, and that the positive benefits are enhanced.

**Environmental Management Programme (EMPr):** A project-specific Environmental Management Plan approved by a competent authority through an environmental impact assessment process.

**Road Reserve:** a corridor of land, defined by co-ordinates and/or proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.

**Site:** the site is defined in the FIDIC Conditions of Contract and in the scope of works. It is bound by the limits of construction as shown in the drawings or the title of the project and extends to also include the following:

- Areas outside the construction zones where accommodation of traffic is placed;
- All borrowpits defined in the applications approved by the Department of Mineral Resources (DMR);
- All haul roads constructed by the Contractor for purposes of access;
- Any non-adjacent sites specified in the contract documentation;
- The Contractor's and his subcontractors' camp sites.

For the purposes of this EMP, the site includes areas outside of, but adjacent to, the road reserve that may be affected by construction activities.

**Spoil material** is material that is unsuitable for construction of the road pavement and for which no other useful purpose can be found in additional works on the project (e.g. for the provision of protection berms). Such material requires spoiling at convenient areas to be identified by the Engineer and/or Contractor within the Site. Spoil material does not require removal to a designated landfill site unless it contains identifiable hazardous contaminants.

## **C1003    LEGAL REQUIREMENTS**

### **(a)    General**

Construction shall be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the Contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The Contractor should note that obligations imposed by the EMP are legally binding in terms of this contract. In the event that any rights and obligations contained in this EMP contradict those specified in the standard or project specifications then the latter shall prevail.

### **(b)    Statutory and other applicable legislation**

The Contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

Major environmental legislation, as amended from time to time, includes but is not limited to the following:

(i) Conservation of Agricultural Resources Act (Act No. 43 of 1983)

This act provides for control over the utilisation of the natural agricultural resources of South Africa in order to promote the conservation of soil, water sources and vegetation, as well as combating weeds and invader plants.

(ii) The Constitution (Act 6 of 1996)

The Constitution states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected through reasonable legislative and other measures to prevent pollution and ecological degradation; promote conservation and ensure ecologically sustainable development and use of natural resources.

(iii) Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)

This act makes provision for equitable access to, and sustainable development of, minerals and petroleum resources.

(iv) National Environmental Management Act (NEMA), (Act No. 107 of 1998)

This act supports the Bill of Rights within the Constitution and highlights principles of sustainable development including preservation of ecosystems and biological diversity and avoidance, minimisation and remediation of pollution and environmental degradation. It also sets the stage for the EIA Regulations.

(v) National Environmental Management: Air Quality Act (Act No. 39 of 2004)

This act provides reasonable measures for the prevention of pollution and ecological degradation; and provides for specific air quality measures; for national norms and standards regulating air quality monitoring, management and control by all spheres of government.

(vi) National Environmental Management: Biodiversity Act (Act No. 10 of 2004)

This act makes provisions to accomplish the objectives of the United Nations' Convention on Biological Diversity. SANRAL may be required to apply for permits to conduct certain listed activities which, together with the listed threatened or protected species, may be identified by the Minister.

Section 73 (3) of this act empowers a competent authority to direct a person to take steps to remedy any harm to biodiversity resulting from the actions of that person or as a result of occurrence of listed invasive species occurring on land on which that person is the owner. Thus SANRAL may be directed to remedy harm caused by listed invasive species.

(vii) National Environmental Management: Protected Areas Act (Act No. 57 of 2003)

This act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity, natural landscapes and seascapes.

(viii) National Environmental Management: Waste Act (Act No. 59 of 2008)

This act aims to regulate waste management practices through provision of national norms and standards, specific waste measures, licensing and control of waste activities, remediation of contaminated land as well as providing for compliance and law enforcement.

(ix) National Forests Act (Act No. 84 of 1998)

This act makes provision for promoting the sustainable management and development of forests, and for the protection of certain forests and trees for environmental, economic, educational, recreational, cultural, health and spiritual purposes.

(x) National Heritage Resources Act (Act No. 25 of 1999)

This act provides for an integrated and interactive system for identification, assessment and management of South Africa's heritage resources, and empowers civil society to nurture and conserve their heritage resources.

(xi) National Water Act (Act No. 36 of 1998)

This act makes provision for the protection of surface water and groundwater and their sustainable management for the prevention and remediation of the effects of pollution, as well as for the management of emergency situations.

(xii) The South African National Roads Agency Limited and National Roads Act (Act No. 7 of 1998)

This Act makes provision for a National Roads Agency for the Republic to manage and control the Republic's national roads system and take charge, amongst others, of the development, maintenance and rehabilitation of national roads within the framework of government policy.

**C1004 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS**

Copies of this EMP shall be kept at the site office and must be distributed to all senior contract personnel who shall familiarise themselves with its contents.

Implementation of this EMP requires the involvement of several stakeholders, each fulfilling a different but vital role as outlined herein, to ensure sound environmental management during the construction phase of a project.

**(a) SANRAL**

SANRAL and anyone acting on SANRAL's behalf is accountable for the potential environmental impacts of any activities that are undertaken and is responsible for managing these impacts.

**(b) The Engineer**

The Engineer has been appointed by, and acts for, SANRAL as its on-site implementing agent and carries the responsibility to ensure that the Contractor undertakes its construction activities in such a way that SANRAL's environmental responsibilities are not compromised.

The Engineer will, within seven days of receiving a contractor's request for approval of a nominated Designated Environmental Officer (DEO), approve, reject or call for more information on the nomination. The Engineer will be responsible for issuing instructions to the DEO where environmental considerations call for action to be taken.

If in the opinion of the Engineer the DEO is not fulfilling his/her duties in terms of this EMP, the Engineer may, after discussion and agreement with SANRAL, exercise his powers under FIDIC general conditions of contract and instruct replacement of the DEO in writing and with stated reasons.

**(c) The Contractor**

The Contractor is responsible for project delivery in accordance with the prescribed specifications, among which this EMP shall be included.

The Contractor shall receive and implement any instruction issued by the Engineer relating to compliance with the EMP including the removal of personnel or equipment.

Compliance with the provisions contained herein or any condition imposed by the environmental approvals shall become the responsibility of the Contractor through an approved Designated Environmental Officer (DEO). The Contractor shall nominate a person from among his site personnel to fulfil this function and submit to the Engineer for his approval the *curriculum vitae* of the proposed DEO. This request for approval shall be given, in writing, at least fourteen days before the commencement of any construction activity clearly setting out reasons for the nomination, and with sufficient detail to enable the Engineer to make a decision.

**(d) The Dedicated Environmental Officer (DEO)**

Once a nominated representative of the Contractor has been approved, he/she shall become the DEO and shall be the responsible person for ensuring that the provisions of this EMP are complied with during the life of the contract. The DEO shall submit regular written reports to the Engineer, but not less frequently than once a month.

The DEO may undertake other construction duties unless Section B: Specification Data, prescribes this position as 'Full-time' or 'dedicated' as opposed to the standard position being 'designated'. However, the DEO's environmental duties shall hold primacy over other contractual duties and the Engineer has the authority to instruct the Contractor to reduce the DEO's other duties or to replace the DEO if, in the Engineer's opinion, he/she is not fulfilling his/her duties in terms of the requirements of this EMP. Such instruction will be in writing clearly setting out the reasons why a replacement is required.

As a minimum the DEO shall have an accredited National Qualifications Framework (NQF) level 6 qualification in environmental or natural sciences.

In addition to the compliance duties relating to EMP the DEO shall also provide full cooperation whenever the Contractor is subjected to environmental audits.

**(e) Environmental Control Officer (ECO)**

The Environmental Control Officer (ECO) is an independent environmental specialist appointed by SANRAL or the Engineer to objectively and regularly monitor the Contractor's compliance with the conditions of the authorisations issued for the project and the approved EMP (that is this EMP augmented with specifics of the project). These are external audits and the regularity is determined by the environmental authorisations.

**C1005 TRAINING**

**(a) Qualifications**

The (DEO) shall have the minimum qualifications as prescribed above and must be conversant with all legislation pertaining to the environment applicable to the contract. He/she must be appropriately trained in environmental management and possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The Contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees.

**(b) Content**

Apart from induction environmental training should, as a minimum, include the course content below and no induction or course should be given until the Engineer has been afforded the opportunity to appraise it and provide comment.

- (i) The importance of conformance with all environmental policies and the consequences of departure from standard operating procedures;
- (ii) Environmental impacts, actual or potential, caused by work activities, prevention measures to avoid them and mitigation measures when they occur;
- (iii) Work force roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements;
- (iv) The environmental benefits of improved personnel performance and
- (v) Consequences of non- compliance

**(c) Induction**

In the case of permanent staff the Contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Contractor shall inform the Engineer when and how he intends concluding his environmental training obligations.

**C1006**

**ACTIVITIES/ASPECTS CAUSING IMPACTS**

Typical environmental aspects and impacts associated with road construction are listed in Table 1: Aspects and Impacts Associated with Road Construction. Actual impacts will differ from project to project and, therefore, so may the mitigation measures employed. The most common aspects and impacts are addressed separately, and typical avoidance and/or mitigation measures described. The list and descriptions are not by any means exhaustive, and they shall be used for guideline purposes only.

**Table 1: Aspects and Impacts Associated with Road Construction**

<b>Aspect</b>	<b>Potential Impact</b>
Waste generation/storage	Water pollution; nuisance; visual impact
Water use and stormwater discharge	Change in flow regime and/or reduction in downstream availability; soil erosion: water pollution
Vehicle use and maintenance	Air pollution; noise
Chemical/fuel storage	Water/air/soil pollution; health impacts; accidents e.g. spills, fire
Site clearing; earthworks; layer-works; seal works	Change in landform; impact on heritage resources; noise; soil erosion; air pollution
River bridges; installing drainage structures	Water pollution; impact on river flows; noise
Land acquisition	Loss of land and/or livelihood; change in land use;
Acquisition of building material from borrow pits	Change in landform and use

**(a) General approach**

The role of the DEO cannot be underestimated and once approved he/she shall be on the site at all times, and before the Contractor begins each construction activity, he/she shall give to the Engineer a written statement setting out the following:

- (i) The type of construction activity about to be started.
- (ii) Locality where the activity will take place.
- (iii) Identification of the environmental aspects and impacts that might result from the activity.
- (iv) The methodology of impact prevention for each activity or aspect.
- (v) The methodology of impact containment for each activity or aspect.
- (vi) Identification of the emergency/disaster potential for each activity (if any) and the reaction procedures necessary to mitigate impact severity.
- (vii) Treatment and continued maintenance of impacted environment.

The Contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified, and the activity planned so as to prevent any impact from happening and shall demonstrate that he is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce method statements for each construction activity in compliance with the provisions of these project specifications.

The Contractor shall provide such information in advance of any or all construction activities provided that new submissions shall be given to the Engineer whenever there is a change or variation to the original.

The Engineer may provide comment on the methodology and procedures proposed by the DEO, but he shall not be responsible for the Contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the Contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

**(b) Spillages**

Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous products. In the event of a spillage, the Contractor shall be liable to arrange for professional service providers to clear the affected area.

Responsibility for spill containment and treatment (whether hazardous or not) lies with the Contractor. The individual causing a spill, or who discovers a spill, must report the incident to his/her DEO or to the Engineer. The DEO will assess the situation in consultation with the Engineer and act as required. In all cases, the immediate response shall be to contain the spill. The exact treatment of polluted soil/water shall be determined by the Contractor in consultation with the DEO and the Engineer. Areas cleared of hazardous waste shall be re-vegetated according to the Engineer's instructions.

Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed. The requirement for such input shall be agreed with the Engineer. The costs of containment and rehabilitation shall be for the Contractor's account, including the costs of specialist input as well as the sampling and testing of the water quality upstream and downstream of the spill. Water quality sampling and testing, and further treatment shall continue until upstream and downstream results correspond with each other.

**(c) Water use and control**

The Contractor's use of water shall take into consideration that it is a scarce commodity and shall be optimised. Authorisation shall be obtained from the Department of Water and Sanitation (DWS) before water is drawn from streams or new boreholes developed.

The Contractor shall also ensure that any stream deviations or diversions are undertaken in such a manner that the impact on the environment is minimised. Method statements shall be submitted to the Engineer for comment, detailing how the work will be undertaken, what risks are foreseen and what measures will be employed to minimise such risks. Notwithstanding any comments by the Engineer, no work on stream deviations or diversions shall be undertaken in accordance with GN 509 in GG 40229 of 26 August 2016 - General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 Of 1998) for Water Uses as defined in sections 21(c) and (i) .

The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes. Cognisance shall be taken of these aspects and incorporated into the planning of all construction activities. Before a site is developed or expanded, it shall be established how this

development or expansion will affect the drainage pattern. Recognised water users/receivers shall not be adversely affected by the expansion or re-development. No water source shall be polluted in any way due to proposed changes.

Streams, rivers, pans, wetlands, dams, and their catchments shall be protected from erosion and flooding by dredging, daylighting, removal of debris and vegetation, etc. These shall also be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous products.

The Contractor shall submit to the Engineer his proposals for prevention, containment and rehabilitation measures against environmental damage of the identified water and drainage systems that occur on the site. Consideration shall be given to the placement of sedimentation ponds or barriers where the soils are of a dispersive nature or where toxic fluids are used in the construction process. The sedimentation ponds must be large enough to contain runoff so that they function properly under heavy rain conditions up to 1:5 year severity.

The Contractor shall submit to the Engineer the results of the baseline water quality test taken above and below the site of the proposed activity, and thereafter monthly testing results or at the frequency as may be specified by the Water Use Licence/General Authorisation, where applicable. No taking-over can be authorised until the water quality is shown to be at pre-construction levels or better.

**(d) Vegetation management**

The Contractor shall be responsible for the management of vegetation by protection of indigenous vegetation, especially identified protected species, and the prevention of alien vegetation germinating in areas disturbed by road construction activities within and outside the road reserve. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for or from road construction has been stored temporarily. This responsibility shall continue for the duration of the defects notification period. The project specification may instruct the removal of CARA and/or NEMBA-listed category 1 and 2 alien species and planting of specified indigenous species.

**(e) Dust control**

Dust caused by construction activities shall be controlled by appropriate means and applied at sufficient frequency so as not to cause nuisance to adjacent habitation or affect farming activities or natural vegetation. Vegetation cover should also be kept for as long as possible to reduce the area of exposed surfaces. Dust emissions from batching and screening plants shall be subject to the relevant legislation and shall be the subject of inspection by the relevant authorities.

**(f) Noise control**

The Contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance, for instance blasting and crushing activities, should only be carried out during the hours prescribed by the conditions of contract (i.e. normal hours). Should such noise generating activities have to occur at any time outside normal hours the people in the vicinity of the noise-generating activity shall be warned about the noise well in advance and the activities kept to a minimum. Relevant legislation shall also be taken into consideration, and any practical mitigation measures adopted. No noise generating activity outside of normal hours, regardless of its proximity to residences, can take place without application to the Engineer for approval. The application shall be accompanied by the noise containment measures proposed.

**(g) Energy consumption**

The Contractor shall take into consideration the impacts of high energy consumption, both from a cost and emissions point of view. Energy use shall be minimised, and where possible, alternative energy sources such as solar utilised.

Furthermore, the Contractor shall measure and keep records of the consumption of carbon units his chosen method of construction produces in the execution of his programme. In conjunction with the Engineer who will provide complete cooperation, a month-by-month output shall be compiled and efforts made to see how these outputs can be curtailed and reduced.

## **C1007 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES**

The Contractor shall undertake “good housekeeping” practices during construction as stated in the COTO Standard Specifications for Roads and Bridges and the FIDIC conditions of contract. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leaves production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

The construction activities addressed below shall become part of the Contractor's obligations regarding his programme of work and incorporated into the required method statements for workmanship and quality control.

### **a) Site establishment**

#### **i) Site Plan**

The site refers to an area with defined limits on which the project is located. The Contractor shall establish his construction camps, offices, workshops, staff accommodation and testing facilities on the site in a manner that does not adversely affect the environment. However, before any site establishment can begin, the Contractor shall submit to the ECO for his comments and to the Engineer for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the Contractor proposes to put in place.

The plans shall detail the locality as well as the layout of the waste management facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas, as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course. No camp establishment, including satellite camps, can be placed within 150 metres of an identified watercourse unless the Contractor has applied to DWS and received authorisation to do so. Regardless of the chosen site, the Contractor's intended mitigation measures shall be indicated on the plan. The site plan shall have been submitted and approved before establishment commences. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept by the ECO and the Engineer for consultation during rehabilitation of the site in order that rehabilitation is, as a minimum, done to a standard similar to pre-construction activities.

#### **ii) Vegetation**

The Contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation.

The natural vegetation encountered on the site is to be conserved and left as intact as possible. Vegetation planted at the site shall be indigenous and in accordance with instructions issued by the Engineer. Only trees and shrubs directly affected by the works, and such others as may be indicated by the Engineer in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, the same species of indigenous



trees as were occurring shall be re-established. Protected trees may not be removed without a permit from the Department of Forestry, Fisheries and Environment.

Contravention of a notice of listed protected tree species under the National Forests Act, 1998 is regarded as a first category offence that may result in a fine or imprisonment for a period up to three years, or to both a fine and imprisonment. The DEO must be conversant with the latest gazette of declared protected trees.

Rehabilitation shall be undertaken using only indigenous tree, shrub and grass species. Special attention shall be given to any search and rescue operation identified during the environmental assessment process and any removal to an on-site nursery for continuous nurturing and protection and later replanting.

Any proclaimed weed or alien species that propagates during the contract period shall be cleared by hand before seeding.

Fires shall only be allowed in facilities or equipment specially constructed for this purpose. The need for a firebreak shall be determined in consultation with the Engineer and the relevant authorities, and if required a firebreak shall be cleared and maintained around the perimeter of the camp and office sites.

iii) Water management

Water for human consumption shall be available at the site offices and at other convenient locations on site.

All effluent water from the camp/office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water sources (streams, rivers, pans, dams etc.). Only domestic type wastewater shall be allowed to enter this system.

iv) Heating and cooking fuel

The Contractor shall provide adequate facilities for his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

**b) Sewage management**

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of the Engineer, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a specialist service provider. The type of sewage management will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the Engineer. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system and shall be approved by the Engineer in consultation with the ECO.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Engineer.

### **c) Waste management**

The Contractor's intended methods for waste management shall be outlined and implemented at the outset of the contract and shall be to the satisfaction of the Engineer. A waste inventory shall be drawn up of all waste streams that will possibly be generated by the site/project and an integrated approach shall be taken to its management. Records shall be kept of all waste disposed. Opportunities for avoiding, reducing, reusing and recycling of materials should be identified upfront, as should constraints for their implementation. All personnel shall be instructed to dispose of all waste in the proper manner.

#### **i) Solid waste**

Solid waste shall be stored in an appointed area in covered, tip-proof metal drums or similar container for collection and disposal. Disposal of solid waste shall be at a licensed landfill site or at a site approved by the relevant authority in the event that an existing operating landfill site is not within reasonable distance from the project area. No waste shall be burned or buried at or near the project area.

#### **ii) Litter**

No littering by construction workers shall be allowed and particular emphasis on litter control measures shall apply at stop/go facilities.

During the construction period, the various contractors' facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter. At all places of work the Contractor shall provide litter collection facilities for later safe disposal at approved sites.

#### **iii) Hazardous waste**

Hazardous waste such as oils shall be disposed of at an approved landfill site and proof of such disposal kept by the Contractor. Special care shall be taken to avoid spillage of bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating surface water.

Under no circumstances shall the spoiling of bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected bituminous products shall be returned to the supplier's production plant. Any spillage of bituminous products shall be attended to immediately and affected areas shall be promptly reinstated to the satisfaction of the Engineer.

#### **iv) Construction and demolition waste**

The opportunity for recycling and reuse of construction and demolition waste as fill for road embankments, land reclamation and drainage control must first be explored and take priority before the option of declaring these materials a 'waste'.

The Contractor is encouraged to actively engage with authorities and landowners adjacent to the site and identify where such materials can be

usefully deployed to repair existing environmentally damaged areas such as erosion dongas.

**d) Control at the workshop**

The Contractor's management and maintenance of his plant and machinery will be monitored according to the criteria given below.

i) Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials such as bitumen binders shall be stored in a secured, appointed area that is suitably fenced, bunded and has restricted entry. Storage of bituminous products shall only take place using suitable containers to the approval of the ECO and the Engineer.

The Contractor shall provide proof to the Engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected, the Contractor shall furnish the Engineer with details of the preventative measures he proposes to install in order to mitigate pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor that is bunded. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

ii) Fuel and gas storage

The Contractor shall take cognisance of the limits set by legislation for the storage of fuels and acquire the necessary authorisation for storage capacity beyond these. An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any leakage spillage or overflow of these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. Any leakage, spillage or overflow of fuel shall be attended to without delay.

Gas welding cylinders and LPG cylinders shall be stored chained in a secure, well-ventilated area exterior to any building wall.

iv) Oil and lubricant waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by a specialist oil recycling company.

Drip trays shall be used to collect any lubricants or fuel spilled where any vehicle and machinery are repaired or refuelled. The lubricants and fuel collected shall be handled as specified above.

All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.

**e) Clearing the site**

In all areas where the Contractor intends to or is required to clear the natural vegetation and soil, either within the road reserve, or at designated or instructed areas outside the road reserve, a plan of action shall first be submitted to the Engineer for his approval. Working areas shall be clearly defined and demarcated on site to minimise the construction footprint. "No-go-areas" and other sensitive areas shall also be clearly demarcated on site, and staff must be made aware of them.

The plan of action shall contain a photographic record and chainage/land reference of the areas to be disturbed. This shall be submitted to the Engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during inspections.

#### **f) Soil management**

##### **i) Topsoil**

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The contract will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is the natural soil covering, including all the vegetation and organic matter. Depth may vary at each site. The areas to be cleared of topsoil shall include all storage areas. All topsoil stockpiles and windrows shall be maintained throughout the contract period in a weed-free condition. Weeds appearing on the stockpiled or windrowed topsoil shall be removed by hand. Soils contaminated by hazardous substances shall be disposed of at an approved waste disposal site. The topsoil stockpiles shall be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself be eroded by the action of water.

The Contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be top-soiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns. The Contractor's programme shall clearly show the proposed rate of progress of the application of topsoil and grassing. The Contractor shall be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil due to his failure to work according to the progress plan approved by the Engineer. The Contractor's responsibility shall also extend to the clearing of drainage or water systems within and beyond the boundaries of the road reserve that may have been affected by such negligence.

##### **ii) Subsoil**

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the Engineer, and if not used for road building it shall be stored and maintained separately from the topsoil so that neither stockpile is contaminated by the other. This soil shall be used for rehabilitation purposes by first spreading it over the excavated slopes without interfering with or contaminating the stockpiled topsoil.

Whilst in stockpile it shall be maintained free from erosion and weed infestation in the same way as for topsoil stockpile maintenance.

#### **g) Earthworks and layerworks**

This section includes all construction activities that involve the mining of all materials, and their subsequent placement, stockpile, spoil, treatment or batching, for use in the permanent works, or temporary works in the case of deviations. Before any stripping prior to the commencement of construction, the Contractor shall have complied with the requirements of this EMP. In addition, the Contractor shall take cognisance of the requirements set out below.

#### **h) Quarries and borrow pits**

The Contractor's attention is drawn to the requirement of the Department of Mineral Resources, that before entry into any quarry or borrow pit, an Environmental Authorisation for the establishment, operation and closure of a quarry or borrow pit shall have been approved by the Department where applicable. It is the responsibility of the Contractor to ensure that he is in possession of the authorisation prior to entry into the quarry or borrow pit. The conditions imposed by the relevant authorisation are legally binding on the Contractor and may be more extensive and explicit than the requirements of this specification. In the event of any conflict occurring between the requirements of the specific authorisation and this EMP, the former shall apply.

i) Excavation, hauling and placement

The Contractor shall provide the ECO and the Engineer with detailed plans of his intended construction processes prior to starting any cut or fill or layer. The plans shall detail measures by which the impacts of pollution (noise, dust, litter, fuel, oil and sewage), erosion, vegetation destruction and deformation of landscape will be prevented, contained and rehabilitated. Particular attention shall also be given to the impact that such activities will have on the adjacent built environment. The Contractor shall demonstrate his "good housekeeping", particularly with respect to closure at the end of every day so that the site is left in a safe condition.

ii) Spoil sites

The Contractor shall be responsible for the safe siting, operation, maintenance and closure of any spoil site he uses during the contract period, including the defects notification period. This shall include existing spoil sites that are being re-entered. Before spoil sites may be used proposals for their locality, intended method of operation, maintenance and rehabilitation shall be given to the ECO for his/her comments and to the Engineer for his approval. The location of these spoil sites shall have signed approval from the affected landowner before submission to the ECO and the Engineer. No spoil site shall be located within 50m of any watercourse. A photographic record shall be kept of all spoil sites for monitoring purposes. This includes before the site is used and after re-vegetation.

The use of approved spoil sites for the disposal of any waste shall be prohibited. Spoil sites will be shaped to fit the natural topography. Depending on availability these sites shall receive a minimum of 75mm topsoil and be grassed with the recommended seed mixture. Appropriate grassing measures to minimise soil erosion shall be undertaken by the Contractor. This may include both strip and full sodding. The Contractor may motivate to the Engineer for other acceptable stabilising methods. The Engineer may only approve a completed spoil site at the end of the defects notification period upon receipt from the Contractor of a landowner's clearance notice.

iii) Stockpiles

The Contractor shall plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material shall be indicated and demarcated on the site plan submitted in writing to the Engineer for his approval. The Contractor's proposed measures for prevention of environmental damage, containment and subsequent rehabilitation shall also be submitted.

The areas chosen shall have no naturally occurring indigenous trees and shrubs present that may be damaged during operations. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. During the life of the stockpiles the Contractor shall at all times ensure that they are positioned and sloped to create the least visual impact, constructed

and maintained so as to avoid erosion of the material and contamination of surrounding environment and kept free from all alien/undesirable vegetation.

After the stockpiled material has been removed, the site shall be re-instated to its original condition. No foreign material generated/deposited during construction shall remain on site. Areas affected by stockpiling shall be landscaped, top soiled, grassed and maintained at the Contractor's cost until clearance from the Engineer and the landowner is received.

Material milled from the existing road surface that is temporarily stockpiled in areas approved by the Engineer within the road reserve, shall be subject to the same condition as other stockpiled materials. Excess materials from windrows, in situ milling or any leftover material from road construction activities may not be swept off the road and left unless specifically instructed to do so in the contract documentation or under instruction from the Engineer.

The ECO shall comment on, and the Engineer shall approve, the areas for stockpiling and disposal of construction rubble before any operation commences and shall approve their closure only when they have been satisfactorily rehabilitated.

iv) Blasting activities

Wherever blasting activity is required on the site (including quarries and/or borrow pits) the Contractor shall rigorously adhere to the relevant statutes and regulations that control the use of explosives.

**i) On site plant**

i) Crusher, screening plants and concrete batching plants

Crushing plants and concrete batching plants, whether sited inside or outside of defined quarry or borrow pit areas, shall be subject to the requirements of the applicable industrial legislation that governs gas and dust emissions into the atmosphere. Such sites will be the subject of regular inspections by the relative authorities during the life of the project. In addition, the selection, entry onto, operation, maintenance, closure and rehabilitation of such sites shall be the same as for those under section C1007(g)(i) of this EMP, with the exception that the Contractor shall provide additional measures to prevent, contain and rehabilitate against environmental damage from toxic/hazardous substances. In this regard the Contractor shall provide plans that take into account such additional measures as concrete floors, bunded storage facilities, linings to drainage channels and settlement dams. Ultimate approval of these measures shall be from the relevant authority, as shall approval of closure. The Engineer will assist the Contractor in his applications to the relevant authority.

Screening activities shall be undertaken so that dust and noise is minimised. This can be done by carefully choosing the site for the activity, and by using slightly damp material.

Effluent from concrete batch plants and crusher plants shall be reused where possible or treated in a suitable designated sedimentation dam to the legally required standards to prevent surface and groundwater pollution. The designs of such a facility should be submitted to the Engineer for approval.

ii) Asphalt Plant

Asphalt plants shall be subject to the applicable legislation that governs establishment and operation of batching plants. The Contractor shall be responsible to obtain the necessary permit from the relevant authority.

Operation of the plant shall conform to the same requirements as for a crushing plant or concrete batching plant under C1007(h)(i) above.

## **C1008 AREAS OF SPECIFIC IMPORTANCE**

Any area, as determined and identified within the project documents as sensitive or of special interest within the site shall be treated according to the express instructions contained in these specifications or the specific environmental authorisation, as well as the approved EMP. The Contractor may offer alternative solutions to the Engineer in writing should he consider that construction will be affected in any way by the hindrance of the designated sensitive area or feature. However, the overriding principle is that such defined areas requiring protection should not be changed. Every effort to identify such areas within the site will have been made prior to the project going out to tender. The discovery of other sites with archaeological or historical interest that have not been identified shall receive ad hoc treatment.

### **a) Archaeological sites**

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Engineer of such discovery. The South African Heritage Resource Agency (SAHRA) is to be contacted, and a SAHRA-registered archaeological consultant may undertake the necessary work involved in confirming the find and advising on how it should be preserved or removed. Work may only resume once clearance is given in writing by the archaeologist. (Read with FIDIC condition of contract clause 4.24)

If a grave or midden is uncovered on site then all work in the immediate vicinity of the graves/middens shall be stopped, and the Engineer informed of the discovery. The South African Heritage Resource Agency and the South African Police Services (SAPS) should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with SAHRA, be responsible for attempts to contact family of the deceased and for the place where the exhumed remains can be re-interred.

## **C1009 Rehabilitation**

The Contractor shall be responsible for the re-establishment of grass within the road reserve boundaries for all areas disturbed during construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for, or from, construction has to be stored temporarily, and designated or instructed areas outside the road reserve. It also includes the area where site offices were erected which may require rehabilitation at the end of the contract. All construction material, including concrete slabs and barbecue (braai) areas shall be removed from the site on completion of the contract unless written approval from the relevant landowner demonstrates it is to be left in place.

Responsibility for re-establishment of vegetation shall extend until expiry of the defects notification period. However, SANRAL reserves the right to continue holding retention monies (or not releasing guarantees in lieu of retention) depending upon the state of cover at the end of the defects notification period. Such extension may continue until closure of the relevant quarry or borrow pit has been secured,

Rehabilitation of affected areas should be undertaken as early as possible when the relevant activities are done in order to reduce further environmental damage. All re-vegetation should be undertaken using indigenous vegetation. The standard of rehabilitation should be to the satisfaction of the Engineer and the relevant authorities. The Department of Minerals Resources will only issue closure certificates for borrow pits and quarries when they are satisfied with the rehabilitation undertaken. It should also be noted that in some cases there is a requirement for a final environmental audit covering the extent of the project.

## **C1010 RECORD KEEPING**

The Engineer and the DEO will continuously monitor the Contractor's adherence to the approved impact prevention procedures and the DEO shall submit regular written reports to the ECO and to the Engineer at least once a month. The DEO will report the environmental compliance performance of the project at regular site meeting. The Engineer shall issue to the Contractor a notice of non-compliance whenever transgressions are observed. The DEO shall document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance shall be documented and reported to the Engineer in the monthly report.

Copies of all authorisations shall be kept on site and made available for inspection by visiting officials from SANRAL, relevant authorities or internal/external auditors.

## **C1011 COMPLIANCE AND PENALTIES**

The Contractor shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and an oral report given at the monthly site meetings.

Any non-compliance/omissions with the procedures in this EMP, environmental authorisations and the approved EMPr constitute a breach of the Conditions of Contract. Regulatory financial penalties imposed on SANRAL shall be passed onto the defaulting parties.

## **C1012 PROJECT SPECIFIC CONDITIONS**

Refer to Volume 7 for the Environmental Authorisations, Basic Assessment Reports and specialist study reports (Heritage and Palaeontological). **The recommendations are:**

- No heritage sites or features occur within 50m from the footprint.
- The area is also not part of any known cultural landscape.
- There is no need for mitigation in terms of general heritage as no sites or features will be threatened by the proposed development.
- Although the consultant did not see any graves it is possible that 'invisible' graves may be exposed during the proposed development. Should this be the case then all construction activities must be halted and a heritage consultant or the Eastern Cape PHRA be contacted for further evaluation.
- It is also important to point out that a ground survey of the project area by a qualified palaeontologist will be required before any development may take place.
- It should be pointed out that the South African Heritage Act requires that all activities should cease immediately should the developers unearth any additional heritage sites or artefacts pending an evaluation by the heritage authorities.
- The PEM and ECO's must be informed of the fact that a Very Low to Very High Palaeontological Sensitivity was allocated to the entire development and due to the highly weathered nature of the material, significant fossils is expected after the start of excavations for foundations that exceed 1.5m.
- A "Chance Find Protocol" is included in the EMPr of the Project and a reasonable budget must be allocated to ensure compliance with the legal responsibility of the developer in terms of the proper conservation of and storage of Palaeontological Heritage.



SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED

CONTRACT SANRAL N.002-180-2018/1R

FOR THE PROVISION OF WORK CONSTRUCTION SERVICES FOR THE UPGRADE ON  
NATIONAL ROUTE N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6) AND MTHATHA (KM  
85.0) FOR A PERIOD OF FIFTY-THREE (53) MONTHS INCLUDING FIVE (5) MONTHS  
MOBILISATION)

**SECTION D: STAKEHOLDER AND COMMUNITY LIAISON, AND TARGETED LABOUR AND TARGETED ENTERPRISES UTILISATION AND DEVELOPMENT**

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D1001 SCOPE

Section D of the Specifications describes the structured engagement with project Stakeholders and affected Communities to the project. It also guides the selection and the enhanced utilisation and development of Targeted Labour and Targeted Enterprises.

**D1001.01 Principles for Project Liaison, Targeted Enterprise Sub-contracting, and Targeted Labour Sourcing in SANRAL Projects (Fourteen Point Plan)**

The scope of the work described in this Section D of the Specifications shall be based on the Employer's Principles for Project Liaison, Targeted Enterprise sub-contracting and Targeted Labour sourcing in all SANRAL projects, which are stipulated below:

1. *SANRAL will establish a Project Liaison Committee (PLC) for every project to create a platform for project communication with the aim to facilitate the Contractor's subcontracting with Targeted Enterprises and the employment of Targeted Labour. It may also include the supply of material and goods, procurement of services, and participation with MOU partners to facilitate successful works execution.*
2. *Communication will be streamlined through the PLC and used to manage the expectations of local business and communities.*
3. *SANRAL will chair PLC meetings and provide secretarial support through the Consulting Engineer or its Agent. Representation on the PLC will comprise SANRAL, the Contractor, the Consulting Engineer (SANRAL's Agent), and other relevant entities such as business representatives, traditional authority representatives, provincial, district, and local municipal representatives (not political office bearers), community representatives, and any other critical local Stakeholder that may be deemed necessary by SANRAL. While serving on the PLC, members must declare any conflict of interest and recuse themselves if requested by the PLC Chairperson.*
4. *The selection process of a Project Liaison Officer (PLO), who will be employed by the Consulting Engineer, must be fair and transparent, and the individual appointed must be supported by the PLC.*
5. *The definition of a Target Area (sometimes referred to as a local area or Project Area) may be varied by SANRAL with the input of the PLC prior to the construction tender being let.*
6. *The setup of databases for Targeted Labour in the Target Area will be done with the input of the PLC. The Targeted Labour database will be disseminated to the PLC for comment and input.*
7. *A system of Targeted Labour selection from the database must be established at a PLC meeting. The Targeted Labour database will be used by the Contractor to recruit Targeted Labour.*
8. *The PLC may give input in identifying areas of the Scope of the Works that are deliverable by Targeted Enterprises, and areas where capabilities are not available locally. All Scope of the Works areas where capabilities are not available locally will be imported from outside of the local area and local service providers will be given an opportunity to learn through one of the structured training options provided in the Contract.*
9. *Capability assessments of Targeted Enterprises will be done with the input of the PLC, prior to the subcontract tender stage commencing, to identify any deficiencies in skills and experience. For Targeted Labour, skills assessments will be done at recruitment stage.*
10. *Targeted Enterprise development support and training must be coordinated and conducted, prior to the sub-contract tender stage commencing, with the input of the PLC.*
11. *The setup of databases for Targeted Enterprises will be conducted with the input of the PLC. The database will be disseminated to the PLC for comment and input. A database will only become final on the date of sub-contract tender closure.*
12. *The Targeted Enterprises on the database must be assisted by the Consulting Engineer and the Contractor to be compliant with the relevant legislation to execute work for a SANRAL project. Targeted Enterprises on the database must be registered on the National Treasury Central Supplier Database (CSD). The databases for Targeted Enterprise subcontracting will be used by the Contractor for open tender processes. Tender processes for Targeted Enterprise subcontracting must be conducted by the Contractor using government principles (e.g., public*

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*opening of received bids, announcement of bidders and prices). The successful tenderers will be tabled, by the Contractor, in the PLC meeting for information purposes.*

13. *Appeals to the tender process, which cannot be resolved by the PLC, must be escalated to SANRAL for an independent review which will be facilitated by the Transformation Unit.*
14. *The Consulting Engineer must ensure that formal contracting arrangements between the Contractor and the Targeted Enterprise Subcontractors are in place in all projects.*

These principles must be applied to facilitate better project level liaison with project Stakeholders and affected Communities. In addition, these principles serve to ensure communication and transparency in the execution of the Works and to facilitate inclusivity in the allocation of projects to benefit black business and local communities.

## **D1002 DEFINITIONS AND APPLICABLE LEGISLATION**

The definitions and legislation listed below informs the requirements of this Section D of the Specifications for Stakeholder and Community Liaison, Targeted Labour employment and Targeted Enterprise utilisation and development.

### **D1002.01 Definitions**

Unless inconsistent with the context, in these specifications, the following words, terms or expressions shall have the meanings hereby assigned to them:

#### **a) Business Coaching**

Business Coaching establishes an atmosphere of mutual trust, respect, responsibility, and accountability to motivate the emerging business owner and his team. To that end, the business coach must conduct an ethical and competent practice, based on appropriate professional experience and business knowledge.

#### **b) Community**

The Community consists of South African Citizens, defined in terms of the South African Citizenship Act, (Act 88 of 1995), who permanently reside within the Target and Project Area(s) of the project.

#### **c) Contract Participation**

Contract Participation is the process by which the Employer implements Government's objectives by setting Specific Goals to enhance Targeted Labour and Targeted Enterprises' utilisation and development, which the Contractor must achieve as a minimum.

#### **d) Contract Participation Goal (CPG)**

The CPG is the monetary value of the participation goals set by the Employer for Targeted Labour and Targeted Enterprises expressed as a percentage of the Final Contract Value (excluding provision for Contract Price Adjustment (CPA, also referred to as escalation), contingencies for unforeseen additional expenditure, and Value Added Tax (VAT)).

#### **e) Contract Participation Goal Plan (CPG Plan)**

The CPG Plan outlines how the Contractor intends to achieve the various Specific Goals w.r.t. the CPG as set in the Specification Data. The CPG Plan includes the detail of the Targeted Enterprise work programme, as well as the contents and value of the work packages. See Annexure 7 for the CPG Plan template.

#### **f) Contract Participation Performance (CPP)**

The CPP is the measure of the Contractor's progress in achieving the CPG and the formula for calculating its value is described in Section D1003.05.

**g) Contract Skills Development Goals (CSDG)**

The CSDG is the number of hours or head count of skills development opportunities that a Contractor contracts to provide in relation to work directly related to the Contract or order up to:

- i) completion in the case of a professional service contract,
- ii) the end of the service period in the case of a service contract, and
- iii) practical completion in the case of an engineering and construction works contract.

**h) Domestic Subcontractors**

A Domestic Subcontractor is one in whose selection and appointment the Employer traditionally plays no part in other than simply giving consent when that is required under the terms of the Contract. The appointment of the Subcontractor is treated as something entirely for the benefit of the Contractor and is a purely "domestic matter".

**i) Final Contract Value**

The Final Contract Value also means the Contract Price as defined in FIDIC, sub-clause 1.1.4.2. To calculate the CPG as per Section D1003.04, Contract Participation Goal (CPG), of the Specifications, the Final Contract Value shall exclude CPA, contingencies, and VAT).

**j) Guidance**

Guidance is anticipating where one might go wrong, or where one is doing a task in a complicated, inefficient, or ineffective way, and giving help, advice, and direction as to how to achieve a better result. Guidance is mostly given by a person in the direct reporting line but can be given by anyone. Guidance is not imparting skills but suggesting ways to improve performance.

**k) Labour**

Persons:

- i) who are employed by the Contractor or a Subcontractor in the performance of the Contract, and
- ii) whose monthly earnings are derived from hours worked for a fixed hourly rate which is adjusted from time to time by legislation (as a statutory minimum) and the Contractor's or Subcontractor's employment policies, but
- iii) who are not Targeted Labour as stated in the Specification Data.

The personnel employed by the suppliers of goods and material are not defined as "Labour" for the purposes of this Contract.

**l) Mentoring**

Mentoring is a professional relationship in which an experienced businessperson assists another by giving advice and imparting their knowledge in developing special skills and knowledge that will enhance the less experienced businessperson's professional and personal growth. The objective is to equip the emerging business owner and his team to improve their decision-making skills, being focussed and make positive progress quickly.

**m) Mobilisation Period**

The Mobilisation Period is the period between the Commencement Date and the date of Access to Site, which period (duration) is stated in the Contract Data. Section D1005 of the Specifications describes the purpose and requirements of the Mobilisation Period.

**n) Project Area**

The Project Area is the area through which the road under construction traverse or which is adjacent to and/or in proximity to project operations.

Based on market research and/or requisite resources availability, Project Areas other than defined above may be identified where preference would be given to Targeted Enterprises for subcontracting opportunities.

**o) Project Liaison Committee (PLC)**

The PLC is the Committee that represents the Employer, Engineer, Contractor, project Stakeholders and the Communities affected by the project. It is important to note that:

- i) elected and/or nominated political office bearers may not be members of the PLC, and
- ii) the Engineer and Contractor become members of the PLC on their appointment and participate in the Committee within the scope of their respective roles and responsibilities.

**p) Project Liaison Officer (PLO)**

The PLO is the person who acts as the liaison officer for the project. The PLO facilitates the selection of Targeted Labour to be employed by the Contractor and attends to the day-to-day project, Stakeholder, and Community matters that impact on the parties to the PLC.

**q) Specific Goals**

Specific Goals may include contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination based on race, gender and disability.

The Employer's Specific Goals are set in the Specification Data, and unless otherwise permissible by the Preferential Procurement Policy Framework Act (Act 5 of 2000) and its Regulations, Specific Goals may be set by the Employer for the Contractor to subcontract with Targeted Enterprises in terms of their ownership and/or control, and employ Targeted Labour as follows:

- i) Emes and/or qses which are at least 51% owned by black people as listed below.
- ii) Black people who:
  - a. are citizens of the Republic of south Africa by birth or descent; or
  - b. became citizens of the Republic of South Africa by naturalisation:
    - i. before 27 April 1994; or
    - ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalisation prior to that date.
- iii) Women who are South African citizens.
- iv) Youth as defined in the National Youth Commission Act (Act 19 of 1996).
- v) People with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act (Act 55 of 1998).
- vi) Black military veterans who qualify to be called a military veteran in terms of the Military Veterans Act (Act 18 of 2011).
- vii) Unemployed persons that are black people as listed in iii) to vi) above.
- viii) Unemployed persons not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution.

**r) Stakeholders**

Any Stakeholder listed in the Employer's Communication Policy who is affected by the Employer's operations in the Project Area(s) and/or who has an interest or

concern in the project, either as a decision maker, participant or affected party and may include, amongst others, the following entities:

- i) Relevant Provincial departments.
- ii) Relevant Municipal departments.
- iii) Traditional leadership representation.
- iv) Organised forums representing community interest groups.
- v) Organised forums representing the youth, women, and disabled people.
- vi) Other structured community groups such as religion, education, farming, etc.
- vii) Organised forums representing the transport sector.
- viii) Organised forums representing the business sector.
- ix) Organised forums representing road users and road safety interest groups.
- x) Organised forums representing environmental interest groups.
- xi) Any other relevant stakeholder forum or organisation recognised by the Employer and the local municipality.

**s) Subcontractor**

An entity appointed by the Contractor to execute a portion of the Scope of the Works as defined in the Conditions of Contract under FIDIC subclause 1.1.2.8. This includes both Domestic Subcontractors and Targeted Enterprises.

**t) Target Area**

The geographic area defined in the Specification Data for Targeted Labour, and which typically are:

- i) one or more Provinces,
- ii) one or more Metropolitan or District Municipalities,
- iii) one or more Local Municipalities, or
- iv) one or more Wards that are predominantly located within the Project Area.

**u) Targeted Enterprise**

A Targeted Enterprise is an entity to which the Contractor subcontracts a percentage of the contract value as set in the Specification Data, acting in the capacity of a Subcontractor or JV partner, and

- i) the Contractor does not have any equity holding in the enterprise, either directly or through a flow through calculation in accordance with the amended Construction Sector Code of Good Practice published in Notice 931 of 2017 in Government Gazette No. 41287 of 2017 in terms of the Broad Based Black Economic Empowerment Act (Act 53 of 2003); and
- ii) is registered in terms of the Company's Act (Act No. 71 of 2008) or Close Corporation Act (Act No. 69 of 1984); and
- iii) its ownership adheres to the Specific Goals as set in the Specification Data; and
- iv) is registered with National Treasury's Central Supplier Database; and
- v) is tax compliant prior to award of a subcontract; and
- vi) is CIDB registered where applicable; and
- vii) is COIDA compliant prior to award of a subcontract where applicable.

A Targeted Enterprise may be a:

- a. subcontractor subcontracted to execute a portion of the Scope of the Works,
- b. manufacturer that operates or maintains a factory or establishment that produces materials or goods,
- c. supplier that owns, operates or maintains a store, warehouse or other establishment in which goods are kept in stock, which was bought in its own name, and regularly sold to other parties in the usual course of its business,
- d. service provider who provides professional, technical, or managerial services, including those required for the acquisition of personnel, facilities, equipment, and goods.

Targeted Enterprises are also Subcontractors as defined in the Conditions of Contract under FIDIC subclause 1.1.2.8.

**v) Targeted Enterprise Construction Manager (TE Construction Manager)**

The full-time, dedicated staff member or sub-service provider appointed by the Contractor to develop, implement, and monitor the training, development and support of Targeted Labour and Targeted Enterprises. The Targeted Enterprise Construction Manager also mentors, guides and coaches the Targeted Enterprises.

**w) Targeted Enterprise Monitor**

The Targeted Enterprise Monitor is an independent service provider, or individual, appointed by the Employer's Transformation Unit, to audit the Contractor and his TE Construction Manager's activities with respect to their obligations to Targeted Enterprises.

**x) Targeted Enterprise Procurement Coordinator (TE Procurement Coordinator)**

The staff member or sub-service provider appointed by the Contractor to facilitate the procurement of Targeted Enterprise Subcontractors.

**y) Target Group**

It is a group of entities and/or persons set as the Employer's Specific Goals in the Specification Data for the Contractor to subcontract with Targeted Enterprises and employ Targeted Labour.

**z) Targeted Labour**

Persons:

- i) who are unemployed, and
- ii) who are then employed by the Contractor or a Subcontractor (including Targeted Enterprises) in the performance of this Contract, and
- iii) whose monthly earnings are derived from hours worked for a fixed hourly rate which is adjusted from time to time by legislation (as a statutory minimum) and the Contractor's or Subcontractor's or Targeted Enterprise's employment policies, and
- iv) permanently reside in the Target Area(s) or who are recognized as being residents of the Target Area(s) based on identification and association with, and recognition by, the residents of the Target Area(s), and
- v) who are stated as being Targeted Labour in the Specification Data.

The personnel employed by the Contractor's suppliers and service providers are not defined as "Targeted Labour" for the purposes of this Contract.

**aa) Training**

Training refers to the process of teaching a Trainee, usually in a classroom or simulated work environment situation where principles, theory, knowledge, and skills are taught, and demonstrations are given. Assignments are set to ensure that the Trainee can apply what has been taught. Training is done by a specialist in the subject, and who is qualified and accredited to train. The objective is to improve the competency of the Trainee.

**bb) Training and Skills Development Programme (TSDP)**

The TSDP outlines how the Contractor intends to achieve the CSDG targets, by applying the various training methods described in Section D1010 of the Specifications.

**D1002.02 Applicable Legislation, Regulations and Standards**



The following Acts, as amended from time to time, are predominant amongst those which apply to the Construction Industry and are listed here for reference purposes only:

- a) Constitution of the Republic of South Africa Act, Act No. 108 of 1996.
- b) Public Finance Management Act, Act No. 1 of 1999.
- c) Preferential Procurement Policy Framework Act, Act No. 5 of 2000, and its latest regulations.
- d) The South African National Roads Agency Limited and National Roads Act, Act No. 7 of 1998.
- e) Construction Industry Development Board Act, Act No. 38 of 2000.
- f) Broad-Based Black Economic Empowerment Act, Act No. 53 of 2003, as amended.
- g) Amended Construction Sector Codes, Government Gazette Notice 931 of 2017.
- h) The Skills Development Act, Act No. 97 of 1998.
- i) The Skills Development Levies Act, Act no. 9 of 1999.
- j) The National Small Enterprises Act, Act 102 of 1996, as amended.

The following Standards and Practice Notes, as amended from time to time, are applicable in terms of Targeted Labour and Targeted Enterprises and are used fully or portions thereof in this Section D of the Specifications:

- i) CIDB Standard for Indirect Targeting for Enterprise Development through Construction works Contracts, 29 January 2013 (Government Gazette No. 36190, 25 February 2013).
- ii) CIDB Standard for Developing Skills through Infrastructure Contracts, 08 August 2013 (Government Gazette No. 36760, 23 August 2013), amended by version 2, June 2020 (Government Gazette No. 43495, 03 July 2020).
- iii) CIDB Standard for Minimum Requirements for Engaging Contractors and Subcontractors on Construction Works Contracts, 25 October 2015 (Government Gazette No. 42021, 09 November 2015).
- iv) CIDB Standard for Contract Participation Goals for Targeted Enterprises and Labour through Construction Works Contracts, 31 October 2017 (Government Gazette No. 41237, 10 November 2017).
- v) SANS 10845: 2015, Parts 5, 7 and 8.

## **D1003 TARGET GROUP PARTICIPATION**

This part of Section D of the Specifications describes the Employer's requirements for the establishment of Target Group databases from which participants in the project will be selected for employment and subcontracting.

It also describes the measurement of penalties to be applied with respect to the CPG as defined in the Specification Data.

### **D1003.01 Objectives of Target Group Participation**

Amongst others, the key objectives of Government are to extend economic opportunities and build entrepreneurial capacity in rural and underdeveloped areas and townships by:

- a) optimising the utilisation of local resources in the Project Area,
- b) developing these local resources in the execution of the project, and
- c) maximising the amount of funds retained within the Project Area.

To give effect to these objectives the Contractor shall, over the full duration of the contract, from site establishment up to the completion of the works:

- i) employ Targeted Labour from the Target Area(s) as stated in the Specification Data, and
- ii) subcontract Targeted Enterprises as stated in the Specification Data, and
- iii) give preference to Targeted Enterprises which are from rural and underdeveloped areas and townships within the Project Area(s).

### **D1003.02 Targeted Labour Database**

A system for the recruitment of Targeted Labour shall be established at a PLC meeting prior to the commencement of labour recruitment. This system shall be fair and transparent.

Based on the system for recruitment, a Targeted Labour Database shall be compiled by the Contractor, with the assistance of the PLO and the input of the PLC, for the Target Area(s) as stated in the Specification Data. If necessary, the assistance of the Department of Labour may be called upon to provide a labour database of labourers with the required skills and within the required Target Groups and Target Area(s). Once the Database has been disseminated to the PLC it shall be utilised to facilitate the selection of Targeted Labour as per the resources and skills required by the Contractor during the different construction stages.

The Targeted Labour Database shall be updated as and when required to reflect new employment seekers in the labour market.

Only Labour recruited from the Targeted Labour Database will be measured for Contract Participation Performance (CPP).

### **D1003.03 Targeted Enterprise Database**

The Contractor shall, with the inputs of the PLC, compile a Targeted Enterprise Database from which Targeted Enterprises shall be subcontracted to construct portions of the work as described in this part of Section D of the Specifications.

#### **a) Market Analysis and Requisite Resources Availability Audit**

The Contractor shall conduct a market analysis and requisite resources availability audit to determine the availability, expertise, abilities, and proficiency of Targeted Enterprises in the Project Area.

To inform the market analysis and requisite resources availability audit, the Contractor shall, as a minimum, use the National Treasury's Central Supplier Database (CSD) which can be obtained from the Employer's Supply Chain Management department via the Project Manager, as well as the CIDB contractor database (if applicable).

The market analysis and requisite resources availability audit, and all updates thereof for the duration of the Contract, shall be submitted to the Engineer and the Employer's Project Manager in a format acceptable to the Employer.

Following the market analysis and a requisite resources availability audit, the Contractor shall apply the CPG Target Group criteria in the Specification Data to compile a **preliminary** Targeted Enterprise Database (see D1003.03(c) below).

#### **b) Call for an Expression of Interest**

In addition to the CSD and the CIDB database, the Contractor shall call for an expression of interest from Targeted Enterprises in the Project Area. The call for an expression of interest shall outline the anticipated eligibility, functionality, preference, and compliance criteria, as well as the anticipated Works content.

#### **c) Preliminary Targeted Enterprise Database**

Based on the information obtained from the CSD, CIDB and the call for an expression of interest, the Contractor shall compile a Preliminary Targeted Enterprise Database.

The purposes of the Preliminary Targeted Enterprise Database are:

- i) for the Contractor to determine if the required resources and skills to execute the identified Targeted Enterprise work packages are available in the Project Area(s),

- ii) for the PLC to verify that Targeted Enterprises on the Preliminary Targeted Enterprise Database are authentic in terms of the Specification Data and other Database criteria, and
- iii) for the PLC to alert prospective Targeted Enterprises that are not on the Preliminary Database of the opportunity.

Based on the market analysis and requisite resources availability audit, and the information obtained from the call for an expression of interest, additional criteria for the Preliminary Targeted Enterprise Database may be tabled by the PLC to the Contractor for consideration to ensure Target Group participation as intended by the Employer.

**d) Targeted Enterprise Database**

Once the Preliminary Targeted Enterprise Database has been disseminated to the PLC for information purposes, the Contractor shall invite Targeted Enterprises to tender for the Targeted Enterprise work packages. The Preliminary Targeted Enterprise Database shall remain a “live” database until the day of tender closure when a print-out of the CSD, based on the Database criteria, shall become the **Final** Targeted Enterprise Database for the tender.

Any Targeted Enterprise may respond to the invitation to tender, but preference shall be given to those Targeted Enterprises that satisfy the tender criteria.

The Targeted Enterprise Database shall be updated at every instance that a new subcontract tender or group of similar subcontract tenders are to be let for Targeted Enterprise work packages.

Targeted Enterprises within the Project Area shall be encouraged and assisted to register on the CSD and to become compliant with all other statutory requirements.

**D1003.04 Contract Participation Goal (CPG)**

The CPG is the monetary value of the participation goals set by the Employer for Targeted Labour and Targeted Enterprises expressed as a percentage of the Final Contract Value (excluding CPA, Contingencies, and VAT). The participation goals comprise of the following:

**a) Targeted Labour**

In the case of Targeted Labour, the CPG is:

- i) the sum of the wages and allowances, for which the Contractor, Subcontractors, and Targeted Enterprises contract to engage Targeted Labour in the performance of the Contract, expressed as a percentage of the Final Contract Value (excluding CPA, contingencies, and VAT) associated with the Specific Goals that are set in the Specification Data; or
- ii) the amount equal to the person days worked for which the Contractor, Subcontractors, and Targeted Enterprises contract to engage Targeted Labour expressed as a percentage of the total person days worked associated with the Specific Goals that are set in the Specification Data.

$$\% \text{ Targeted Labour (TL}_{\text{Total}}\%) = \text{the sum of the \% Targeted Labour employed by the Contractor, Subcontractors, and Targeted Enterprises.}$$

**b) Targeted Enterprises**

In the case of Targeted Enterprises, including manufacturers, suppliers, and service providers, the CPG is:

- i) the amount equal to the value of goods, services and works for which the Contractor contracts to engage Targeted Enterprises in the performance of

the Contract, expressed as a percentage of the Final Contract Value (excluding CPA, contingencies, and VAT) associated with the Specific Goals that are set in the Specification Data, and calculated as follows:

$$\% \text{ Targeted Enterprises (TE}_{\text{Total}\%}) = \frac{\text{TE}_{\text{Subcontractor}} + \text{TE}_{\text{Supplier}} + \text{TE}_{\text{Manufacturer}} + \text{TE}_{\text{ServiceProvider}} + \text{TE}_{\text{JointVenture}}}{\text{Final Contract Value}}$$

Where:

- $\text{TE}_{\text{Subcontractor}}$  = 1.0 x % Targeted Enterprise subcontractors, including the % Targeted Labour employed by Targeted Enterprise subcontractors.
- $\text{TE}_{\text{Supplier}}$  = 0.5 x % Targeted Enterprise suppliers.
- $\text{TE}_{\text{Manufacturer}}$  = 1.0 x % Targeted Enterprise manufacturers.
- $\text{TE}_{\text{ServiceProvider}}$  = 1.0 x % Targeted Enterprise service providers (excluding cost of goods if service provider is not also the supplier or manufacturer of goods, e.g., a transport service).
- $\text{TE}_{\text{JointVenture}}$  = 1.0 x % Targeted Enterprise joint venture participation parameter.

While the individual participation goals, i.e.,  $\text{TL}_{\text{Total}\%}$  and  $\text{TE}_{\text{Total}\%}$  must be met, the total CPG ( $\text{CPG}_{\text{Total}}$ ) is not the sum thereof, but are calculated as follows:

$$\text{CPG}_{\text{Total Labour}} = \text{Final Contract Value} \times [\text{TL}_{\text{Total}\%} + (\text{TE}_{\text{Total}\%} - \text{Targeted Labour})]$$

Where:

- Final Contract Value = The total value of the Contractor's final certified work measured at the date of issue of the Taking-Over Certificate. The Final Contract Value includes the value of scheduled work and extra work but excludes any CPA, contingencies, and VAT.

The Contractor shall strive to distribute and implement the participation goals and opportunities equally and continuously over the duration of the Contract. Where the Contractor deems such an equal and continuous distribution of the participation goals to be unachievable, he shall provide reasons and motivate it clearly in the preliminary CPG Plan.

Both the Targeted Labour and Targeted Enterprise participation goals may consist of sub-goals which are stipulated in the Specification Data. The Contractor is required to achieve these individual sub-goals. If the Contractor fails to achieve any one of the individual sub-goals and does not substantiate that such failure is due to quantitative underruns, the elimination by the Employer of items contracted to Targeted Enterprises, or any other reason beyond the Contractor's control which may be acceptable to the Employer, penalties shall apply as stated in Section D1003.05 of the Specifications, and as provided for in clause 8.7 of the FIDIC Conditions of Contract.

The value of the Provisional Sum scheduled under item D10.05 will not necessarily make up the full value of the work required to meet the minimum goal set by the Employer for Targeted Enterprises. It is the Contractor's responsibility to assess the work required to meet the goals and, if necessary, to engage additional Targeted Enterprises to execute work on the Contract as well to ensure that the minimum goals are achieved.

#### **D1003.05 Contract Participation Performance (CPP)**

The CPP is the monetary value of the Contractor's actual progress towards achievement of the CPG calculated as follows:

$$\begin{aligned} \text{CPP} &= \text{CPG}_{\text{Actual}} \\ &= \text{total monetary value (excluding VAT) of Targeted Labour employed by the Contractor plus the total monetary value (excluding VAT) of Targeted Enterprises contribution, including Targeted Labour employed by the Targeted Enterprises.} \end{aligned}$$

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The Contractor's CPP shall be monitored monthly to determine the extent to which it is striving to achieve the CPG. The basis of monitoring shall be a comparison of the actual expenditure on Targeted Labour and Targeted Enterprises with the planned expenditure for Targeted Labour and Targeted Enterprises as per the accepted CPG Plan. Monthly returns, in the format required by the Employer, shall be submitted by the Contractor with each interim Payment Certificate.

To assist in the measurement of the CPP the Contractor shall include the envisaged CPG programme in its initial contract programme which is to be submitted within 28 days after the Commencement Date. The CPG programme shall be updated in the accepted construction programme on acceptance of the CPG Plan and with every subsequent revision.

Schedule A2 provides a Prime Cost Sum for the construction of community access roads by Targeted Enterprises, who shall be procured, supervised and mentored in the same manner as is prescribed under Section D1000. However all expenditure incurred under this PC Sum shall be excluded from the measurement of Contract Participation Performance (CPP).

#### a) **CPP Penalties**

Failure to reach either the CPG or any individual Target Group goals shall render the Contractor liable for a penalty as prescribed in clause 8.7 of the FIDIC Conditions of Contract unless there are compelling reasons why the goal or sub-goals could not be achieved as stipulated in Section D1003.04 of the Specifications. Penalties for Targeted Labour and for Targeted Enterprises shall be calculated as follows:

$$\text{Penalty Targeted Labour} = (\text{TL} - \text{TG}) + \text{Sum} (\text{TL}_n - \text{TG}_n) - 1.2 \times \text{L}_{dp}$$

Where:

- $n$  = Each lowest order sub-group of Targeted Labour stipulated in the Specification Data.
- $\text{TL}$  = Monetary value of the Targeted Labour calculated at the percentage stipulated in the Specification Data applied to the Final Contract Value (excluding CPA, contingencies, and VAT).
- $\text{TG}$  = Cumulative monetary value of Targeted Labour employed on the contract by the Contractor and all Subcontractors.
- $\text{L}_{dp}$  = Cumulative monetary value of black Disabled Persons employed on the Contract by the Contractor and all Subcontractors.
- $(\text{TL}_n - \text{TG}_n)$  = The monetary values calculated unless if any calculated value is negative, then it shall be a zero value.

$$\text{Penalty Targeted Enterprises} = (\text{TE} - \text{TGE}) + \text{Sum} (\text{TE}_n - \text{TGE}_n) - 1.2 \times \text{TE}_{mv} - 1.2 \times \text{TE}_{dp}$$

Where:

- $n$  = Each lowest order sub-group of Targeted Enterprise stipulated in the Contract Data.
- $\text{TE}$  = Monetary value (excluding VAT) of Targeted Enterprises calculated at the percentage stipulated in the Specification Data applied to the final contract value (excluding VAT).
- $\text{TGE}$  = Cumulative monetary value (excluding VAT) by Targeted Enterprises sub-contracted to the contract by the Contractor and 50% of the cumulative monetary value (excluding VAT) by Targeted Enterprise suppliers of goods and/or services.
- $\text{TE}_{mv}$  = Cumulative monetary value (excluding VAT) by Targeted Enterprises being majority owned by black Military Veterans, sub-contracted to the Contract by the Contractor.
- $\text{TE}_{dp}$  = Cumulative monetary value (excluding VAT) by Targeted Enterprises being majority owned by black Disabled Persons, sub-contracted to the Contract by the Contractor.

$(TE_n - TGE_n)$  = The monetary values calculated unless if any calculated value is negative, then it shall be a zero value.

The total Penalty value shall be the sum of the Targeted Labour and Targeted Enterprises Penalty values unless the total Penalty value is negative then it shall be a zero (0) value.

Interim penalty valuations, based on the accepted CPG Plan, shall be calculated to interim Payment Certificate values (excluding VAT) to establish the anticipated outcome, and to plan corrective actions for non-adherence to the CPG Plan.

Interim penalty valuations shall not be applied to the interim certificate value, but the Contractor shall by notice be placed on terms to correct as prescribed in sub-clause 15.1 of the FIDIC Conditions of Contract. Failure to correct by completion of the Contract will lead to an Employer's Claim in terms of sub-clause 2.5 of the FIDIC Conditions of Contract.

Any Penalty payable shall be calculated on and applied to the Final Contract Value.

#### **D1003.06 Accredited Registration**

The CPP for Targeted Enterprises shall only be accepted if the respective Targeted Enterprises comply fully with the definition of a Targeted Enterprise, and documentary evidence to support the claim lodged with the Engineer before the work, goods or service may be considered as having been performed by a Targeted Enterprise. The responsibility for producing evidence of the respective documentation shall rest with the Contractor.

The Contractor shall assume responsibility for the compilation and maintenance of comprehensive records detailing each Targeted Enterprise's progress.

#### **D1003.07 Contractor's Responsibility**

In terms of the Conditions of Contract, all Targeted Labour recruitment and employment and Targeted Enterprises subcontractors, as well as its associated risks, shall remain the sole responsibility of the Contractor.

The Employers CPG requirements, and the compulsory utilisation of project specific Targeted Labour and Targeted Enterprise databases, shall not relieve the Contractor of its obligations under the Contract and shall not attract any liability to the Employer.

### **D1004 STAKEHOLDER AND COMMUNITY liaison AND SOCIAL FACILITATION**

This part of Section D of the Specifications describes the Employer's requirements with respect to Stakeholder and Community liaison and social facilitation. It also describes the roles and responsibilities of the Project Liaison Committee (PLC) and the Project Liaison Officer (PLO).

#### **D1004.01 Purpose of Stakeholder and Community Liaison**

To give effect to the need for transparency and inclusion in the process of delivering services, the Contractor shall liaise with the project Stakeholders and affected Communities for the duration of the Contract's life cycle. This shall be achieved through structured engagement with the PLC which was established by the Employer for this purpose.

#### **D1004.02 Contractor's Responsibilities in Stakeholder and Community Liaison**

The Contractor shall have the following general responsibilities in the Stakeholder and Community Liaison process:

- a) Stakeholder and Community engagement shall be executed based on the Employer's social facilitation principles and processes described in this Section D of the Specifications.

- b) The Contractor shall make use of the PLC as the official communication channel, and utilise it to facilitate harmonious relationships, with project Stakeholders and affected Communities.
- c) PLC members, which include the Contractor, shall be held accountable to disseminate project information discussed at the PLC meetings to the entities that they represent.
- d) As a party to the PLC, the Contractor shall delegate from among his site personnel a responsible person to participate in the PLC and its business.
- e) The Contractor shall provide the PLC with any assistance and information that it requires to execute its duties, which amongst others, include training, providing a meeting venue on site, providing Target Group reports, etc.

It is important to note that in terms of the Conditions of Contract, all Targeted Labour recruitment and employment, and Targeted Enterprises' selection and subcontracting, as well as its associated risks, shall remain the sole responsibility of the Contractor.

The Contractor shall take cognisance of the Employer's PLC and PLO Forms, attached as Annexure 8.2. While the Employer holds its own staff accountable for the deliverables listed in the checklist, the Contractor and the Engineer shall assist the Employer in accomplishing the deliverables.

The Employer's establishment of the PLC and/or the Engineer providing a PLO to the Contractor shall not relieve the Contractor of its obligations under the Contract and shall not attract any liability to the Employer.

#### **D1004.03 Project Liaison Committee (PLC)**

The PLC is the official communication channel through which the Employer, Engineer, Contractor, and project Stakeholders and affected Communities communicates on project matters. This platform is also used to communicate the impact that the project has or may have on project Stakeholders and the affected Communities. This part of Section D of the Specifications describes the general processes pertaining to the PLC, as well as its role and responsibilities.

##### **a) Establishment of the PLC**

A PLC has either been established prior to commencement of the Contract or shall be established as soon as possible by the Employer. The PLC consists of the Employer, Engineer, Contractor, and representatives of project Stakeholders and affected Communities. To ensure that all relevant Stakeholders are represented in the PLC, the Employer did, or will, consult with the Executive Mayor's office, as well as with the LED Department of the Local Municipalities in the Project Area.

Stakeholder representation on the PLC is project and Project Area specific and may, amongst others, include:

- i) Relevant Provincial departments.
- ii) Relevant District and Local Municipal departments.
- iii) Traditional leadership representation.
- iv) Organised forums representing community interest groups.
- v) Organised forums representing the youth, woman, and people with disabilities.
- vi) Other structured community groups such as religion, education, farming, etc.
- vii) Organised forums representing the business sector.
- viii) Organised forums representing the transport sector.
- ix) Organised forums representing road users and road safety interest groups.
- x) Organised forums representing environmental interest groups.
- xi) Any other relevant stakeholder forum or organisation recognised by the Employer and the district and/or local municipality.

Every forum/organisation/constituency shall have one (1) representative on the PLC, which representation shall be confirmed by a duly signed nomination form.

It should be noted that the PLC is not a political platform. While political office bearers may be invited to some PLC meetings, they may not be PLC members and hence, will not have voting rights when attending a PLC meeting.

The Employer's timeous establishment of the PLC and/or the level of functionality of the PLC shall not prevent the Contractor from continuing with his responsibilities during the Mobilisation Period and the subsequent commencement of construction of the Works.

#### **b) Reimbursement of PLC Members**

PLC membership is voluntary and PLC members shall not be remunerated for any time spent in PLC meetings or work done outside of PLC meetings, which are associated with representing their constituencies on the PLC.

Provision for the cost of liaison, social facilitation and PLC support has been made under pay-item D10.02(a). This pay-item provides for the Contractor's cost incurred in executing his responsibilities w.r.t. Stakeholder and Community liaison.

This pay-item may also be utilised to reimburse PLC members for actual costs incurred in executing their PLC duties (other than time spent in PLC meetings or work done outside of PLC meetings). The Contractor will determine and table to the PLC a realistic, monthly, reimbursable amount which will be substantiated by an outline of the anticipated actual costs envisaged to be incurred by PLC members.

In establishing a reimbursement amount for PLC members, the factors listed below, as well as the Project Classification Table may be considered, but is not mandatory or conclusive:

- i) Transportation costs.
- ii) Sustenance (if not provided during meetings).
- iii) Type, size, and complexity of the project.
- iv) Facilitation of performance milestones.

**Table D1004.03(a): Project Classification (Type, Size, Complexity)**

<b>Project Classification</b>	<b>Project Value (Rm)</b>	<b>Indicative PLC Reimbursement</b>
Maintenance (M) (OPEX)	< R 100	R 585
	> R 100	R 585
Development (D) (CAPEX)	< R 100	R 585
	R 100 – R 300	R 705
	R 300 – R 500	R 820
	> R 500	R 935

PLC members will be reimbursed monthly, and the reimbursable amount may be revised bi-annually should the actual costs incurred by PLC members change during the project.

The PLC reimbursement amount shall be increased annually, or twelve (12) months after the last bi-annual adjustment, based on the CPI figure contained in Table B2 of Statistical Release P0141 by StatsSA (base date March 2023).

#### **c) Induction of the PLC**

The Employer shall conduct an induction meeting with the PLC to acquaint PLC members with the following information:

- i) SANRAL's Horizon 2030 Strategy.
- ii) SANRAL's Principles for Project Liaison.



- iii) The role and responsibilities of PLC members.
- iv) SANRAL's Transformation Policy.
- v) How the Transformation Policy impacts on SMMEs.
- vi) Relevant details of the Contract, e.g.
  - a. start and end dates,
  - b. important milestones,
  - c. CPG targets,
  - d. envisaged Targeted Enterprise packages, and
  - e. envisaged work for other SMMEs (non-CPG).

**d) Rules of Engagement for the PLC**

In the execution of their duties, members of the PLC shall adhere to the undertakings listed below and the Contractor shall inform the Engineer of any transgression of these undertakings.

i) General Matters and Membership

- a. A PLC member may not be a politically elected representative, and political party representation will not be allowed in the PLC.
- b. Ward Councillors may interact with the PLC through the Mayor's Office and the PLC Chairperson (the Employer).
- c. If required, and in consultation with the Employer, a Political Steering Committee (PSC) may be established to address political matters.

ii) Term of Office for the PLC

- a. The duration of PLC members' participating in the PLC (term of office) shall depend on the duration of the project.
- b. If the Employer finds the performance of a PLC member to be below expectation or their conduct to be unacceptable, the affected member will be discharged from their obligations and the constituency whom they represented will be requested to nominate a replacement member.

iii) Targeted Enterprises and Targeted Labour

PLC members shall:

- a. ensure that they, or companies in which they hold equity, do not tender for any work or on any subcontract that are issued for this Contract. Should a PLC member, or a company in which he/she holds equity, tender for such work or subcontract, it will be treated as a conflict of interest and:
  - i. the person shall cease to be a PLC member for this Contract, and
  - ii. the tender proposal submitted will not be evaluated.
- b. not have private or business interests in any of the subcontract tenders tabled to the PLC or considered in this Contract.
- c. shall recuse themselves from discussions that deal with a subcontract tender if any other member is of the opinion that a member's participation in deliberations, which is rightly or wrongly construed as improper or irregular, may lead to the award of a subcontract to a tenderer known to the member.
- d. during the tender and tender evaluation processes, neither deliberately favoured nor prejudiced a person or tenderer, as intended, or contemplated in treasury Regulation 16, A8.3 (a), (b) & (c).
- e. ensure that no conflict of interest arises from members' involvement in the PLC and potential involvement in Targeted Labour recruitment and/or Targeted Enterprises procurement and/or any other manufacturer/supplier/subcontractor/service provider procurement or involvement in the Contract.

iv) Confidentiality

- a. PLC members shall accept that all information, documentation, and discussions regarding any matter serving before the PLC are confidential and undertake not to communicate this information outside of the PLC meeting.
- b. Decisions of PLC meetings may not be disseminated to any party other than the constituency whom they are representing.
- c. Information for public dissemination shall be clearly documented in the minutes of the meeting of the PLC to ensure that sensitive information is disseminated to the correct audience.

v) Removal from Office

- a. PLC members who violate the provisions of these Rules of Engagement for PLCs will be removed from their role as a PLC member at the sole discretion of the Employer.
- b. The Employer reserves the right to recover any costs from PLC members whose actions can be regarded as detrimental to the Employer or to the execution of the project.
- c. The Employer also reserves the right to recommend criminal prosecution if the offence warrants such action.
- d. The Employer reserves the right to dissolve the entire PLC should it believe that such an action is in its best interest, or that of the project. The Employer will not be obliged to reconstitute the PLC if such a dissolution occurs.

e) **Responsibilities and Duties of the PLC**

The PLC shall execute specific duties during the design and construction phases of the project.

Some of the PLC's duties during the design and construction stages overlap and hence, for completeness, a description of the PLC's duties in both project stages is provided here.

The PLC shall execute the following duties:

i) Project Design Stage

- a. Meet as often as required to provide input to the project's design stage matters which are of interest or concern to the parties to the PLC.
- b. Peruse the PLC duties outlined in this Section D of the Specifications and agree on the duties of, and procedures to be followed by, the PLC to fulfil its duties.  
**Note:** The principles outlined in this section shall not be amended, but duties and procedures may be altered to be project specific and to improve the functionality of the PLC.
- c. Act in accordance with the agreed terms of reference for the PLC.
- d. Inform the Employer's Project Manager of any training that PLC members require to execute their duties.
- e. Provide input to the Engineer in sourcing suitable candidates, based on the Employer's qualifying criteria, for the position of PLO.
- f. Observe that the qualifying criteria and procedures applied by the Engineer to select and employ the PLO are executed in a fair and transparent manner and are within the prescripts of the relevant labour legislation and regulations.
- g. Provide input to the Engineer in identifying the project's Target and Project Area(s) from which Targeted Labour and Targeted Enterprises could be employed and subcontracted, respectively.
- h. Provide input to the Engineer in identifying the project's Target Groups for inclusion in the Tender Documents.

ii) Project Construction Stage

- a. Meet formally prior to the Employer's monthly site meeting, or as may be required, to discuss and resolve project matters which are of interest or concern to the parties to the PLC.
- b. Provide input to the Contractor in establishing the selection criteria and process to employ Targeted Labour
- c. Provide input to the Contractor in identifying the eligibility, functionality, preference, and compliance criteria to select and subcontract Targeted Enterprises.
- d. Provide input to the Databases compiled by the PLO and the Contractor from which Targeted Labour will be selected and employed and Targeted Enterprises will be subcontracted, respectively.
- e. Observe that the criteria and methodologies applied by the Contractor to select and employ Targeted Labour and subcontract Targeted Enterprises are executed in a fair and transparent manner and are within Government legislation and regulations and the Employer's Policies.
- f. Observe that the conditions of employment and the conditions of subcontracting, in the employment of Targeted Labour and subcontracting of Targeted Enterprises are applied in a fair and transparent manner and according to the Employer's employment and subcontracting requirements.
- g. Provide input to the Contractor on the training needs, eligibility criteria and selection criteria for the provision of training to Targeted Labour, Targeted Enterprises, Target Groups, project Stakeholders and the affected Communities.
- h. Observe that training and skills development programmes, which the Contractor committed to, are implemented, and executed as approved and intended.
- i. Inform the constituency whom they represent of any project matters which the respective parties to the PLC wishes to communicate with each other.
- j. Inform the constituencies whom they represent of any project matters that are impacting or may impact, either positively or negatively, on the respective parties to the PLC.
- k. Inform the Employer's Project Manager, Engineer, and Contractor of any road safety concerns within the Project Area(s) and provide input on possible mitigating measures and/or road safety programs that will be most suitable for acceptance by the affected Communities to promote road safety.
- l. Assist parties to the PLC to agree on a dispute resolution mechanism to resolve any disputes that may arise between the parties to the PLC.
- m. Assist parties to the PLC to liaise with their respective constituencies to resolve any disputes amongst the parties which may occur due to the project.

f) **PLC Meetings**

i) Frequency

- a. Meetings will be conducted monthly or as required by the parties to the PLC based on the urgency of project matters.

ii) Notice of Meetings

- a. Notice of PLC meetings shall be given at least seven (7) calendar days prior to meeting dates.
- b. Where meetings have been diarised over a period by the PLC, it shall be the duty of each PLC member to ensure his/her attendance on the set dates.
- c. Where a PLC member has been absent from a meeting, he/she bears the onus of acquiring the date and venue of the next meeting.

- iii) Venue
  - a. The venue for PLC meetings shall be the project site office or any other venue agreed to by the members of the PLC and approved by the Employer's Project Manager.
  - b. During the COVID-19 lockdown, or any other lockdown as announced by government, the meetings shall be held on an online platform such as WhatsApp, MS Teams, Zoom or similar.
- iv) Agenda
  - a. An agenda shall be made available or displayed to PLC members at the commencement of meetings, or the minutes of the previous meeting will serve as the agenda of meetings.
  - b. The agenda shall not be amended without prior approval from the Employer's Project Manager.
- v) Chairperson
  - a. PLC meetings shall be chaired by the Employer which will typically be the Employer's Project Manager, or a SANRAL staff member, with decision-making delegation. The Chairperson shall:
    - i. chair all meetings of the PLC,
    - ii. co-ordinate all the activities of the PLC with the assistance of the PLO,
    - iii. monitor that PLC members are fulfilling their tasks as assigned by the PLC,
    - iv. see to the execution of decisions taken by the PLC,
    - v. ensure, with the assistance of the Engineer, the validity of members' claims for reimbursement,
    - vi. monitor that all activities of the PLC comply with current laws, regulations, and SANRAL policies, and
    - vii. be a co-signatory to all official documents of the PLC.
- vi) Secretariate
  - a. The Engineer's staff shall provide a secretarial service to take minutes of PLC meetings.
  - b. Secretarial support other than taking minutes at PLC meetings shall be provided by the PLO.
- vii) Quorum
  - a. The quorum for PLC meetings shall be constituted by 50% plus one (+1) ratio excluding co-opted members.
- viii) Apologies and Non-attendance
  - a. Apologies shall be in writing. In an emergency where a PLC member could not apologise in advance, a written apology must be submitted as soon as possible.
  - b. Apologies may be sent through any media agreed to by the PLC, e.g., through SMS or WhatsApp messaging or a similar application.
  - c. The constituency, represented by a PLC member who fails to attend three (3) consecutive meetings without an apology, will be informed in writing and requested to nominate a replacement member.
- ix) Language
  - a. PLC meetings will be conducted in English to enable all participants to understand the discussions of the meeting.
  - b. However, care and consideration must be given to provide non-English speakers an opportunity to participate and hence, if agreed by all PLC members any of the 11 official languages may be spoken and translated during the meeting. Even if a language other than English is used, the minutes of the meeting will be recorded in English.
- x) Other
  - a. Sustenance shall be provided at PLC meetings as per government policy.

#### **D1004.04 Project Liaison Officer**

The PLO facilitates the selection and employment of Targeted Labour and coordinates communication between the members of the PLC to address the day-to-day project, Stakeholder, and Community matters that impact on the parties represented in the PLC.

##### **a) Appointment of the PLO**

The Engineer appoints the PLO in accordance with the Employer's criteria for a PLO. The appointment of the PLO must be supported by the PLC.

Although the PLO provides social facilitation support to the Contractor, the PLO shall report to the Engineer or his delegated representative, e.g., the Resident Engineer.

##### **b) Duties of the PLO**

The PLO shall execute specific duties during the design and construction phases of the project. These duties include the following:

- i) Except for taking the minutes of PLC meetings which is a duty of the Engineer, the PLO shall provide a secretariat function to the PLC which includes, amongst others, the following:
  - a. Schedule meetings.
  - b. Compile meeting agendas.
  - c. Compile document packages for meetings.
  - d. Distribute minutes of meetings.
  - e. Assist representatives of project Stakeholders and affected Communities to formulate their communication to the PLC in writing.
  - f. Distribute written communication between the parties to the PLC.
  - g. Keep records of all PLC correspondence and documentation; and
  - h. Provide any other reasonable secretariat function required by the PLC.
- ii) Attend all PLC meetings to report on the day-to-day project, Stakeholder and Community matters that impact on the parties to the PLC.
- iii) Attend all monthly project site meetings to report on the day-to-day project, Stakeholder and Community matters that impact on the parties to the PLC.
- iv) Attend any other meetings related to the project in which any of the project Stakeholders, affected Communities, Targeted Labour and Targeted Enterprises are involved.
- v) Maintain a full-time presence on site to monitor and address the day-to-day project, Stakeholder and Community matters that impact on the parties to the PLC.
- vi) Maintain a full-time presence on site to assist the parties to the PLC in the day-to-day liaison with each other.
- vii) Assist the Engineer and the Contractor to disseminate information to PLC members such as:
  - a. the basic Scope of the Works and how it will affect the Community,
  - b. the project programme and regular progress updates,
  - c. the anticipated employment and subcontracting opportunities,
  - d. the project programme as it pertains to the employment of Targeted Labour and subcontracting of Targeted Enterprises,
  - e. Occupational Health and Safety precautions, and
  - f. any other information relevant to project Stakeholders and the affected Communities.
- viii) Be well acquainted with the contractual requirements as they pertain to Targeted Labour employment and training.
- ix) Assist the PLC to establish and agree the criteria to follow when selecting and employing Targeted Labour.
- x) Assist the Engineer and the Contractor in their resources and skills audits by providing a coordinating function between the Engineer, the Contractor, project Stakeholders and the affected Communities.
- xi) Monitor that the Contractor compiles the Targeted Labour databases based on the eligibility and selection criteria and that it is updated as and when required.

- xii) Coordinate the selection and employment of Targeted Labour based on the agreed eligibility and selection criteria and based on the Contractor's labour and skills requirements.
- xiii) Confirm that each Targeted Labourer enters an employment contract which adheres to current and relevant Labour legislation.
- xiv) Confirm that each Targeted Labourer understands the conditions of his/her employment contract, with an emphasis on the employment start date, end date and wages payable.
- xv) Identify and inform the Contractor of any relevant training required by the Targeted Labour.
- xvi) Attend all disciplinary proceedings to observe that hearings are fair and conducted in accordance with the current and relevant Labour legislation.
- xvii) Be proactive in identifying project Stakeholder and affected Communities' (including Targeted Labour and/or Targeted Enterprise Subcontractor), requirements, disputes, unrest, strikes, etc., and bring it to the attention of the PLC.
- xviii) Play a facilitating role to resolve any disputes between the parties to the PLC, which may occur due to the project.
- xix) Other than keeping the records already mentioned in this section, keep a record of all other documents and processes pertaining to the employment of Targeted Labour.
- xx) Produce and submit a monthly report to the PLC on PLC and other meetings attended by the PLO, as well as on Targeted Labour employment, Stakeholder and affected Communities' matters and any other project matters that impact on the parties to the PLC.

#### **D1005 MOBILISATION PERIOD**

The Mobilisation Period is defined in Section D1002 of the Specifications. This Section describes the requirements of the Mobilisation Period.

##### **D1005.01 Purpose of the Mobilisation Period**

The Mobilisation Period was introduced as an aid to the Contractor to:

- a) become acquainted with the Stakeholder and Community liaison requirements of the Contract as prescribed in this Section D of the Specifications,
- b) allow for the Contractor's planning to obtain the CPG as required in the Specification Data,
- c) allow for the Contractor's planning to obtain the Contract Skills Development Goals (CSDG) as required in Section D1010 of the Specifications,
- d) follow the processes prescribed in this Section D of the Specifications to employ the initially required Targeted Labour and enter the first subcontracts with Targeted Enterprises, and
- e) provide the training required by Targeted Labour and Targeted Enterprises to commence with the construction of the Works.

Access to site for the Commencement of the Works shall thus only be issued once the following deliverables have been submitted and/or completed by the Contractor:

- i) Submission of the CPG Plan, followed by acceptance of the Engineer.
- ii) Submission of the Training and Skills Development Programme, followed by acceptance of the Engineer.
- iii) Appointment of the initial Targeted Enterprise Subcontractors.

##### **D1005.02 Duties of the Contractor**

During the Mobilisation Period, the Contractor shall execute the following duties:

- a) **Compile a CPG Plan**

The Contractor shall compile an acceptable CPG Plan, which sets out how he intends to achieve the various CPG targets as stated in the Specification Data. The Contractor shall distribute and implement the participation targets and Targeted Enterprise work opportunities equally and continuously over the duration of the Contract, i.e., from site establishment to completion of the Works. Where the Contractor deems such an equal and continuous distribution of the participation targets to be unachievable, he shall provide reasons and motivate it clearly in the CPG Plan.

The CPG Plan shall provide the detail of the Targeted Enterprise work programme, as well as the contents and value of the work packages. See Annexure 7 for the CPG Plan format.

The Targeted Enterprise work programme shall be in line with the Works Programme and once the CPG Plan has been accepted by the Engineer, it shall be captured in the Works Programme.

The Mobilisation Period shall only be concluded once the CPG Plan has been accepted by, and all the duties w.r.t. the Mobilisation Period have been executed to the satisfaction of, the Engineer after consultation with the Employer's Project Manager.

The Employer's Project Manager and the Engineer shall monitor progress and adherence to the CPG Plan in the same manner as they would monitor the Works Programme.

Should the Contractor require an extension of the Mobilisation Period due to a delay not within his control, Contractual Procedure shall be followed, and the Contractor shall submit his Claim for an extension of time through the relevant Contractual Clauses of the Conditions of Contract.

**b) Compile a Training and Skills Development Programme**

The Contractor shall compile an acceptable Training and Skills Development Programme, which sets out how he intends to achieve the various CSDG targets as per Section D1010 of the Specifications and in line with the CIDB Standard for Developing Skills through Infrastructure Contracts (refer to latest version on [www.cidb.org.za](http://www.cidb.org.za)).

The Training and Skills Development Programme shall provide the detail of the training methods selected for implementation as described in Section D1010 of the Specifications and shall include an execution programme for acceptance by the Engineer, which shall demonstrate its correlation with the Works Programme.

The Mobilisation Period shall only be concluded once the Training and Skills Development Programme has been accepted by, and all the duties w.r.t. the Mobilisation Period have been executed to the satisfaction of, the Engineer after consultation with the Employer's Project Manager.

The Employer's Project Manager and the Engineer shall monitor progress and adherence to the Training and Skills Development Programme in the same manner as they would monitor the Works Programme.

**c) Subcontracting to Targeted Enterprises**

During the Mobilisation Period the Contractor shall execute the following duties w.r.t. subcontracting work to Targeted Enterprises:

- i) Liaise with the Employer's Project Manager, the Engineer and the PLC to structure and finalise the work packages to be subcontracted to Targeted Enterprises.
- ii) Liaise with the Employer's Project Manager, the Engineer, and the PLC to determine the Targeted Enterprise Database criteria for the subcontracting of Targeted Enterprises.

- iii) Compile the Targeted Enterprise Database(s) for input by the PLC.
- iv) Undertake a skills audit of the Targeted Enterprises which appear on the Targeted Enterprise Database(s).
- v) Based on the skills audit, and with the input of the PLC, identify the pre-tender training requirements of Targeted Enterprises.
- vi) Provide an opportunity to Targeted Enterprises to receive the identified pre-tender training.
- vii) Tender the initial work packages and subcontract the first group of Targeted Enterprises for commencement of the Works.

**d) Employment of Targeted Labour**

During the Mobilisation Period the Contractor shall execute the following duties w.r.t. the employment of Targeted Labour:

- i) Liaise with the PLC and the PLO on the compiled Targeted Labour Database(s) for the employment of Targeted Labour.
- ii) Undertake a skills audit of the Targeted Labour which appear on the Targeted Labour Database(s).
- iii) Based on the skills audit, and with the input of the PLC, identify the training requirements of Targeted Labour to enhance their employability.
- iv) Provide an opportunity to eligible Targeted Labour to receive the identified training to enhance their employability.
- v) Select and appoint the first group of Targeted Labour for commencement of the Works.

**e) Training Requirements**

The Contractor will not be able to address all the training requirements identified for Targeted Labour and Targeted Enterprises during the Mobilisation Period and it is accepted that training will take place over the duration of the Contract.

The training provided to both Targeted Enterprises and Targeted Labour during the Mobilisation Period shall focus on the activities and/or skills required for the commencement of the Works and shall include the mandatory Occupational Health and Safety training.

All training provided by the Contractor shall be aligned with the training requirements as described in Section D1010 of the Specifications.

**D1006 THE ROLE OF THE ENGINEER**

The role and responsibilities of the Engineer are clearly described in the Conditions of Contract. This section elaborates on the Engineer's duties with respect to Stakeholder and Community Liaison, Targeted Labour employment and Targeted Enterprise subcontracting.

Together with the Employer and the Contractor, the Engineer is also a party to the PLC and hence, is co-responsible for successful project Stakeholder and Community liaison.

In addition, the Engineer shall play a supporting role to the Contractor in the successful implementation of the Employer's Targeted Labour and Targeted Enterprise utilisation and development goals.

**D1006.01 Duties During the Design Phase**

During the design phase, the Engineer undertook a preliminary skills and resources audit of the Targeted Enterprises and Targeted Labour in the Project Area. The purpose of the audit was to:

- a) obtain an understanding of the Community's skills, both educational and occupational,



- b) obtain and understanding of the resources available within the Community, i.e., Targeted Enterprise availability and capabilities, and Targeted Labour skills levels.
- c) establish the CPG targets for Targeted Enterprises and Targeted Labour for inclusion in the Specification Data; and
- d) identify tender and other relevant training to be offered to Targeted Enterprises and Targeted Labour to prepare them for tendering and to enhance their employability.

#### **D1006.02 Duties During the Construction Phase**

To implement the Employer's Targeted Labour and Targeted Enterprise goals the Engineer shall provide support to the Contractor by executing the following duties:

##### **a) Targeted Enterprise Subcontracting**

- i) Make recommendations to the Contractor in identifying, structuring, and scheduling the work packages to be subcontracted to Targeted Enterprises.
- ii) Approve the scope and extent of the work packages and, in consultation with the Employer, accept the CPG Plan.
- iii) Verify that the Targeted Enterprise Database(s) has been updated prior to the letting of every new set of subcontracts.
- iv) Approve tender procedures, tender documents, tender submission requirements and adjudication processes for the subcontracting of Targeted Enterprises.
- v) Review all tender adjudication reports and monitor that the criteria and procedures applied by the Contractor to subcontract to Targeted Enterprises are executed in a fair and transparent manner and are within the Employer's and Government's Supply Chain Management Policies.
- vi) Verify that subcontract agreements and the conditions of subcontracting to Targeted Enterprises are fair and transparent and within the prescripts of the Contract requirements.
- vii) Monitor the management of Targeted Enterprise subcontracts and ensure that conditions such as the application of penalties, the termination of contracts, etc. are applied in a fair and transparent manner and within the prescripts of the subcontract agreement.

##### **b) Targeted Labour Employment**

- i) Verify that the Labour Database(s) from which Targeted Labour will be employed is updated prior to every new Labour intake.
- ii) Monitor that the criteria and procedures applied by the Contractor to employ Targeted Labour are executed in a fair and transparent manner and is within the Contract requirements.
- iii) Monitor that the conditions of employment of Targeted Labour are applied in a fair and transparent manner and within the prescripts of the current and relevant Labour legislation.

##### **c) Target Group Training Requirements**

- i) Make recommendations to the Contractor in identifying the training requirements of Targeted Labour and Targeted Enterprises.
- ii) Approve the proposed Training and Skills Development Programme, in consultation with the Employer.
- iii) Monitor that the Training and Skills Development Programme and any Targeted Enterprise support programmes, which the Contractor committed to, are implemented, and executed as intended.

#### **D1007 TENDER PROCESS FOR TARGETED ENTERPRISES**

While the Contractor may utilise manufacturers, suppliers, service providers, and subcontractors of its choice and selected via its own internal processes, for the subcontracting of Targeted Enterprises based on the Employer's Contract Participation Goals, the Contractor shall follow the prescripts of this Section D of the Specifications.

#### **D1007.01 Targeted Enterprise (TE) Procurement Coordinator**

The Contractor shall appoint a TE Procurement Coordinator to facilitate the subcontracting of work to Targeted Enterprises as defined in the Specification Data. For Contracts with a value of less than R 100 million the Contractor may appoint a TE Procurement Coordinator from its site staff. For Contracts with a value of more than R 100 million the Contractor shall employ or subcontract a dedicated TE Procurement Coordinator, whose sole responsibility will be the management of Targeted Enterprise procurement and subcontracting matters.

The TE Procurement Coordinator shall be well acquainted with, and has experience in:

- a) the management of road construction and ancillary works,
- b) road construction and ancillary works suitable for SMMEs,
- c) National Treasury's Supply Chain Management Legislation and Regulations,
- d) the Employer's Supply Chain Management and Procurement Policies,
- e) the Employer's Transformation Policy,
- f) the Employer's proforma document for Targeted Enterprise Subcontracting,
- g) claims, amicable settlement, and dispute resolution facilitation, and
- h) Stakeholder and Community relations management.

The TE Procurement Coordinator shall conduct the tender processes and procedures for Targeted Enterprise subcontracting as prescribed in this Section D of the Specifications and shall adhere to Government's Supply Chain Management legislation and regulations and the Employer's policies.

The TE Procurement Coordinator shall provide the PLC with the necessary pre- and post-tender information for them to be able to observe that the criteria and methodologies applied by the Contractor to subcontract Targeted Enterprises are executed in a fair and transparent manner and are within Government's legislation and regulations and the Employer's policies.

#### **D1007.02 Procedures for Targeted Enterprises Subcontracting**

The Contractor shall utilise the Employer's proforma tender and contract document for Targeted Enterprise Subcontracting. The proforma subcontract document is attached as Annexure 8.3 and an electronic version will be provided to the Contractor on award.

The identification and application of the eligibility and functionality criteria, and conducting the tender processes and procedures for subcontracting include, amongst others, the following activities, and sub-activities:

##### **Activity 1 Tender Preparation**

- 1.1 Compile preliminary list of subcontracting work packages.
- 1.2 Conduct a market analysis and resources and skills audit.
- 1.3 Call for an expression of interest.
- 1.4 Establish a Targeted Enterprise Helpdesk.
- 1.5 Compile Preliminary Targeted Enterprise Database.
- 1.6 Identify Targeted Enterprises, Target Groups and Project Area.
- 1.7 Finalise the Contract Participation Goal (CPG) Plan.
- 1.8 Acceptance of the CPG Plan.
- 1.9 Compile tender documents.

##### **Activity 2 Tender Process**

- 2.1 Advertise the subcontract packages.
- 2.2 Conduct a tender briefing and tender training session.
- 2.3 List of minimum tender submission documents.
- 2.4 Tender closure and opening of tenders.
- 2.5 Finalise Targeted Enterprise Database.

##### **Activity 3 Tender Evaluation**

- 3.1 Stage 1 – Eligibility
- 3.2 Stage 2 – Functionality
- 3.3 Stage 3 – Price and Preference

### 3.4 Stage 4 – Compliance Check

#### **Activity 4 Appoint Successful Targeted Enterprises**

- 4.1 Submitting a Tender Report.
- 4.2 Negotiating tender sum and/or rates with Targeted Enterprises.
- 4.3 Low tender sums submitted by Targeted Enterprises.
- 4.4 Payment to the Contractor.
- 4.5 Entering the Subcontract Agreement.

The summarised list of activities above, are further elaborated on in the paragraphs below:

#### **a) Tender Preparation**

Although the Contractor is required to implement the Targeted Enterprise work opportunities equally and continuously over the duration of the Contract, most of the Tender Preparation activities must be concluded during the Mobilisation Period.

##### **i) Compile a preliminary list of subcontracting work packages.**

Based on the Specification Data and the Scope of the Works, the Contractor shall compile a preliminary list of the work packages (scope of work and number of packages) that are anticipated to be subcontracted to Targeted Enterprises.

The Contractor shall refer to the construction activities that has been identified as being suitable for construction by Targeted Enterprises as listed in Section D1009 of the Specifications, and to any other construction activities which are required to execute the Works in terms of this Contract, to determine how to unbundle or package subcontracts for Targeted Enterprises.

##### **ii) Conduct a market analysis and resources and skills audit.**

Based on the preliminary list of work packages, the Contractor shall conduct a market analysis and resources and skills audits to determine the availability of the required resources and skills in the Project Area to execute the anticipated Targeted Enterprise work packages. The Contractor shall consult the following databases as a minimum:

- a. Construction Industry Development Board (CIDB)'s contractor database (not applicable to manufacturers, suppliers, and non-construction service providers).
- b. National Treasury's Central Supplier Database (CSD) to be obtained from the Employer's Supply Chain Management Department.

##### **iii) Call for an expression of interest.**

In addition to consulting the CIDB contractor database and National Treasury's CSD, the Contractor shall call for an expression of interest, which shall be published in newspapers and at locations as advised by the PLC.

For each group of work packages, the call for an expression of interest shall outline:

- a. evaluation and selection criteria such as eligibility, functionality, and preference,
- b. compliance requirements such as CSD and CIDB registration, tax clearance and COID compliance, and
- c. the anticipated scope of the works to be undertaken by Targeted Enterprises.

##### **iv) Establish a Targeted Enterprise Helpdesk**

Other than informing the Contractor's market analysis and resources and skills audits, the purpose of the call for an expression of interest is to alert Targeted Enterprises of the subcontracting opportunities and inform them of the anticipated eligibility, functionality, and preference criteria, as well as of compliance requirements.

The Contractor shall enhance the readiness of Targeted Enterprises to participate in the subcontracting opportunities by establishing a Targeted Enterprise Helpdesk at a suitable and easily accessible location in the Project Area.

The Contractor shall provide guidance to Targeted Enterprises in getting their statutory requirements in order in anticipation of the subcontracting opportunities. The helpdesk shall assist with, or provide guidance in, registering with the CSD and the CIDB, obtaining tax clearance and COID compliance and any other relevant qualifying requirements.

v) Compile Preliminary Targeted Enterprise Database

Based on the CPG targets listed in the Specification Data and the information obtained from the activities described in the paragraphs above, the Contractor shall compile a Preliminary Targeted Enterprise Database.

In compiling the Preliminary Targeted Enterprise Database, the Contractor must bear in mind that the benchmark for an adequate number of tenderers to ensure a competitive tender process is ten (10) tenderers that are able to achieve the functionality threshold during the tender evaluation stage.

vi) Identify Targeted Enterprises, Target Groups and Project Area(s).

Based on the CPG targets listed in the Specification Data and the Preliminary Targeted Enterprise Database, the Contractor shall identify the:

- a. Targeted Enterprises (CIDB grades and types); and
- b. Target Groups (woman, youth, etc.) which are anticipated to benefit from the subcontracting opportunities; and
- c. Project Area(s) from which Targeted Enterprises will be given preference for subcontracting opportunities.

vii) Finalise the Contract Participation Goal (CPG) Plan.

The Contractor shall utilise all the information gathered from the activities described in the paragraphs above to finalise the CPG Plan. The plan shall contain:

- a. a list of work packages (scope of work and number of packages) to be subcontracted to Targeted Enterprises,
- b. procurement, award, and execution dates for the work packages, distributed over the duration of the Works Contract (from site establishment to completion of the Works) to ensure continuous work opportunities,
- c. the Preliminary Targeted Enterprise Database(s) for each work package,
- d. the Targeted Enterprises (CIDB grades and types) and Target Groups (woman, youth, etc.) which are to benefit from the subcontracting opportunities,
- e. the Project Area(s) from which Targeted Enterprises will be given preference for subcontracting opportunities, and
- f. the tender evaluation and selection criteria for the respective work packages.

viii) Acceptance of the CPG Plan

The Contractor shall submit the CPG Plan to the Engineer for acceptance after which it shall be tabled to the PLC for their information.

The Contractor shall ensure that the tender requirements and the outcome of different tendering scenarios are explained to the PLC, specifically with respect to the outcomes of evaluating:

- a. Eligibility criteria,
- b. Functionality structuring and scenarios,
- c. Price and Preference,
- d. Compliance requirements, and
- e. Negotiation processes (if applicable).

If required, the Contractor shall make amendments to the CPG Plan based on the Engineer's instructions.

ix) Compile tender documents.

The Contractor shall compile the tender documents for each Targeted Enterprise subcontract work package and shall utilise the Employer's proforma document for Targeted Enterprise Subcontracting (see Annexure 8.3).

The Contractor shall compile each subcontract tender document in a manner that facilitates the achievement of all objectives and principles pertaining to the development of the Targeted Enterprises.

The subcontract work packages, its evaluation and selection criteria, and the Tender Advertisement shall be acknowledged by the PLC and accepted by the Employer, prior to advertising the tender (see Annexure 8.3). The draft subcontract tender documents shall be approved by the Engineer before letting the tender.

**b) Tender Process**

i) Advertise the sub-contract packages.

The Contractor shall advertise and invite tenders from Targeted Enterprises for the respective subcontract packages. Advertisements shall be placed in local newspapers, on community notice boards, on SANRAL's electronic supply development desk portal (<https://sanralesdd.co.za>), and any other place or medium as advised by the PLC. The Contractor shall keep printed proof of all advertisements and the platforms where the subcontract packages were advertised.

If the Employer have a pro-forma Tender Notice available, the Contractor shall use this document.

ii) Conduct a tender briefing and tender training session.

For each group of subcontract packages, the Contractor shall conduct a compulsory briefing session to explain the tender process, the evaluation and selection criteria and the scope of the works to the Targeted Enterprises.

An Attendance Register shall be completed by all attendees and Minutes shall be taken during the briefing session. The Minutes of the briefing session shall be distributed to all attendees as an Addendum to the Tender Documents.

The Contractor shall conduct a "how to complete a tender document" training session as a component of the tender briefing session to interested Targeted Enterprises. The level of detail and hence the duration, of the training session shall be informed by the findings of the resources and skills audit conducted during the Tender Preparation Phase.

The Contractor shall engage with the Employer's Regional Transformation Officer on the Employer's SMME Pre-tender Training and Development Programme and utilise this programme if it is available at the time in the Project Area. The Regional Transformation Officer's contact details shall be provided by the Project Manager on award.

Notes of the tender briefing training session shall be distributed to all attendees of the briefing session as an Addendum to the Tender Documents, irrespective if they have attended the training session or not.

A separate Attendance Register shall be completed for the training session for future reference.

iii) Minimum tender submission documents.

It shall be a condition of tender that Targeted Enterprises include in their tender submissions the following documentation (if applicable, based on the subcontract type, e.g., construction, manufacturing, supply, or services):

- a. A valid B-BBEE certificate or Sworn Affidavit with the Tenderer's B-BBEE contributor level.
- b. Proof that the Tenderer is an EME or QSE entity.
- c. Proof that the Tenderer is registered on National Treasury's CSD.
- d. Proof of the Tenderer's locality (address registered with the CIPC).
- e. Proof that the Tenderer is registered with the CIDB in the required grading and class (if applicable).
- f. Proof that the Tenderer is compliant with the COIDA act.
- g. Proof that the Tenderer is tax compliant.

iv) Tender closure and opening of tenders.

Tenders for the subcontract packages shall close at the stipulated time and date as advertised in the subcontract Tender Advertisement and Tender Data. Tenders shall be submitted to the Contractor in the format and at the address prescribed by the Contractor in the subcontract Tender Advertisement and Tender Data.

The tender opening shall be conducted by the Contractor who shall publicly announce and record the names of all Tenderers and their tender prices.

v) Finalise Targeted Enterprise Database

The purposes of the preliminary Targeted Enterprise Database are described in the Tender Preparation phase above of which one is to alert Targeted Enterprises to assess their readiness to participate in the project's Subcontractor opportunities.

The period between the Contractor's call for an expression of interest and the date of closure of the relevant subcontract tender allows for prospective Tenderers to become compliant to the database criteria. The preliminary database is thus a "live" database until the date of tender closure.

On the date of tender closure, the Contractor shall request the Employer's Supply Chain Management Department, through the Project Manager, to print out a list from National Treasury's CSD, of entities that adheres to the Targeted Enterprise Database criteria. This list shall become the Final Targeted Enterprise Database for the relevant subcontract tender and shall be made available to the PLC if requested.

**c) Tender Evaluation**

The Contractor shall evaluate the tenders and it shall be a condition of tender that tenders will only be accepted from Targeted Enterprises that fully comply with the definition of a Targeted Enterprise as described in Section D1002 of the Specifications.

The Contractor shall evaluate the tenders based on (1) Eligibility, (2) Functionality, (3) Price and Preference, and (4) Compliance.

**i) Stage 1 – Eligibility**

Tenderers shall be checked for their eligibility to tender for the advertised sub-contract packages based on the following eligibility criteria:

- a. Proof that the Tenderer is registered with the CIDB (if applicable).
- b. Proof that the Tenderer is registered on National Treasury's CSD.
- c. Proof that the Tenderer is registered with the CIPC.
- d. A valid B-BBEE certificate or a Sworn Affidavit with the Tenderer's B-BBEE contributor level.
- e. Proof that the Tenderer is an EME or a QSE.  
Proof that the Tenderer falls within one or more of the Target Groups as per the Specification Data (if applicable).

Eligible Tenderers shall be further evaluated against the functionality criteria.

**ii) Stage 2 – Functionality**

No Targeted Enterprise may be prohibited from responding to the invitation to tender; however, preference shall be given to those Targeted Enterprises that adheres to the tender criteria, which amongst others, shall be measured by means of a functionality evaluation.

To ensure Targeted Enterprise participation as it is intended by the Employer and as defined in the Specification Data, Functionality shall be scored based on the type of sub-contract package, e.g., construction or the supply of goods or services and at least three (3) or more of the criteria listed below shall be applied.

The points allocated for the listed criteria shall be clearly demonstrated to tenderers as a matrix in the tender document. The functionality matrixes provided in the Employer's proforma document for Targeted Enterprise subcontracting (Annexure 8.3) shall be applied to evaluate the functionality of Tenderers.

Tenderers must score a minimum of 75% for functionality and Tenderers that do not obtain the threshold shall not be evaluated further.

**a. Locality**

For lower CIDB grade packages, the points allocated for Locality typically has a higher weighting in the total evaluation points but shall not be more than 65% of the total evaluation points.

Points scored shall be based on the Targeted Enterprise's registered address with the CIPC.

- i. If the Targeted Enterprise is more than twelve (12) months old and the company address:
  - (a) was changed with the CIPC in the twelve (12) months prior to the tender advertisement; or

(b) does not correlate with the company address recorded on the CSD,

the Targeted Enterprise shall provide additional proof of its address in the twelve (12) months preceding the tender advertisement date and that the address is current by submitting the following:

(i) for urban areas:

1. signed lease agreement confirming occupation in the preceding twelve (12) months; or
2. mortgage statement confirming ownership in the preceding twelve (12) months; and
3. a current utility bill (not older than three (3) months) confirming that occupation is current; or

(ii) for semi-urban and rural areas

1. an affidavit from the relevant ward councillor or traditional authority, signed and stamped by a registered commissioner of oaths, which confirms that the business has been operating from the said address in the preceding twelve (12) months.

ii. If Targeted Enterprise is less than twelve (12) months old and the company address:

- a. was changed with the CIPC in the twelve (12) months prior to the tender advertisement; or
- b. does not correlate with the company address recorded on the CSD,

the oldest registered address on either the CIPC or the CSD will be accepted as the Targeted Enterprise's address for the purpose of scoring locality points.

iii. If the Targeted Enterprise intends to operate from a branch office for the purpose of the anticipated sub-contract, the same additional proof that the company has been operating from the branch office in the twelve (12) months prior to the tender advertisement date must be provided as listed in the paragraphs above.

iv. If the above additional proof of address cannot be provided, locality points shall be awarded based on the tenderer's address registered with the CIPC in the twelve months prior to the tender advertisement date.

b. CIDB grade and class

The points allocated for CIDB grade and class shall not be more than 35% of the total evaluation points.

CIDB grade and class shall not be used as an evaluation criterion for packages pertaining to the supply of material, goods and/or services.

c. Project Specific Target Groups, e.g., woman, youth, etc.

In addition to the eligibility criteria for preferential procurement functionality points may also be allocated for the following Target Groups:

- i. Tenderer is 51%+ owned by black people who are youth.
- ii. Tenderer is 51%+ owned by black people who are women.
- iii. Tenderer is 51%+ owned by black people with disabilities.
- iv. Tenderer is 51%+ owned by black people who are military veterans.

The points allocated for Target Groups shall not be more than 15% of the total evaluation points.



One, two or three of the Target Groups listed above may be selected to count towards the score for Target Groups.

If any one of the Target Groups listed above is already an eligibility criterion, it must not be included as a functionality criterion as well.

The inclusion of any of the Target Groups listed above shall be based on the Contractor's Resources and Skills Audit.

Youth and veterans may not be selected together.

iii) Stage 3 – Price and Preference

Tenderers that obtained the minimum threshold for functionality shall be further evaluated on their Price and Preference submissions, i.e.

- a. Price= 80 / 90 %
- b. Preference= 20 / 10 %

Preference will be scored as follows:

**Table D1007.02(a): Allocation of Preference Score**

Specific Goals	Criteria	10 Points		20 Points	
		Points	Max Points	Points	Max Points
TE's B-BBEE Level	1	10	10	20	20
	2	9		18	
	3	6		14	
	4	5		12	
	5	4		8	
	6	3		6	
	7	2		4	
	8	1		2	
	Non-compliant	0		0	

The highest scoring tenderer for each sub-contract package shall be checked for compliance.

The Contractor shall state in the tender advertisement and in the tender documents that only one sub-contract package shall be awarded to an entity at any one time for this project, meaning that a Targeted Enterprise may be awarded a work package and on conclusion thereof may be awarded a subsequent work package, but more than one work package may not be awarded simultaneously for this project.

If a tenderer tendered for more than one sub-contract package and scored the highest points in more than one package, the Contractor shall award to the tenderer the work package that has the most economic benefit to the Employer.

iv) Stage 4 – Compliance Check

The highest scoring tenderer for each sub-contract package shall be checked for compliance with respect to the following criteria:

- a. Proof that the Tenderer is compliant with the COID Act (excl. CIDB 1 and 2 CE Subcontractors).
- b. Proof that the Tenderer is tax compliant.

If the highest scoring tenderer fails to meet any of the compliance criteria, he will be given seven (7) calendar days to become compliant.

If the highest scoring tenderer fails to submit the requested compliance information in the required timeframe, he shall be deemed non-compliant, and the evaluator shall check the second highest tenderer for compliance. This process is repeated until a compliant tenderer has been identified.

**d) Appoint successful Targeted Enterprises**

**i. Submitting a Tender Report.**

The Contractor shall present the Tender Report for each sub-contract package to the Employer's Project Manager and the Engineer and thereafter table the winning tenderers to the PLC prior to award of the sub-contract.

**ii. Negotiating tender sum and/or rates with Targeted Enterprises.**

**a. Rates**

If the Contractor choose to include work for which he has tendered rates in the sub-contract package and the tenderer who scored the highest points tendered higher rates than that of the Contractor, the Contractor may negotiate rates and the final sum with the tenderer.

If the Contractor fails to negotiate a reasonable tender sum or rates with the tenderer, he may:

- i. approach the second highest points scoring compliant tenderer for negotiation. This process may be repeated up to the third highest points scoring compliant tenderer, where after the package shall be retendered. the Contractor shall be limited to negotiate down to 25% above his own rates (this process must be clearly explained to the PLC prior to negotiation.; or
- ii. accept the highest points scoring tenderer's higher rates and total sum and remunerate the Subcontractor, at the Subcontractor's tendered rates, from the Lump Sum which the Contractor has tendered for the fluctuation between the Contractor's rates and that of the Targeted Enterprise Subcontractors.

**b. Provisional Sum**

If the Employer has provided a Provisional Sum for the work items in the sub-contract package, the Contractor shall report on the feasibility of the highest point scoring compliant tenderer's tender rates and tender sum to the Employer's Project Manager and the Engineer.

- i. If the highest points scoring compliant tenderer's rates and tender sum are deemed market related by the Engineer, the Contractor shall obtain the Employer's approval to utilise the Provisional Sum provided for the work items.
- ii. If the highest points scoring compliant tenderer's rates and tender sum are deemed not market related and the Employer does not approve the utilisation of the relevant Provisional Sum, the Contractor may negotiate with the tenderer for market related rates and tender sum.
- iii. If the Contractor fails to negotiate market related rates and a tender sum with the tenderer, he may:
  - (a) approach the next highest point scoring compliant tenderer for negotiation. This process may be repeated up to the third highest points scoring compliant tenderer, where after the package shall be retendered; or

- (b) accept the highest points scoring tenderers rates and total sum and remunerate the Subcontractor from the Lump Sum which the Contractor has tendered for the fluctuation between the Contractor's rates and that of the Targeted Enterprise Subcontractors. The Contractor shall not pay rates or tender sums that is more than 15% higher than what are deemed market related by the Engineer.

iii) Low tender sums submitted by Targeted Enterprises.

The Contractor shall report to the Employer's Project Manager and the Engineer on the feasibility of tendered rates, sums, or Provisional Sums of tenderers who tendered exceptionally low. Exceptionally low rates, sums or Provisional Sums are those that are more than five percent (5%) less than what the Contractor tendered, or in the case of a Provisional Sum, what is deemed market related by the Engineer.

- a. If the tendered rates, sums, or Provisional Sums of those tenderers who tendered exceptionally low are deemed by the Engineer to still be feasible, the Contractor may continue to include these tenders in his tender evaluation.
- b. If the tendered rates, sums, or Provisional Sums of those tenderers who tendered exceptionally low are deemed by the Engineer to not be feasible, the Contractor may disqualify these tenders from his tender evaluation.

The Employer strongly discourages the appointment of Targeted Enterprises that did not tender feasible rates, sums, or mark-ups. If all prices submitted are deemed exceptionally low by the Engineer, the sub-contract package shall be retendered.

The consequences of exceptionally low prices must be clearly outlined in the Tender Report and clearly explained to the PLC prior to award or retendering of the sub-contract packages.

iv) Payment to the Contractor.

- a. The Employer shall not remunerate the Contractor, other than what have been provided for in the payment items, for accepting higher tender sums tendered by Targeted Enterprises.
- b. If the Contractor accepts tender sums that are higher than what have been provided for in the Contractor's tendered rates, or the Employer's provisional and/or prime cost sums, the costs shall be paid by the Contractor from the Lump Sum which he tendered for the fluctuation between the Contractor's rates and that of the Targeted Enterprise Subcontractors.

v) Entering the Sub-contract Agreement.

The Contractor's TE Procurement Coordinator shall assist successful Targeted Enterprises to enter into a sub-contract agreement with the Contractor as described in this Specifications.

D1008 GENERAL RESPONSIBILITIES OF THE CONTRACTOR TOWARDS TARGETED ENTERPRISES

The Contractor shall have the responsibilities described in this Section, D1008 of the Specifications, towards all Targeted Enterprises sub-contracted in terms of the CPG as stated in the Specification Data.

**1. The Employer's Independent Targeted Enterprise Monitor**

The Employer shall, through its Transformation Unit, appoint an independent Targeted Enterprise Monitor, who shall audit the Contractor with respect to his obligations to Targeted Enterprises and who shall report his findings to the Employer's Project Manager, the Engineer, and the Regional Transformation Officer (RTO) monthly.

**2. Failure to Comply with Responsibilities Towards Targeted Enterprises**

If the Contractor, in the opinion of the Employer's Project Manager or the Engineer, fails to comply with its responsibilities towards Targeted Enterprises, the Engineer shall issue a written warning to the Contractor, stating all the areas of non-compliance. The Contractor's time to correct shall be stated in the letter and shall be in accordance with the relevant specifications for the aspects of non-compliance.

A copy of the letter of warning shall be forwarded to the Employer's Project Manager and the Targeted Enterprise Monitor shall monitor that corrective action is taken by the Contractor.

Failure by the Contractor to comply with a deadline, will be sufficient grounds for the Employer to apply a penalty or institute a claim in accordance with the relevant Conditions of Contract.

**D1008.01 Targeted Enterprise (TE) Construction Manager**

The Contractor shall appoint a dedicated TE Construction Manager whose sole responsibility shall be to assist the Contractor with the execution of his responsibilities towards Targeted Enterprises and Target Groups as prescribed in this Section D of the Specifications, with an emphasis on D1008 and D1010.

The TE Construction Manager may be appointed from the Contractor's existing staff or may be employed or sub-contracted for the purpose of this Contract. Irrespective of the contractual relationship between the TE Construction Manager and the Contractor, the TE Construction Manager shall not perform any other duties than that of a dedicated TE Construction Manager on a full-time basis for this Contract.

**a) TE Construction Manager's Obligations**

Amongst others, the TE Construction Manager shall facilitate the training, mentoring, guidance, coaching, development, and support of Targeted Enterprises as per the Contractors approved Training and Skills Development Programme (see Section D1010 of the Specifications).

The TE Construction Manager shall submit monthly TE Progress Reports in the Employer's reporting format. The report shall be submitted to the Employer's Project Manager and Regional Transformation Officer, the Engineer and the Contractor, at least one week prior to the monthly site progress meeting.

This report shall include, amongst others:

- i) Details of TEs trained, e.g., number, hours, value, modules, credits obtained, etc.
- ii) Details of TEs sub-contracted, e.g., number, packages, values, etc.

- iii) Details of TEs performance on the work packages, and skills gaps to be addressed, etc.
- iv) Details of TEs growth and sustainability, e.g., CIDB grading upgrades, business success, etc.
- v) Details of disputes and the associated interventions and/or resolutions.

**b) TE Construction Manager's Qualifications and Experience**

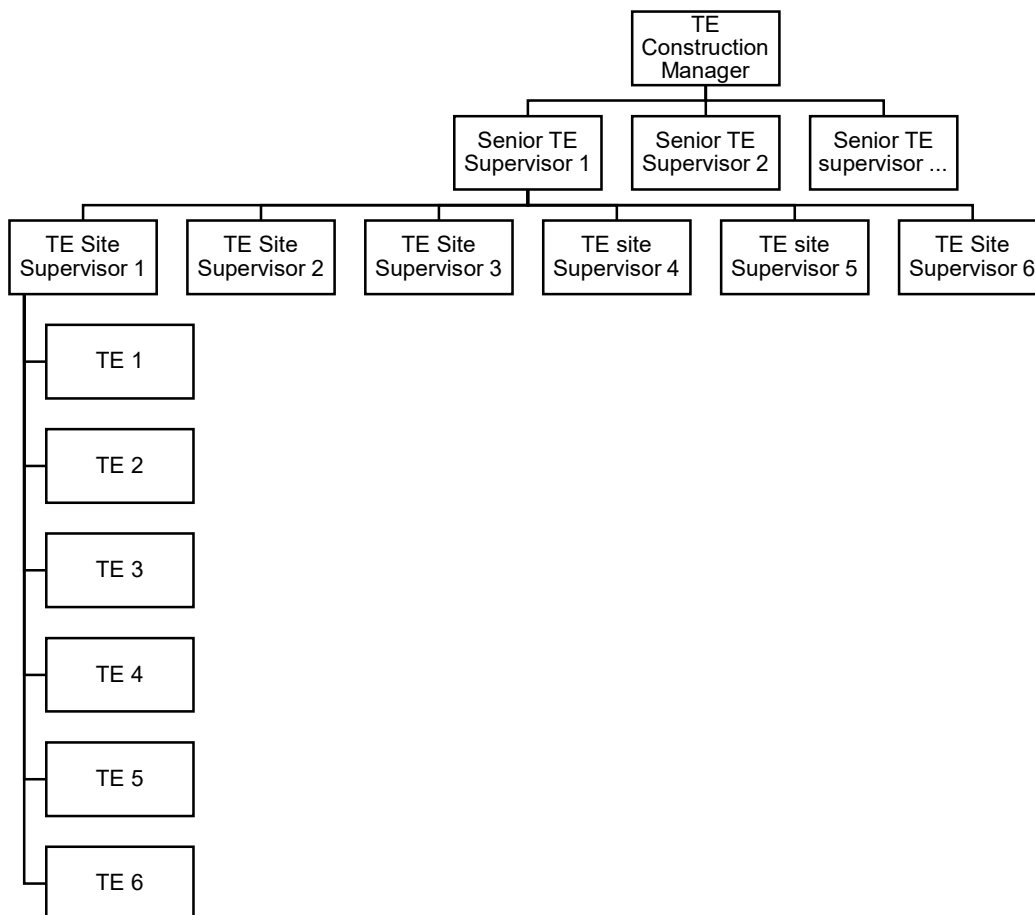
The TE Construction Manager shall have as a minimum a National Diploma: Management of Civil Engineering Construction Processes (NQF Level 5) or an equivalent qualification.

He shall have relevant experience as a Site Agent, managing construction processes in the fields of roads maintenance, new roads construction, roads rehabilitation, roads structures, etc. In addition, he shall have ample knowledge of, and experience in, the requirements of training and mentoring in the road construction environment.

**c) TE Construction Manager's Team**

The TE Construction Manager shall have on his team one (1) TE Site Supervisor for every six (6) Targeted Enterprises which are in their respective construction phases and one (1) Senior TE Supervisor for every six (6) TE Site Supervisors.

The qualifications and/or experience of TE Site Supervisors and Senior TE Supervisors shall be relevant and of a suitable level to enable them to supervise the level of Targeted Enterprise and the specific works under construction. Below is an indicative organogram of the TE Construction Manager and his team.



## **D1008.02 General Obligations**

The Contractor shall, with the assistance of the TE Construction Manager, comply with the following general obligations:

- a) Assist the Targeted Enterprises in instituting a quality assurance system.
- b) Provide adequate training, coaching, guidance, mentoring and any other identified and approved assistance to Targeted Enterprises and their employees.
- c) Provide support and any other identified and approved assistance to ensure that the Targeted Enterprises meet their obligations and commitments with respect to their sub-contracts.
- d) Assist Targeted Enterprises to monitor and manage the schedules, costs, and cash flows of their sub-contracts.
- e) Endeavour to avoid sub-contract disputes and if disputes do arise, facilitate a process to find an amicable solution.
- f) Ensure that the CPG objectives are achieved.

## **D1008.03 Sub-contract Agreements**

The Contractor shall conclude sub-contract agreements with each sub-contracted Targeted Enterprise and shall utilise the Employer's proforma document for Targeted Enterprise subcontracting (see Annexure 8.3), which is based on the 2011 FIDIC Conditions of Sub-contract for Construction and shall be in accordance with the provisions of amended sub-clause 4.4 of the Conditions of Contract and shall be consistent with the terms and conditions of this Contract.

### **a) Special Conditions of Contract**

Amongst others, the sub-contract agreement includes the following Particular Conditions of Contract:

- i) The Targeted Enterprise's entitlement to receive the training contemplated in the main Contract (sub-contract Part C1, C1.2.1, Part B, clause 6.8).
- ii) The Targeted Enterprise's obligation to participate and co-operate in the training provided for in the main Contract (sub-contract Part C1, C1.2.1, Part B, clause 6.8).
- iii) The allowable sources from which Labour may be drawn in terms of the main Contract (sub-contract Part C1, C1.2.1, Part B, clause 6.5).
- iv) The terms and conditions relating to the recruitment, employment and remuneration of Labour engaged on the main Contract (sub-contract Part C1, C1.2.1, Part B, clause 6.5).
- v) The training to be provided to the Targeted Enterprise's workforce (sub-contract Part C1, C1.2.1, Part B, clause 6.8).
- vi) The terms and conditions related to payment of the Targeted Enterprise (sub-contract Part C1, C1.2.1, Part B, clauses 14.6 to 14.8 and 15.3).
- vii) Sanctions in the event of failure by the Targeted Enterprise to comply with the terms and conditions of the sub-contract agreement (sub-contract Part C1, C1.2.1, Part B, clauses 14.6 and 20.4 to 20.7).
- viii) Dispute avoidance and resolution procedures (sub-contract Part C1, C1.2.1, Part B, clauses 20.4 to 20.7).

Further Special Conditions of Contract required by the Contractor shall only be included into the sub-contract agreement once approved by the Employer and the Engineer.

### **b) Monitoring of Sub-contract Agreements**

The proforma sub-contract agreement for each group of work packages shall be tabled to the Employer's Independent Targeted Enterprise Monitor for his review and confirmation that sub-contract agreements are in terms of the Employer's requirements and policies.

In addition, the PLC may request proof that sub-contract agreements were entered into with the sub-contracted Targeted Enterprises. The PLC may request insight into the Conditions of Subcontract and Sub-contract Data.

To protect Targeted Enterprises' competitive advantage and/or tender strategy, only the sub-contract agreement shall be available to the PLC for perusal and not the pricing structure and/or Schedule of Quantities.

A copy of each sub-contract agreement shall be filed with the Engineer after confirming that it is in accordance with the provisions of this Contract.

#### **D1008.04 Payment of Targeted Enterprises**

Targeted Enterprises shall be paid the rates and/or Provisional Sums, which they have tendered, or which have been negotiated as described in this Section D of the Specifications.

##### **a) Payment of Provisional and General Obligations**

Provision shall be made in the sub-contract agreement for the Targeted Enterprise's preliminary and general obligations (P&Gs), which shall be calculated as a minimum of 15% of the value of the scheduled sub-contract work items.

Where the Contractor's sub-contract work is not paid from a Provisional Sum, the P&Gs of the Targeted Enterprise shall be paid from the Lump Sum tendered by the Contractor for the P&Gs of Targeted Enterprises.

P&Gs shall be paid to Targeted Enterprises as per Section PC1.3.1 of the COTO specification payment items, i.e.:

C1.3.1.1 paid in 3 instalments of 50%, 35% and 15%.

C1.3.1.2 paid as a percentage of the total value progressively per certificate.

C1.3.1.3 paid monthly for the Subcontractor's contract duration.

##### **b) Monitoring of Payment of Targeted Enterprises**

The Employer's independent Targeted Enterprise Monitor shall audit the Contractor's Payment of Targeted Enterprises to ensure timeous and correct payment in terms of the Employer's requirements and Policies and shall report his findings to the Employer's Project Manager on a regular basis.

#### **D1008.05 Quality of Work and Performance of Targeted Enterprises**

##### **a) Ensuring Quality of Work and Performance**

The purpose of the Employer's CPG is to, amongst others, enhance the utilisation and development of Targeted Enterprises. Thus, while the Contractor remains responsible for the quality of work and performance of Targeted Enterprises, he may not neglect the developmental requirements in the subcontracting of Targeted Enterprises.

It is thus emphasised that the Contractor's TE Construction Manager shall closely monitor and supervise all Targeted Enterprises and shall train, coach, guide, mentor and assist each Targeted Enterprise in all aspects of management, execution, and completion of its sub-contract. This shall typically include assistance with planning of the Works, sourcing and ordering of materials, labour relations, monthly measurements, and invoicing procedures. The extent and level of such training, coaching, guidance, mentoring, and assistance to be provided by the Contractor shall be commensurate with the level of sub-contract applicable and shall be directed at enabling the Targeted Enterprise to achieve the successful execution and completion of its sub-contract.

**b) Failure by the Targeted Enterprise to Comply**

If the Targeted Enterprise, in the opinion of the Engineer, fails to comply with any of the criteria listed below, the Engineer shall issue a written warning to the Contractor, stating all the areas of non-compliance. A copy of the letter of warning shall be forwarded to the Employer's Project Manager and the Employer's independent Targeted Enterprise Monitor. The criteria are as follows:

- i) Deliver acceptable standard of work as set out in the specifications.
- ii) Progress in accordance with the time constraints in the sub-contract agreement.
- iii) Punctual and full payment of the workforce and suppliers.
- iv) Site safety.
- v) Accommodation of traffic.

**c) Assist the Targeted Enterprise to Make Good**

The Contractor shall, in terms of the sub-contract agreement (sub-contract Part C3, clause 3.1.12), give reasonable warning to the Targeted Enterprise when any contravention of the terms and conditions of the sub-contract agreement has occurred or appears likely to occur.

The Contractor shall, together with the Targeted Enterprise, identify the causes that led to failure to comply and jointly develop a plan to rectify, which plan shall be submitted to the Employer's Project Manager and the Engineer for information purposes.

Based on the plan to rectify, the Contractor shall give the Targeted Enterprise reasonable opportunity to make good any such contravention, or to avoid such contravention, and shall render all reasonable assistance to the Targeted Enterprise in this regard.

**d) Monitoring Execution of the Plan to Make Good**

The Employer's independent Targeted Enterprise Monitor shall review plans to rectify and monitor the execution thereof to ensure that Targeted Enterprises are given a fair opportunity to rectify within a developmental environment. He shall report his findings to the Employer's Project Manager monthly.

**D1008.06 Dispute Avoidance and Resolution Procedures**

When any disputes arise, the Contractor shall within seven (7) calendar days inform the Employer's Project Manager, the Employer's Targeted Enterprise Monitor, and the Engineer, in writing, of the details of the dispute.

**a) Facilitate Dispute Avoidance**

Prior to taking any action, the Contractor shall commence with a facilitation process by arranging a formal meeting with the Targeted Enterprise with the aim to find an amicable solution to the dispute. The meeting shall be attended by the Employer's Project Manager, the Employer's Targeted Enterprise Monitor, and the Engineer to ensure a fair and transparent process in reaching a settlement.

If the parties are unable to find an amicable solution, the Contractor shall explain fully to the Targeted Enterprise the provisions in the sub-contract agreement to address disputes. If action is necessary, it shall be discussed with the Employer's Project Manager and the Engineer prior to any action being taken.



**b) Support to Targeted Enterprise during Dispute Resolution Process**

While the Employer's Project Manager and the Engineer will observe the dispute resolution process to ensure fairness and transparency, the Targeted Enterprise may request consultation and assistance from the Targeted Enterprise Monitor. The Targeted Enterprise Monitor will assist the Targeted Enterprise with the interpretation of the Conditions of Sub-contract and will guide the Targeted Enterprise during the dispute resolution process.

**c) Issuing a Letter of Warning to Targeted Enterprise**

The Contractor shall issue a letter of warning to the Targeted Enterprise, whom shall have 21 calendar days from the date of receipt of the letter of warning by the Contractor to address and rectify the issues raised by the Engineer, except for issues pertaining to Site Safety and Accommodation of Traffic, for which the reaction time shall be in accordance with the relevant specifications for those aspects of the Works, but which shall not be longer than 24 hours.

**d) Failure by the Targeted Enterprise to Comply**

Failure by the Targeted Enterprise to comply with a deadline, will be sufficient grounds for the Contractor to apply a penalty or terminate the sub-contract agreement provided that the Employer's Project Manager and the Engineer are satisfied that the Contractor has made every effort to correct the performance of the Targeted Enterprise.

The Targeted Enterprise may dispute any ruling given or deemed to be given by the Contractor or the Engineer, within 21 calendar days after receipt thereof by submitting a written Dispute Notice to the Contractor, in terms of the relevant Conditions of the Sub-contract.

On request by the Targeted Enterprise, the Targeted Enterprise Monitor will assist the Targeted Enterprise with the interpretation of the Conditions of Sub-contract and will guide the Targeted Enterprise during the dispute resolution process.

**D1009 WORK suitable for execution BY TARGETED ENTERPRISES**

To assist the Contractor in achieving his CPG, the following work items have been identified as being suitable for execution by Targeted Enterprises:

- a) Erection and maintenance of the Contractor's camp site.
- b) Clearing and grubbing.
- c) Removal of trees.
- d) Provision of traffic control facilities.
- e) Management of traffic control facilities and traffic safety as part of the accommodation of traffic.
- f) Construction and clearing of drains.
- g) Installation of prefabricated culverts including inlet and outlet structures.
- h) Concrete channelling and concrete linings for open drains.
- i) Construction of concrete paving, kerbs and channels.
- j) Construction of small concrete and other structures.
- k) Construction of concrete walkways.
- l) Pitching, stonework and protection against erosion.
- m) Construction of gabions.
- n) Patching and repairing edge breaks.
- o) Erection of guardrails.
- p) Landscaping.
- q) Fencing.
- r) Road signs.
- s) Road markings.
- t) Finishing the road and road reserve.
- u) Site Security Services.

- v) Haulage of materials.
- w) Supply of plant.
- x) Supply of fuel.
- y) Supply of transport to Local Labour.
- z) Specialised sub-contract work such as:
  - i. Construction of concrete pavements.
  - ii. Laying of asphalt using asphalt pavers.
  - iii. Structural concrete such as culvert and bridges.
  - iv. Crushing of materials.
  - v. Precast manufacture.
  - vi. Batch plant erection and operations.
  - vii. Earthworks, layer works construction.

From the above work items, the following have been identified as suitable for execution by CIDB CE1 and CE2 Targeted Enterprises:

- a. Concrete sidewalks.
- b. Side drains.
- c. Clearing and grubbing.
- d. Construction and clearing of drains.
- e. Any other work identified by the Employer to be executed in the Target Area.

Furthermore, Schedule A 2 includes Provisional Sums for Targeted Enterprises to construct 12 km of access collector roads, which work packages shall be awarded via the tender process prescribed in D1007. The access roads form part of the traffic management for construction and must be awarded during the first year of construction.

The work to be carried out by Targeted Enterprises is not limited to the work listed above and the Contractor may need to engage Targeted Enterprises on other aspects of the Works to achieve the CPG.

A Provisional Sum for the work by CIDB 1 and 2 Targeted Enterprise Subcontractors is allowed under pay-item D10.05.

#### **D1010 TRAINING, COACHING, GUIDANCE, MENTORING and assistance**

The Contractor shall with the input and support of the PLC develop a Training and Skills Development Programme (TSDP) which shall be managed by the Contractor's TE Construction Manager.

The CIDB Standard for Developing Skills through Infrastructure Contracts, 08 August 2013 (Government Gazette No. 36760, 23 August 2013), as amended by version 2, June 2020 (Government Gazette No. 43495, 03 July 2020) shall apply to projects with a Works Construction Period of 12 months or more, as set out under this Section D1010.

##### **D1010.01 Purpose of the Training and Skills Development Programme (TSDP)**

Skills development forms an integral part of the Employer's Transformation and Community Development Policies and hence, it is important to the Employer that Targeted Labour and Targeted Enterprises be equipped with skills that can be used to gain meaningful future employment and secure subcontracting opportunities.

It is, therefore, a requirement of this Contract that the Contractor provide adequate training, coaching, guidance, mentoring and assistance to the Targeted Labour and Targeted Enterprises, to ensure skills development within the Construction Industry.

The TSDP shall provide the learning detail for Targeted Labour, Targeted Enterprises and other Learner categories, including course and/or module contents and timeframes. See Section 3 of Annexure 7 for the TSDP format.

##### **D1010.02 Developing the TSDP**

The Employer shall, through its Project Manager, be involved in the decision making and quality control pertaining to the development and implementation of the TSDP facilitated through this Contract.

The complete TSDP shall be developed during the Mobilisation Period, accepted by the Engineer after consultation with the Employer's Project Manager, and tabled to the PLC for their information before any training commence.

**i. Skills Development Requirements**

**i) Contract Skills Development Goals (CSDG)**

This section establishes a minimum CSDG which is to be achieved in the performance of a Contract in relation to the provision of different types of workplace opportunities linked to work associated with a Contract which culminate in or lead to:

- a. a part- or full occupational qualification registered on the National Qualification Framework,
- b. a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012),
- c. a national diploma registered on the National Qualification Framework, and
- d. registration in a professional category by one of the professional bodies listed in Table 1 of the Standard.

The Contractor shall achieve or exceed the CSDG in the performance of the Contract. The Contractor may, if need be, devolve their obligations onto Subcontractors.

The CSDG shall not be less than the final contract value multiplied by the percentage (%) for Civil Engineering work (CE) as set in the Specification Data.

To attain the CSDG, it is estimated that the following number of Learners must be trained on the Contract in the stated categories:

**TABLE D1010/1: Number of Learners per Category**

Learning Category		Number of Learners
Method 1	Occupational qualification.	60
Method 2	TVET College graduates, or	16
	Apprenticeships.	16
Method 3	P1 and P2 learners, or	16
	240 credits qualification.	16
Method 4	Candidates, 360 credits qualification.	16
	Candidates, 480 or more credits qualification.	16
Generic Skills	Occupational qualification.	60
Community Training	Occupational qualification.	60

**ii) Achieving Contract Skills Development Goal (CSDG)**

The Contractor shall achieve the CSDG by providing employment opportunities to Trainees requiring structured workplace learning using one or a combination of any of the following methods in relation to work directly related to the Contract:

- Method 1:** Structured workplace Learning opportunities for Learners (LoL) towards the attainment of a part or a full occupational qualification.
- This training method shall apply to Targeted Enterprises and Targeted Labour.
- Method 2:** Structured workplace Learning opportunities for Apprentices or other artisan Trainees (LoA) towards the attainment of a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012) subject to at least 60% of the artisan Trainees being holders of public FET college qualifications.
- This training method shall apply to Targeted Enterprises and Targeted Labour.
- Method 3:** Work integrated Learning opportunities for University of Technology or Comprehensive University Students (LoUS) completing their national diplomas.
- This training method shall apply to P1 and P2 Trainees, or Trainees with a 240 credits qualification. Both the permanently employed and temporary employed Trainees shall be considered under this training method.
- Method 4:** Structured workplace Learning opportunities for Candidates (LoC) toward registration in a professional category by a statutory council listed in Table 1 of the Standards.
- This training method shall apply to Candidates with 480 credits qualification. Both the permanently employed and temporary employed Trainees shall be considered under this training method.

No single method shall contribute more than 50 percent (%) of the CSDG. The Contractor's permanently employed Trainees may not account for more than 25 percent (%) of the CSDG, and not more than one method may be applied to any individual concurrently in the calculation of the CSDG.

iii) CSDG Credits

The CSDG shall be calculated by multiplying the number of people employed by the Contractor and placed for continuous training opportunities in a three-month period by the notional values contained in Table 3 of the Standard, or as revised in a Gazette notice.

iv) Denial of Credits

Credits towards the CSDG shall be denied should the Contractor not fulfil all the requirements listed in clause 3.4 (a) to (f) of the Standards.

v) Compliance with Requirements

The Contractor shall comply with the requirement as set out in clause 4 of the Standards.

vi) Records

The Training Service Provider shall keep comprehensive records of the training provided to each Trainee and shall ensure that Trainees' successful completion of successive Unit Standards is entered onto the national SAQA database. After the successful completion of generic skills courses each Trainee shall be issued with a certificate indicating the course contents as proof of attendance and completion. The Contractor shall keep a register of certificates issued. Whenever required, the Contractor shall provide copies of such records to the Engineer.

The Contractor shall submit all the documentation required in terms of clause 4 of the Standards, in a timely manner and according to a prescribed format where applicable.

The Engineer shall certify the value of the credits counted towards the CSDG, if any, whenever a claim for payment is issued to the Employer and shall notify the Contractor of this amount.

The Contractor shall, upon termination of the opportunities provided to satisfy the CSDG, certify the quantum and nature of the opportunity and submit the certificate, counter-certified by the relevant individual, to the Engineer for record-keeping purposes.

vii) Sanctions (Penalty)

Failure to achieve the CSDG shall render the Contractor liable for a penalty as prescribed in clause 8.7 of the FIDIC Conditions of Contract. Penalties shall be as follows:

a.  $\text{Penalty} = \{[\text{LoAs} + \text{LoLs} + \text{LoUSs} + \text{LoCs}]\}$

Where:

LoLs = Monetary Value of the shortfall for structured workplace learning opportunities for Trainees towards the attainment of a part or a full occupational qualification.

LoAs = Monetary Value of the shortfall for structured workplace learning opportunities for apprentices or other artisan Trainees towards the attainment of a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012) subject to at least 60% of the artisan Trainees being holders of public FET college qualifications.

LoUSs = Monetary Value of the shortfall for work integrated learning opportunities for University of Technology or Comprehensive University students completing their national diplomas (LoUS).

LoCs = Monetary Value of the shortfall for structured workplace learning opportunities for candidates towards registration in a professional category by a statutory council listed in Table 1 of the Standards (LoC).

b. Delay the issuing of the Performance Certificate until all the required records described in clause 5 of the Standards are received.

**D1010.03 TSDP General Requirements**

The Training and Skills Development Programme shall consist of Learnerships that include multiple, but related Unit Standards which are (1) relevant to the Works to be constructed, (2) aimed at achieving the skills development objectives of the Programme, and (3) lead towards a formal qualification in the Construction Industry.

Learnerships shall include both the theoretical and practical components of each Unit Standard and shall be in accordance with the various laws and regulations contained in the South African Qualification Authority (SAQA) statutes.

**a) Sourcing of Trainees**

The Employer may provide the Contractor with its list of Trainees or source from which Trainees may be selected.

The Employer may deploy students to the construction site to obtain experiential training. The Contractor shall provide experiential training to these students in accordance with the relevant academic institution's requirements, which is typically a university, a university of technology, or a TVET.

The Contractor shall also provide students with all the tools (including appropriate information technology hardware and software) and site office space necessary to carry out engineering work as if they were the Contractor's own permanent staff.

Reporting on training progress of each student shall be compiled according to the formats and intervals set by the relevant academic institution

If the Employer does not provide the Contractor with a list or source of Trainees, the Contractor may source beneficiaries of the CSDG from the CIDB Skills Development Agency (SDA) or an SDA recognised by the CIDB such as the Construction Education and Training Authority (CETA) or a relevant Sector Education and Training Authority (SETA).

All beneficiaries shall be registered with a Skills Development Agency (SDA) recognised by the CIDB.

**b) Skills Audit and Analysis**

To develop the Training and Skills Development Programme(s), the Contractor shall conduct a skills audit and analysis of Labour on the Targeted Labour database and the Targeted Labour of sub-contracted Targeted Enterprises to determine their levels of education, existing qualifications, and skills sets. The outcome of the skills audit and analysis shall be used to develop a Training and Skills Development Programme that will benefit both the employee and the Construction Industry at large.

Included in the skills audit and analysis shall be a separate section, analysing the education, qualifications and skills sets of the Targeted Enterprise's owners and their supervisors sub-contracted by the Contractor, to develop a Training and Skills Development Programme that will develop and improve the ability of small business owners and their supervisory staff to better manage their enterprises.

**c) Selection of Trainees**

To complete a Learnership successfully requires minimum literacy and numeracy competencies as defined by SAQA. The Training Service Provider shall utilise the skills audit and analysis and conduct additional skills analysis to benchmark the literacy and numeracy levels of Targeted Labour and Targeted Enterprises and their employees. This information shall guide the Training Service Provider in formulating the Trainee selection methodology(ies) and process(ess). The Training Service Provider shall make provision for:

- i) baseline assessments, e.g., conducting RPL enquiries and tests, and
- ii) a skills gap programme consisting of Fundamental Unit Standards, to facilitate the selection process.

Trainees identified as having already acquired some tertiary training, particularly in the field of Civil Engineering, may be suitable for a specialised Trainee programme or a higher NQF Level programme. The Training and Skills Development Programme shall, therefore, make provision for Trainees with a variety of competency levels and shall make provision for different levels of training.

It should be noted that where this Section D of the Specifications refers to the selection and training of Trainees, any person, employed by any national, provincial, or local authority, being it full time or part time, is expressly excluded from being considered for this training.

**d) Training Programme Requirements and Considerations**

The Skills Audit and Analysis shall inform the Contractor of every employee's Recognised Prior Learning (RPL) skills and competencies, which shall be taken into consideration in the development of the Training and Skills Development Programme so that the RPL skills and competencies, together with the Training Programme Unit Standards offerings, will lead to a full Learnership outcome and hence a formal qualification.

It is recognised that the Training and Skills Development Programme may consist of several Unit Standards but totalling insufficient credits for a full Learnership qualification. Nevertheless, the competencies and credits achieved in the Programme shall contribute to a full Learnership by a later acquisition of the outstanding Unit Standards required for the full Learnership.

The Training and Skills Development Programme shall be structured in a manner to prioritise those Unit Standards that will equip Trainees with the minimum skills and competencies required to become economically involved in the execution of the Works as soon as possible.

The Training Service Provider shall apply the SAQA Learnership criteria of which the basic elements are listed below to demonstrate the Employer's requirements:

- i) Minimum credits for qualification.
- ii) Fundamental Unit Standards and credit values.
- iii) Core Unit Standards and credit values.
- iv) Elective Units Standards and credit values.
- v) Assumption that NQF Level 3 literacy, numeracy, and computer competencies exist.
- vi) RPL processes.
- vii) Exit level outcomes.

The above criteria are not exhaustive, and the Training Service Provider shall apply the systems and processes required by the relevant SAQA and other related legislation pertinent to training. The Training Service Provider shall regularly consult the SAQA website ([www.saqa.org.za](http://www.saqa.org.za)) to ensure that the most current Unit Standards are presented. In the event of any conflict, the legislated requirements shall apply.

While structuring the Learnership offerings, the Training Service Provider shall distinguish between the levels of learning required. The bulk of the training shall focus on NQF Levels 4 and 3. NQF Level 5 training is not anticipated but may be suitable for qualifying staff of established small contractors. The qualification titles for the respective NQF Levels are:

- a. NQF Level 3 National Certificate: Construction Roadworks.
- b. NQF Level 4 National Certificate: Supervision of Construction Processes
- c. NQF Level 4 National Certificate: Business Management
- d. NQF Level 5 National Diploma: Management of Civil Engineering Construction Processes

It may be necessary to include additional Core Unit Standards, e.g., "Tendering" or "Entrepreneurship" as an additional Unit Standard for NQF Level 4, to achieve the Contract's development objectives. The identification of any additional Unit Standards shall be discussed with the Engineer and shall not be implemented without prior approval.

Before qualifying, Trainees will be expected to demonstrate competence in a practical situation that integrates the assessment of all specific outcomes, for all Unit Standards in the Learnership Programme.

All training shall take place within normal working hours, or as agreed with the trainees.

**e) Learning Material**

Learning material is required for each Unit Standard. This learning material is the equivalent of prescribed textbooks for other qualifications. Each Trainees shall receive a copy of the learning material to learn the contents and to use it as reference source after obtaining the qualification.

The SAQA Unit Standard curriculums define the contents of the learning material. The learning material shall not only comply with the SAQA and CETA guidelines but shall be technically and practically aligned to road construction and/or road maintenance. Any input from a subject matter expert required to ensure the appropriateness of a learning material contents shall be included in the Training Service Provider's costs.

The requirements to be addressed in learning material as outlined by the SAQA Unit Standard curriculums are, amongst others, the following:

- i) Purpose of the Unit Standard.
- ii) Specific outcomes (typically 4 per Unit Standard).
- iii) Assessment criteria (typically 4 per specific outcome).
- iv) Range as is defined for each specific outcome.
- v) Critical cross-field outcomes for the Unit Standard.
- vi) Unit Standard essential embedded knowledge.

**f) Generic Skills Training**

Generic skills training, which is not construction (technical) specific, but which are beneficial to the skills development of Targeted Enterprises and Targeted Labour, shall be taught in learning areas where the need has been identified and approved by the Employer's Project Manager and the Engineer.

The Contractor shall make representation to the Employer's Project Manager and the Engineer, who shall approve candidates that should attend such courses as they deem appropriate. Those selected shall receive formal generic skills training in a programmed and progressive manner. The PLC may also identify a need for generic skills training.

Typical examples of generic skills training programmes are:

- i) National Certificate: Vocational, levels 1, 2, and 3 in various fields.
- ii) National Certificate: Road Safety Development.
- iii) National Certificate: Occupational Hygiene and Safety.

Generic skills training shall add towards the Contractor's CSDG credits and shall be structured learning as per the CSDG Method 1 requirements. Training shall be accredited by the relevant Sector Education and Training Authority (SETA) and shall be provided by SETA accredited entities and individuals.

**g) Community Training**

Community training shall be taught in learning areas where the need has been identified. Affected Communities may submit their training needs to the PLC for the Contractor's consideration and inclusion into the Training and Skills Development Programme.

While considering the training needs of affected Communities, the Engineer shall inform the PLC of the Contract's training limitations, as well as of the training that could be undertaken through the Contract.



Trainees from the Community shall be identified through the Community structures and with the input and support of the PLC. Trainees selected from the Community shall receive formal skills training in a programmed and progressive manner in compliance with sub-clause (d). Priority shall be given to training that will equip Community members with skills that will enhance their employability.

Typical examples of community training programmes are:

- i) General Education and Training Certificate: Hygiene and Cleaning
- ii) General Education and Training Certificate: ABET
- iii) National Certificate: Vocational, levels 1, 2, and 3 in various fields.
- iv) National Certificate: Travel and Community Tourism
- v) Further Education and Training Certificate: Community Development
- vi) Further Education and Training Certificate: Public Awareness HIV/AIDS

Community skills training shall add towards the Contractor's CSDG credits and shall be structured learning as per the CSDG Method 1 requirements. Training shall be accredited by the relevant Sector Education and Training Authority (SETA) and shall be provided by accredited entities and individuals.

#### **D1010.04 The Training Service Provider**

The Employer has no service agreement or memorandum of understanding with any education and training quality assurance body and, therefore, does not function as the "Employer" as defined under any three-party-agreement between the Trainee, the Training Provider, and the Employer.

However, the Employer requires similar outcomes to that of formal learnership programmes and the Contractor shall structure a Training and Skills Development Programme in a manner that permits continued access to further learning and qualifications within a defined programme.

While the Contractor's TE Construction Manager will manage the Training, Development and Support Programme and mentor Targeted Enterprise Subcontractors from a practical point of view, the Contractor shall sub-contract a Training Service Provider to implement the theoretical training components of the Programme by applying the Employer's Supply Chain Management Policy for second tier procurement.

##### **a) Accreditation of the Training Service Provider**

The Training Service Provider entity shall be accredited, and have in its employ Practitioners, Assessors and Moderators who are registered, with the Construction Education Training Authority (CETA). Proof of accreditation and registration shall be current, valid and list the NQF levels and Unit Standards for which the entity and its staff are accredited.

##### **b) Qualifications and Experience of the Training Service Provider**

The training and competency levels required of the Training Service Provider and his staff are outlined in the table below:

**TABLE D1010/1: QUALIFICATIONS FOR TRAINING STAFF**

<b>Designation</b>	<b>Title and Unit Standard No</b>	<b>NQF Level</b>	<b>Credit</b>
Practitioner	Train the trainer; No 7384	4	16
Assessor	Conduct outcome base assessment; No 115753	5	15
Moderator	Conduct moderation of outcome-based assessment; No 115759	6	10

In addition to the above qualifications, and in keeping with current CETA practical experience requirements for registration as a Practitioner, NQF Level 4 Unit Standards shall only be presented by Practitioners with NQF Level 5 (one level up) credentials.

The Employer further requires that Assessors and Moderators shall have at least 5 years' experience as a Site Agent, managing construction processes in the fields of roads maintenance, new roads construction, roads rehabilitation and structures.

Elective Unit Standards are typically more vocational orientated and may require specialist input. It is thus not a requirement that individual Practitioners and Assessors shall have all the necessary skills for all the different categories of Unit Standards. The Training Service Provider may and shall therefore, when necessary, appoint Practitioners and Assessors on an ad hoc basis with the levels of experience which are required for the Unit Standards to be presented.

**c) Training Facilities**

The Contractor shall be responsible for providing everything necessary to offer the various training workshops and modules including:

- i) a suitable venue with sufficient furniture, lighting, and power,
- ii) all necessary stationery consumables and study material,
- iii) transport for attendees.

**D1011 LABOUR ENHANCED CONSTRUCTION**

The Contractor's attention is drawn to the fact that it is an objective of the Contract to maximise the labour content of certain operations or portions thereof. In this regard, where the specified work allows for a choice between mechanical or labour-enhanced means, the former should generally be kept to the practical minimum.

Before commencing with any labour enhanced operations, the Contractor shall discuss his intentions with the Engineer, and shall submit to the Engineer monthly, daily labour returns indicating the numbers of temporary personnel employed on the Works and the activities on which they were engaged.

It should be noted that activities that are conventionally done by labour methods, e.g., gabions, shall not qualify under this Section D of the Specifications.

**D1012 COMMUNITY DEVELOPMENT**

**D1012.01 Corporate Social Investment (CSI)**

The Contractor shall demonstrate its willingness to actively participate in the social development initiatives for local Communities affected by the Contract. To this end, the Contractor shall provide details

**D1012 COMMUNITY DEVELOPMENT**

**D1012.01 Corporate Social Investment (CSI)**

The Contractor shall demonstrate its willingness to actively participate in the social development initiatives for local Communities affected by the Contract. To this end, the Contractor shall provide details of CSI initiatives it will actively pursue under Form D9: Corporate Social Investment.

## **D1012.02 Community Development Projects**

Community Development (CD) Projects are primarily training and skills development programmes to benefit an identified Community and Trainee Targeted Enterprises selected from the Community.

The owners and supervisors of Trainee Targeted Enterprises receive SAQA accredited training towards an accredited NQF qualification which consists of theoretical and practical components.

The theoretical training as well as the practical training (which is the construction of the CD Works), is undertaken by the Trainee Targeted Enterprises under the mentorship and supervision of a Training and Construction Manager.

### **a) CD Project(s) Associated with this Contract**

The Employer identified a CD Project with CD project number:

Contract SANRAL C.003-084-2023/1

and description

For the Training and Construction Management of Community Development Projects along the N2 Section 18 between Viedgesville (Km 65) and Mthatha (Km 85).

The CD Project is envisaged to commence in the first half of 2027 and has an estimated duration of 33 months.

## **D1013 MEASUREMENT AND PAYMENT**

<b>Item</b>	<b>Unit</b>
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### **D10.01 Target Group Participation**

(a)	Contract Participation Performance bonus	<b>Not Applicable</b>
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<b>Item</b>	<b>Unit</b>
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### **D10.02 Stakeholder and Community Liaison and Social Facilitation**

(a)	Cost of liaison, social facilitation and PLC support	Prime Cost (PC) Sum
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(b)	Handling cost and profit in respect of sub-item D10.02(a)	Percentage (%)
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The prime cost sum for item D10.02(a) shall cover the direct costs incurred by attending members of the PLC. The rate of compensation shall be fair and agreed by the Engineer in accordance with clause 13.5 of the FIDIC Conditions of Contract. The tendered percentage for sub-item D10.02(b) shall include full compensation for all handling costs and profit of the Contractor associated with sub-item D10.02(a).

The liaison with, and assistance provided by the Contractor to the PLC to perform its duties shall not be paid from the prime cost sum. The Contractor's costs to liaise with the PLC and render such assistance shall be deemed to have been included in its rate offered for pay sub-item C1.3.1.3 Contractor's Establishment on Site and General Obligations: Time Related Obligations.

<b>Item</b>	<b>Unit</b>
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**D10.03 Tender Process for Targeted Enterprises**

- |       |   |             |
|-------|---|-------------|
| (a)   | Contractor's charge for the management and execution of the Targeted Enterprise procurement process:  |             |
| (i)   | Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise subcontractors of CIDB 1 and 2 contractor grading      | Number (No) |
| (ii)  | Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise subcontractors of CIDB 3 and 4 contractor grading      | Number (No) |
| (iii) | Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise subcontractors of CIDB 5 and higher contractor grading | Number (No) |
| (iv)  | Procurement process for the totality of all tenders concluded for the appointment of Targeted Enterprise suppliers  | Number (No) |
| (b)   | Targeted Enterprise Procurement Coordinator   | Month       |

The unit of measurement for sub-item D10.03(a) shall be the number of individual subcontract agreements concluded with Targeted Enterprise sub-contractors and suppliers in accordance with the procurement process described in this Section D of the Specifications.

The tendered monthly rate for sub-item D10.03(b) shall include full compensation for the provision of the relevant personnel on a full-time basis to carry out the requirements in terms of sub-item D10.03(a) and the full contents of this Section D of the Specifications.

Each tendered rate shall be in full compensation for the management and execution of the Targeted Enterprise procurement process in the relevant CIDB contractor grading designation scheduled, including for the appointment of a TE Procurement Coordinator (if required), the pre-tender training of eligible Targeted Enterprises, the compilation, printing, binding and issue of the tender documents for each tender, for the advertising of each tender, for the provision of the venue and the conducting of each compulsory briefing session for tenderers, for the conducting of each tender opening process, for the adjudication of the tenders received for each tender, for the preparation of each tender adjudication report and the review thereof in conjunction with the Employer, Engineer and the PLC, for the award of each tender and for the conclusion of the subcontract agreement with each successful Targeted Enterprise tenderer, and any other relevant requirement described in this Section D of the Specifications.

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

**D10.04 Responsibilities of the Contractor towards Targeted Enterprises**

- |     |   |              |
|-----|---|--------------|
| (a) | Contractor's establishment, management, management support, assistance, coaching, guidance, mentoring and supervision of Targeted Enterprises | Month        |
| (b) | Targeted Enterprise Construction Manager  | Person Month |
| (c) | Targeted Enterprise Site Supervisors  | Person Month |

The tendered monthly rate for sub-item D10.04(a) shall include full compensation for the registration of all the subcontract agreements and the management of all the Targeted Enterprise subcontracts, including for the provision of the necessary management, support, coaching, guidance, mentoring and supervision of the Targeted Enterprise subcontractors.

The tendered monthly rate for sub-items D10.04(b) and (c) shall include full compensation for the provision of the relevant personnel on a full-time basis to carry out the requirements in terms of sub-item D10.04(a) and the full contents of this Section D of the Specifications.

Item		Unit
<b>D10.05</b>	<b>Construction Works by Targeted Enterprises</b>	
(a)	Payments associated with the construction works executed by Targeted Enterprise sub-contractors of CIDB 1 and 2 contractor grading designation appointed in terms of Section D of the Specifications	Prime Cost (PC) Sum
(b)	Handling costs and profit in respect of payment associated with sub-item D10.05(a)	Percentage (%)
(c)	Fluctuation between the main contractor's rates and that of the Targeted Enterprise sub-contractors	Lump Sum (LS)
(d)	Preliminary and General Obligations of Targeted Enterprise sub-contractors appointed in terms of Section D of the Specifications	Lump Sum (LS)
(e)	Fluctuation between the main contractor's rates and those of Targeted Enterprise suppliers of blasted and crushed aggregates.	Lump Sum (LS)
(f)	Costs associated with DMRE approvals, startup costs, and quarry operations related to Targeted Enterprise suppliers of blasted and crushed aggregates.	Prime Cost (PC) Sum
(g)	Handling costs and profit in respect of payment associated with sub-item D10.05(f)	%

Expenditure under sub-items D10.05(a) shall be in accordance with clause 13.5 of the FIDIC Conditions of Contract.

The Prime Cost Sum for sub-item D10.05(a) is provided to cover the cost of the construction works, including preliminary and general obligations carried out by the Targeted Enterprise subcontractors of CIDB 1 and 2 contractor grading designation as certified by the Engineer, in separate payments for each Targeted Enterprise in accordance with Section D of the Specifications. Expenditure under sub-item D10.05(a) shall be limited to the Prime Cost Sum amount stated in the Pricing Schedule. Construction works by Targeted Enterprise sub-contractors of CIDB 1 and 2 contractor grading designation exceeding the Prime Cost Sum amount shall be measured for payment from the applicable work items in the Contractor's pricing schedule.

The tendered percentage for sub-item D10.05(b) is the percentage of the amount spent under sub-item D10.05(a) and shall include full compensation for the Contractor's handling costs, profit or any other costs associated with the work conducted by the Targeted Enterprise sub-contractors, which are not provided for in other pay items.

The Lump Sum tendered under item D10.05(c) is for fluctuation of the Targeted Enterprise sub-contractor rates more than the contractor's tendered rates, for work not paid under items D10.05(a). Payment of the Lump Sum shall be on a pro-rata basis to provide compensation for the fluctuation between the tendered rates of the Main Contractor and that of the Targeted Enterprise sub-contractors until the Lump Sum is depleted. Any costs incurred due to fluctuation in tendered rates more than that tendered for under item D10.05(c) will be for the Contractor's account. Item D10.05(c) is applicable where the Target Enterprise sub-contractor's tender amount is higher than the Main Contractor's tender amount. The Lump Sum will cover the fluctuation for all the tendered rates of the sub-contractors.

The Lump Sum tendered under item D10.05(d) is for the Preliminary and General Obligations of Targeted Enterprise sub-contractors (excluding CIDB 1 and 2 contractor grading designation paid from the Prime Cost Sum). Payment of the Lump Sum shall be on a pro rata basis to provide compensation for the P&Gs of Targeted Enterprise sub-contractors until the Lump Sum is depleted. Any costs incurred for the P&Gs of Targeted Enterprise sub-contractors more than that tendered for under item D10.05(d) will be for the Contractor's account.

The Lump Sum tendered under item D10.05(e) is for fluctuation of the rates of Targeted Enterprise suppliers of blasted and crushed aggregates, which are in excess of the contractor's tendered rates. Payment of the lump sum shall be on a pro-rata basis to provide compensation for the fluctuation between the tendered rates of the Main Contractor and that of the Targeted Enterprise subcontractors, until the lump sum is depleted. Any costs incurred due to fluctuation in tendered rates in excess of that tendered for under item D10.05(e) will be for the Contractor's account.

The Prime Cost Sum tendered under item D10.05(f) is the Employers contribution for costs associated with DMRE approvals, startup costs, and quarry operations related to Targeted Enterprise suppliers of blasted and crushed aggregates. Expenditure under sub-item D10.05(f) shall be limited to the Prime Cost (PC) Sum amount stated in the Pricing Schedule and any costs incurred in excess of the PC Sum under item D10.05(f) will be for the Contractor's account.

The tendered percentage for sub-item D10.05(g) is the percentage of the amount spent under sub-item D10.05(f) and shall include full compensation for the Contractor's handling costs, profit or any other costs associated with the work conducted under this item, which are not provided for in other pay items.

Item	Unit
<b>D10.06 Training, coaching, guidance, mentoring and assistance</b>	
(a) Accredited occupational qualification training	
(i) Stipend/wages for unemployed learners	Prime Cost (PC) Sum
(ii) Handling costs and profit in respect of payment associated with sub-item D10.06(a)(i).	Percentage (%)
(iii) Mentorship and other costs	Person Month
(b) TVET college graduates and apprenticeships	
(i) Stipend/wages for unemployed learners	Prime Cost (PC) Sum
(ii) Handling costs and profit in respect of payment associated with sub-item D10.06(b)(i).	Percentage (%)
(iii) Mentorship and other costs	Person Month
(c) P1 and P2 learners and learners with a 240 credits qualification	
(i) Stipend/wages for unemployed learners	Prime Cost (PC) Sum
(ii) Handling costs and profit in respect of payment associated with sub-item D10.06(c)(i).	Percentage (%)
(iii) Mentorship and other costs	Person Month
(iv) Travel and Accommodation	Prime Cost (PC) Sum
(v) Handling costs and profit in respect of payment associated with sub-item D10.06(c)(iv).	Percentage (%)
(d) Candidates with 360 credits or more qualification	
(i) Stipend/wages for unemployed learners	Prime Cost (PC) Sum

	(ii)	Handling costs and profit in respect of payment associated with sub-item D10.06(d)(i).	Percentage (%)
	(iii)	Mentorship and other costs	Person Month
	(iv)	Travel and Accommodation	Prime Cost (PC) Sum
	(v)	Handling costs and profit in respect of payment associated with sub-item D10.06(d)(iv).	Percentage (%)
(e)		Generic skills training	
	(i)	Stipend/wages for unemployed learners	Prime Cost (PC) Sum
	(ii)	Handling costs and profit in respect of payment associated with sub-item D10.06(e)(i).	Percentage (%)
	(iii)	Mentorship and other costs	Person Month
(f)		Community training	
	(i)	Stipend/wages for unemployed learners	Prime Cost (PC) Sum
	(ii)	Handling costs and profit in respect of payment associated with sub-item D10.06(f)(i).	Percentage (%)
	(iii)	Mentorship and other costs	Person Month

The Prime Cost Sums under sub-items D10.06(a)(i), (b)(i), (c)(i), (d)(i), (e)(i), and (f)(i) shall be paid in accordance with the provisions of sub-clause 13.5 of the FIDIC Conditions of Contract. The Prime Cost Sums shall cover the monthly stipends and/or wages as prescribed by the Employer to be paid to the relevant categories of unemployed Trainees receiving training and/or workplace training. No provision is made for stipends or wages of employed Trainees and the Contractor must make provision for loss of production for his own employees which are included in the TSDP.

The Percentage tendered for sub-items D10.06(a)(ii), (b)(ii), (c)(ii), (d)(ii), (e)(ii), and (f)(ii) is the percentage of the stipends and wages paid under sub-item D10.06(a)(i), (b)(i), (c)(i), (d)(i), (e)(i), and (f)(i) and shall include full compensation for the Contractor's handling costs, and any other costs associated with the pay-out of stipends and wages, which are not provided for in other pay-items.

The Person Month under sub-items D10.06(a)(ii), (b)(ii), (c)(ii), (d)(ii), (e)(ii), and (f)(ii) shall be paid in accordance with the provisions of sub-clause 13.5 of the FIDIC Conditions of Contract. The Person Month shall cover the monthly cost to mentor and/or train a Trainee and shall include all charges for the provision and delivery of the service including an accredited Training Service Provider (if required), learning material, stationery, information technology hardware and software, connection or licence costs, Trainee sustenance, fully furnished and equipped training venue(s), travel and accommodation (if/where required) and any other requirement as described in Section D1010 of the Specifications, and shall include the Contractor's loss of production, handling cost, profit, record keeping, reporting to the Employer and any other body or organisation as required in terms of the mentoring or training category, and all other administrative and overhead costs associated with mentoring and training. No mark-up is payable to the Contractor under this item.

No payment, nor pro rata payment, shall be made for trainees that, once selected, do not attend or only partially complete structured training modules. The Contractor's own staff may attend the training modules provided. However, training of the Contractor's staff shall be considered for measurement and payment purposes within the limits set in Section D1010.02 and if they also qualify as Targeted Labour.

The Prime Cost Sums under sub-items D10.06(c)(iv) and (d)(iv) shall be paid in accordance with the provisions of sub-clause 13.5 of the FIDIC Conditions of Contract. The Prime Cost Sums shall cover the travel and accommodation of Trainees in the relevant learning categories and in line with the Employer's Travel, Accommodation and Disbursement Policy. No provision is made for travel and accommodation of Trainees in other learning categories and the Contractor must make provision for travel and accommodation (if required) for these categories in other relevant pay-items.

The Percentage tendered for sub-items D10.06(c)(v) and (d)(v) is the percentage of the travel and accommodation paid under sub-item D10.06(c)(iv) and (d)(iv) and shall include full compensation for the Contractor's handling costs, and any other costs associated with the travel and accommodation, which are not provided for in other pay-items.



SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED

CONTRACT SANRAL N.002-180-2018/1R

FOR THE PROVISION OF WORK CONSTRUCTION SERVICES FOR THE UPGRADE ON NATIONAL ROUTE N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6) AND MTHATHA (KM 85.0) FOR A PERIOD OF FIFTY-THREE (53) MONTHS INCLUDING FIVE (5) MONTHS MOBILISATION

**SECTION E: REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS**

**Note to tenderer:**

Wherever reference is made in this section of the Scope of Works to contractor this is the equivalent of the *principal contractor* in the Occupational Health and Safety Act and Regulations. Similarly, reference to subcontractors is equivalent to *other contractors*.

**SECTION E: REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS**

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## E1001 SCOPE

The Occupational Health and Safety Act, Act 85 of 1993 (OHS Act) and its Regulations together with SANS Codes set out minimum standards with regards to Occupational Health and Safety. The South African National Roads Agency SOC Limited (SANRAL), has developed this Occupational Health and Safety Specifications with these minimum standards in mind and in certain aspects the requirements of SANRAL exceeds the minimum legal requirements to follow best practices and to ensure a healthy and safe workplace for all.

SANRAL in no way assumes The Principal Contractors legal liabilities and responsibilities. The Principal Contractor is and remains accountable for the quality and execution of his health and safety program for his employees. This Health and Safety Specification reflects minimum legal and SANRAL requirements and should not be construed as all encompassing.

It is realized that The Principal Contractor have its own Health and Safety Management system and safe work practices. The intention of this Health and Safety Specification is not to change The Principal Contractors Health and Safety management system, but for The Principal Contractor to use its current Health and Safety management system to draw up a project specific Health and Safety plan according to these specifications as well as to legally comply with the any applicable Regulations under the OHS Act and incorporated Standards.

It is the responsibility of the Principal Contractor and other Contractors to make themselves conversant and comply with the requirements and conditions contained in the various legislation pertaining to their profession and scope of works at all times.

This specification is not exhaustive of all duties imposed by the OHS Act and its Regulations, governing the duties and obligations, of a Designer, Principal Contractor and Contractor performing duties in terms of an agreement with the client (SANRAL). These duties are fully described in the OHS Act and its Regulations and it is the duty of every Designer, Principal Contractor and Contractor to acquaint themselves therewith before commencing work.

This specification is compiled to ensure that the Principal Contractor and any other Contractors working for SANRAL directly or through a Principal Contractor, are aware of the Occupational Health and Safety requirements when working on a SANRAL contract, as well as to make them aware of their legal liabilities and responsibilities as per the Occupational Health & Safety Act, Act 85 of 1993, and its Regulations.

Words used herein in the singular shall be deemed to include the plural and male shall include female and vice versa unless the context otherwise requires.

## E1002 DEFINITIONS AND ABBREVIATIONS

**Assessment** – An opinion or a judgment about someone or something that has been thought about very carefully.

**At-risk behavior** – Conduct that unnecessarily increases the likelihood of an injury or incident.

**Audit** – A systematic and documented review of the effectiveness of implementation of processes, programs and procedures, based on general process criteria.

**Baseline risk assessment:** This is the initial assessment of risk in a workplace. It is a broad assessment and includes all activities taking place on site but does not include risk control measures or safeguards.

**Client** – Any organization or person for whom construction work is performed. For the purpose of this document, the client is the South African National Roads Agency SOC Limited, also identified in the contract document as the Employer.

**Competence** – A combination of attributes such as knowledge, training, experience and qualifications to assure successful performance.

**Competent Person** – Means a person who has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No. 67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and is familiar with the Act and with the applicable regulations made under the Act.

**Consequence** – Outcome or impact of an event.

**Continual Improvement** – A recurring process of enhancing performance to achieve consistent improvements in overall performance.

**Contractor** – An employer as defined in section 1 of the OHS Act, who performs construction work and includes Principal Contractors and Sub-Contractors.

**Construction Work** – any work in connection with:

- The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
- The construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work.

**Corrective Action** – An action taken to eliminate the cause of a detected non-conformity or other undesirable situation.

**Construction Regulations (CR)** – Construction Regulations, GNR. 84 of 2014

**Critical equipment** – A piece of equipment or a structure whose failure to perform to design specification, has the potential to result in a major accident event.

**Design** – in relation to any structure, includes drawings, calculations, design details and specifications.

**Designer** –

- a) competent person who:
  - Prepares a design;
  - Checks and approves a design;
  - Arranges for a person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer; or
  - Designs temporary work, including its components;
- b) an architect or engineer contributing to, or having overall responsibility for a design;
- c) a building services engineer designing details for fixed plant;
- d) a surveyor specifying articles or drawing up specifications;
- e) a contractor carrying out design work as part of a design and building project; or
- f) an interior designer, shop fitter or landscape architect.

**DMR** – Driven Machinery Regulations, GNR. 295 of 26 February 1988

**Documents** – Structured units of recorded information and its supporting medium (paper or electronic). Most records are documents, but not all documents are records. A document becomes a record when it is part of a business transaction, is kept as evidence of that transaction and is managed within a record-keeping system.

**EIR** – Electrical Installation Regulations, GNR. 242 of 6 March 2009

**Emergency** – An abnormal occurrence that poses a threat to the safety or health of employees, customers, or local communities, or which can cause damage to assets or the environment.

**Employee** – An individual who is employed by or works for an Employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person.

**Employer** – Any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerates him but excludes a labour broker as defined in section 1(1) of the Labour Relations Act, 1956 (Act No. 28 of 1956). The South African National Roads Agency SOC Limited, also identified in the contract document as the Employer.

**EMR** – Electrical Machinery Regulations, GNR. 250 of 25 March 2011

**Environment** – The surroundings or conditions in which a person, animal or plant lives or operates, including air, water, land, natural resources and habitats.

**Epidemic Disease** - An *epidemic* disease is one affecting many persons at the same time and spreading from person to person in a locality where the disease is not permanently prevalent. The World Health Organization (WHO) further specifies *epidemic* as occurring at the level of a region or community.

**Excavation work** – The making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping.

**GAR** – General Administrative Regulations, GNR. 929 of 25 June 2003.

**GMR** – General Machinery Regulations, GNR. 1521 of 5 August 1988.

**GSR** – General Safety Regulations, GNR. 1031 of 30 May 1986.

**Harm** – A significant and or long-lasting adverse effect on people, the environment or the community.

**Hazard** – A source, situation or act with a potential for harm in terms of human injury or ill health.

**Health and Safety File** – Means a file, or other record in permanent form, containing the information in writing as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 7(1)(b).

**Health and Safety Plan** – Means a project specific documented plan in accordance with the client's health and safety specifications, as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 7(1)(a).

**Health and Safety Specification** – Means a project specific document prepared by the client pertaining to all health and safety requirements related to construction work, as required by the Construction Regulations, GNR. 84 of 7 February 2014, Section 5(1)(b).

**HSE** – Health, Safety and Environment. Commonly used in the format HSE.

**Incident** – Work-related events (including accidents which give rise to injury, ill health, fatality or emergencies) that have resulted in, or has the potential to result in adverse consequences to people, the environment, property, reputation or a combination of these.

**Likelihood** – A description of probability or frequency, in relation to the chance that something will occur.

**Lost Time Injury (LTI)** – When a person is injured during the execution of his/her duties and as a result of the injury is unable to perform his/her regular duties for one full shift or more on the day following the day on which the injury has incurred, whether a scheduled work day or not(weekend).

**Management System** – Management processes and documentation that collectively provide a systematic framework for ensuring that tasks are performed safely, correctly, consistently and effectively to achieve a specified outcome and to drive continual improvement in performance.

**Mandatory** – An agent, contractor or sub-contractor for work, but without derogating from his status in his own right as an employer or a user.

**MSDS** – Material Safety Data Sheet

**Near Hit / Near Miss** – Any occurrence or situation which had the potential for adverse consequences to people, the environment, property, reputation or a combination of these.

**Non-conformance** – Any deviation from work standards, practices, procedures, regulations that could either directly or indirectly lead to injury or illness, property damage, damage to the environment or a combination of these.

**OHS Act** – Occupational Health & Safety Act, 85 of 1993

**Pandemic Disease** - a *pandemic* disease is an *epidemic* disease that has spread over a large area, that is, it is prevalent throughout an entire country, continent, or the whole world.

**Policy** – Statement by an organization of its intentions and principles in relation to its overall performance which provides a framework for action and for the setting of its objectives and targets.

**PPE** – Personal Protective Equipment

**Preventive Action** – An action implemented to eliminate the cause of a potential non-conformity or other undesirable potential situation.

**Principal Contractor** – An employer appointed by the client to perform construction work and who is in overall control and management of a part of or the whole construction site.

**Procedure** – A specific documented way to carry out an activity or a process.

**Records** – Recorded information, in any form that is kept as evidence. Records include monitoring results, evidence of training, audits, inspections and calibration reports.

**Risk Assessment** – A process of evaluating the risk(s) arising from hazards taking into account the adequacy of any existing controls and deciding whether or not the risk(s) is acceptable.

**Risk Management** – The ongoing treatment of risks through the application of management policies, processes, procedures and risk control measures.

**Risk** – A combination of the likelihood of an occurrence of a hazardous event or exposure and the severity of injury or ill health that can be caused by the event or exposure.

**Root Cause** – The cause of the incident that, when rectified, will prevent the recurrence of not just incidents with those exact circumstances, but others with similar causes.

**SACPCMP** – South African Council for Project and Construction Management Professions

**SANRAL** - South African National Roads Agency SOC Limited

**Supplier** – A person or company that supplies material or equipment to a contractor on a construction site but does not physically carry out construction work on the construction site.

**The Act** – The Occupational Health and Safety Act No. 85 of 1993

**The Site** – The area where work is carried out for SANRAL as defined on the front page of this document.

**WAH** – Acronym for Working at Heights.

#### E1003 health and safety policy

Contractors are expected to have their own written Health and Safety Policy. The policy should declare their attitude and approach to the health, safety and welfare of their employees and others. The policy should include a description of the company and provision must be made to review the policy annually and the CEO or Managing Director must sign and date the policy to indicate his commitment to ensuring the health and safety of his employees, as per Section 7 of the OHS Act.

#### E1004 ROLES AND RESPONSIBILITIES

Every Contractor is considered to be an employer in his own right and shall comply with all legal requirements pertaining to an employer, which include the responsibility to provide as far as reasonably practicable a safe and healthy working environment for his employees, as per Section 8 of the OHS Act.

In conjunction with Section 8 of the OHS Act, all employees on the project are responsible for their own health and safety as well as the safety of persons who may be affected by their acts, as per Section 14 of the OHS Act. It is the responsibility of each employee to ensure that he acts in a safe manner before and during work is carried out.

The Principal Contractor shall ensure that where required by the OHS Act and Regulations, competent employees are appointed in writing. These appointments must be project/contract specific and specific to the tasks that will be performed. Every appointment must display the duties of the person appointed and training certificates from a registered training provider must be attached to such appointment (where applicable). A list of possible appointments can be found in clause E1010 below.

#### E1005 HSE TRAINING AND COMPETENCE

Where appropriate qualifications and training are registered in terms of the provisions of the National Qualifications Framework Act, 2000 (Act No. 67 of 2000), those qualifications and training must be regarded as the required qualifications and training and employees must have attended courses of the aforementioned nature to be considered competent in the task.

All employees that form part of the construction work must be trained and competent. Employees formally appointed to perform a certain duty must be in possession of a training certificate (where applicable), received from a registered training provider. All employees must as a minimum have received site specific safety induction training and must receive daily safe task instruction training (DSTI) before any work commences and thereafter on a daily basis.

##### a) Training Needs

There shall be a system in place to determine the training requirements of each individual, based on the tasks that the employee will perform as well as to ensure the health and safety of fellow employees and the public. Special attention should be given to employees who are new hires, new to the task or have combined responsibilities.

##### b) Basic Safe Work Training (Induction Training)

Every contractor shall ensure that his employees are inducted into his own company Health and Safety System as well as basic safe work training (HSE Induction Training). The Principal Contractor shall ensure that his, all his Contractor's employees and visitors are inducted on the specific site safety procedures.

A Daily Safe Task Instruction (DSTI) must be conducted on site with all employees involved in the project. The DSTI must be carried out each day before work commences and proof thereof must be available on site. Each work crew may conduct their own specific DSTI to discuss the hazards, risks and control measures associated with their task for the day.

Where two or more contractors or work crews work in the same area, they should have a combined DSTI to ensure they know of the additional hazards the other contractor or work crew will introduce to their operations and what precautions to put in place.

The Principal Contractor shall have evidence that employees have been trained on the relevant procedures prior to and during the project duration. The evidence will be in the form of attendance register.

c) Formal Training

All qualifications for which there are SAQA registered training courses, must be regarded as the minimum required qualifications and training. To be deemed "competent" an employee must have received training at a registered training provider, the training course must be registered and if there is an assessment, the employee must have been found competent after the assessment. A person cannot be deemed competent after awareness training only.

The Principal Contractor shall ensure that his employees, as well as the employees of any contractors that may be used, have received appropriate training for the type of work that will be performed, e.g. First Aid, Flag Man, Mobile Plant Operator, Working at Heights, Risk Assessment training etc.

d) Records

Record of all training shall be kept by the employer and shall be readily available. Records shall make provision for refresher training where applicable. Where an employee is legally appointed with certain duties and responsibilities a copy of the training certificate must be attached to the appointment.

E1006      application for construction work permit

Construction Regulation, 2014 Section 3 requires that the client apply for a construction work permit at least 30 days before construction work is started, if the intended construction work will:

- exceed 365 days AND will involve more than 3 600 person days of construction work; or
- if the tender value limit is a CIDB grade 7, 8 or 9.

If approved, the provincial director will issue a construction work permit in writing to perform construction work within 30 days of receiving the application and assign a site-specific number for the construction site. It is the intention of SANRAL to apply for a construction work permit as soon as The Principal Contractor is appointed and his Health and Safety Plan is received, in order to minimize construction delays.

The site-specific construction work permit number must be displayed at the main entrance to the site and a copy of the construction work permit must be kept in the principal contractor's health and safety file for inspection purposes.

E1007      DUTIES

Various duties are imposed on the client, designer, principal contractor and other contractors by the Construction Regulation, 2014, Sections 5, 6 & 7. SANRAL will comply and carry out the required duties as contemplated in Section 5 of the Construction Regulations, 2014 and it is expected from the designer and every contractor to make themselves conversant with the requirements and duties imposed on them and to ensure that they comply with the requirements of section 6 & 7 at all times.

## E1008 MANAGEMENT AND SUPERVISION

The Principal Contractor shall ensure that the project is managed safely, and legal compliance is ensured at all times.

A full-time competent person must be appointed as a Construction Manager to manage all construction work, including health and safety compliance. The construction manager may not be appointed to manage more than one single construction site. An Alternate Construction Manager must be appointed, to carry out the duties in the absence of the Construction Manager.

The construction manager must appoint construction supervisors responsible for construction activities and ensuring occupation health and safety on the construction site.

The Principal Contractor must appoint a full-time construction health and safety officer, who is registered with the SACPCMP, to assist in the control of health and safety aspects on site.

## E1009 RISK MANAGEMENT

The Principal Contractor must follow a formal risk-based approach to ensure hazard control measures are implemented to an acceptable reasonable practical level. The Principal Contractor and his employees shall be responsible to ensure all hazards pertaining to his scope of activity are proactively identified, the risks assessed and appropriately eliminated or minimized and managed on an ongoing basis. Risk assessments shall also identify possible and potential environmental, health and hygiene issues pertaining to each hazard with potential exposures and limits.

### a) Risk Assessment

#### i) Hazard Identification and Risk Assessment (Construction Regulation 9)

The Principal Contractor shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, conduct a risk assessment by a competent person, appointed in writing and the risk assessment so produced shall form part of the OH&S plan and be implemented and maintained as contemplated in Construction Regulation 9(1). Competence is a factor of training, knowledge, experience and/or appropriate qualifications.

The risk assessment shall include, as far as is reasonably practicable, at least:

- The task or task step
- the identification hazards to which persons may be exposed to during the task or task step;
- The analysis and evaluation of the risks associated to the hazards identified, inclusive of a residual risk rating methodology. The method to be used is not prescribed;
- a documented plan of safe work procedures, to mitigate, reduce or control those residual risks that have been identified as unacceptably high, by means of the rating system;
- a monitoring plan;
- a review plan, inclusive of dates to be adhered to; and
- Ergonomic related risks are to be analysed, evaluated and addressed as part of the process.

Based on the risk assessments, The Principal Contractor shall develop a set of site-specific OH&S rules that shall be applied to regulate the OH&S aspects of the construction. The risk assessments, together with the site-specific OH&S rules shall be submitted to the Employer before construction on site commences. SANRAL has conducted a Baseline Risk Assessment as per clause E1009 (b) below, which must be used by The Principal Contractor to develop task specific risk assessments before work commences. This does not mean that all possible Risk Assessments must be attended to before work commences, but that all relevant Risk Assessments receive the necessary attention as the contract progresses, and this is the responsibility of The Principal Contractor.

All variations to the scope of work shall similarly be subjected to a risk assessment process.



ii) Risk Assessment Monitoring

The Principal Contractor shall ensure that a monitoring plan for all risk assessments are in place. Risk assessments must be monitored to ensure effectiveness and employee understanding. The monitoring of risk assessments shall be formal, and records thereof shall be available for audit purposes.

iii) Review of Risk Assessment

The Principal Contractor shall review the hazard identification, risk assessments and standard safe working procedures:

- prior to any work activity commencement,
- where changes are affected to the design and construction that result in a change to the risk profile,
- when an incident has occurred, or
- at least quarterly.

The Principal Contractor shall provide the Employer, sub-contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated above.

Activities carried out without conducting a risk assessment or found to be non-compliant with the risk assessment, will be stopped until such time a risk assessment is compiled, and work is carried out according to the risk assessment.

Risk assessments must be fully communicated to all relevant personnel and must be considered when establishing training, awareness and competency requirements. Records of risk assessment communications must be kept for inspection purposes.

b) **Baseline Risk Assessment**

SANRAL prepared a Baseline Risk Assessment from which the Health and Safety Specifications for this project was prepared. The Baseline Risk Assessment highlights all work for which The Principal Contractor must prepare safe work procedures and or work method statements. It must be noted that the Baseline Risk Assessment is not exhaustive and Principal Contractors are required to identify risks and come up with control measures, this must be identified by Principal Contractor when preparing the Issue Based Risk Assessments.

The Baseline Risk Assessment for this Project can be found in clause E1018.

c) **Continuous Risk Assessment**

The Principal Contractor shall continuously assess the risks of the activities that are carried out. Risk assessments must be in writing, site specific and must be reviewed continuously as per E1009 a(iii) to ensure it is current and it addresses all the relevant hazards and risks associated with the specific activity at the specific site.

The Risk assessment must be discussed with the whole work crew before the activity starts and the work crew must acknowledge in writing having discussed the risk assessment and that they understand it. This acknowledgement must be on site and must be available to the client for audit purposes.

E1010 **LEGAL COMPLIANCE AND DOCUMENT CONTROL**

The Principal Contractor is required to implement systems and procedures to ensure legal compliance through:

- Identification of all relevant HSE legislation, standards and codes applicable to its operations.
- Have available copies of all relevant HSE legislation, standards and codes for reference purposes.
- Update systems and procedures with changed/updated legislation, standards and codes.
- Communicate to all employees any changes that may affect their accountabilities and conformance.

- Incorporate any legal requirements into their HSE management system.
- Monitor and review their HSE management system for effectiveness.

The Principal Contractor shall, as a minimum, comply with:

- The Occupational Health and Safety Act and Regulations (Act 85 of 1993), an up-to-date copy of which shall be available on site at all times.
- The Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993), an up-to-date copy of which shall be available on site at all times.
- Where work is being carried out on a quarry/borrow pit/"mine", The Principal Contractor shall comply with the Mines Health and Safety Act and Regulations (Act 29 of 1960) and any other OH&S requirements that the mine may specify. An up-to-date copy of the Mines Health and Safety Act and Regulations shall be available on site at all times.

Wherever in the Construction Regulations or this specification there is reference to other regulations (e.g. Construction Regulation 24: Electrical Installations and Machinery on Construction Sites) The Principal Contractor shall be conversant with and shall comply with these regulations.

All legal appointments of The Principal Contractor regarding the Health and Safety of his employees who are to work on the project are addressed and governed by the OHS Act and applicable Regulations. Legal appointments must be in place and must reflect in the project safety file before work commences.

#### a) **Overall Supervision and Responsibility for OH&S**

SANRAL will appoint the Principal Contractor in terms of Construction Regulation 5(1)(k). A Mandatory agreement as per Section 37.2 of the OHS Act, shall be signed between SANRAL and the Principal Contractor.

It is a requirement that the Principal Contractor, when he appoints other contractors in terms of Construction Regulations 7(1)(c), 7(1)(d), 7(1)(f) and 7(3) includes in his agreement with such Contractors the following:

- OH&S Act (85 of 1993), Section 37(2) agreement: "Agreement with Mandatory".
- OH&S Act (85 of 1993), Section 16(2) appointee(s) as detailed in his/her/their respective appointment forms. (Where applicable).

The signed Mandatory agreements shall be placed in the project file for reference and for audit trail purposes.

#### b) **Specific Supervision Responsibilities for OH&S**

The Principal Contractor shall appoint designated competent employees and/or other competent persons as required by the OHS Act and Regulations, as well as this specification. Appointments shall be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information shall be communicated to and agreed with the appointees. Where applicable, the training certificate must be attached to the appointment. Notice of appointments shall be submitted to the Employer. All changes shall also be communicated to the Employer.

Below is a list of possible appointments for the project, which is not an all-inclusive list, but for reference purposes only:

<b>Appointment</b>	<b>Legal Reference</b>
Assistant to CEO	OHS Act 16(2)
Health and Safety Representative	OHS Act 17(1)
Nominated Health and Safety Committee Member	OHS Act 19(3)
Contractor (Sub-contractor)	CR 7(1)(c)(v)
Construction Manager	CR 8(1)
Alternate Construction Manager	CR 8(1)
Assistant Construction Manager	CR 8(2)
Health and Safety Officer	CR 8(5)
Construction Supervisor	CR 8(7)

<b>Appointment</b>	<b>Legal Reference</b>
Assistant Construction Supervisor	CR 8(8)
Risk Assessor	CR 9(1)
Fall Protection Plan Developer	CR 10(1)(a)
Structure Inspector	CR 11(2)(a)
Temporary Works Designer	CR 12(1)
Temporary Works Supervisor	CR 12(2)
Excavation Supervisor	CR 13(1)(a)
Demolition Supervisor	CR 14(1)
Competent Person in the use of Explosives	CR 14(11)
Scaffold Supervisor	CR 16(1)
Suspended Platform Supervisor	CR 17(1)
Rope Access Supervisor	CR 18(1)(a)
Material Hoist Inspector	CR 19(8)(a)
Bulk Mixing Plant Supervisor	CR 20(1)
Explosive actuated fastening device Inspector	CR 21(2)(b)
Explosive actuated fastening device cartridge Controller	CR 21(2)(g)(i)
Construction Vehicle & Mobile Plant Operator Authorised	CR 23(1)(d)(i)
Temporary Electrical Installation Controller	CR 24(c )
Stacking and Storage Supervisor	CR 28(a)
Fire Equipment Inspector	CR 29(h)
Incident investigator	GAR 9(2)
Lifting tackle inspector	DMR 18(10)(e)
Ladder inspector	GSR 13(a)
Certified Explosives Manager	ER 12(1)
First Aider GSR	GSR 3(4)
Lifting machine Operator	DMR 18(11)

In addition to the above, the Employer requires that a Traffic Safety Officer be appointed.

It is a requirement that The Principal Contractor shall provide the Employer with an organogram of all sub-contractors that he/she has appointed or intends to appoint and keep this list updated and prominently displayed on site.

**c) Designation of OH&S Representatives (Section 17 of the OH&S Act)**

Where the Principal Contractor employs more than 20 (twenty) persons (including the employees of sub-contractors) he has to appoint 1 (one) OH&S representative for every 50 (fifty) employees or part thereof. This is a minimum (legal) requirement. The Principal Contractor may at his own discretion appoint more OH&S representatives according to site specific requirements. General Administrative Regulation 6 requires that the appointment or election of the OH&S representatives be conducted in consultation with employee representatives or employees (Section 17 of the Act and General Administrative Regulation 6 & 7). OH&S representatives shall be designated in writing and the designation shall include the area of responsibility of the person and term of the designation. OH&S representatives must be experienced, permanently employed by The Principal Contractor or his sub-contractors, trained and able to move freely within their designated area of responsibility.

d) **Duties and Functions of the OH&S Representatives (Section 18 of the OH&S Act)**

The Principal Contractor shall ensure that the designated OH&S representatives perform their functions in respect of the workplace or section of the workplace for which they have been appointed. These functions include to conduct continuous monitoring and monthly inspections of their respective areas of responsibility, focusing on unsafe acts and unsafe conditions and report thereon to The Principal Contractor and OH&S Committee. OH&S representatives shall participate in accident or incident investigations. OH&S representatives shall attend all OH&S committee meetings. The complete list of functions can be found in Section 18 of the OHS Act.

e) **Appointment of OH&S Committee (Sections 19 and 20 of the OH&S Act)**

The Principal Contractor shall establish an OH&S committee, which shall meet at least once a month, where two or more Health and Safety Representatives have been appointed. OH&S representatives must be appointed as OH&S committee members. The number of members nominated by management may not exceed the number of OH&S representatives on the committee and must be appointed in writing.

E1011      operational integrity

The operational integrity of plant, equipment, structures and protective systems must be monitored and assured on an ongoing basis throughout the project cycle. Hazards must be identified, risks assessed and as far as reasonably practicable, eliminated or the risks treated to as low as reasonably practicable (ALARP).

a) **Construction Plant & Equipment**

The Principal Contractor shall maintain all items of plant and equipment necessary to perform the work in a safe condition.

SANRAL reserves the right to inspect items of plant and equipment brought to site and used on site by The Principal Contractor. Should it be found that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, The Principal Contractor will be advised of such observation/inspection, and The Principal Contractor shall be required to repair, make safe or remove such item from operation and replace it with a safe and adequate substitute.

The Principal Contractor shall ensure that all plant, equipment, and power tools that are brought onto and used on site are:

- Appropriate for the type of work to be performed.
- Placed on a register and inspected by a competent person and/or the authorized operator before use, daily or monthly dependent on Legislation.
- Record inspection findings on a register that must be kept on site.
- The inspection register shall reflect the serial number of the plant, equipment or power tool.
- Maintained and used in accordance with the manufacturers' recommendations.
- Have adequate machine guarding fitted to all exposed rotating or moving parts, as reasonably practicable, that have the potential to cause harm.
- All electrical power supply units are protected with operational earth leakage devices.
- Any defective, damaged or sub-standard equipment must be marked as unsafe for use and removed from operation as soon as possible.

b) **Standards and Registers**

As standard project procedures, The Principal Contractor is expected to:

- Set up an initial set of registers as per the requirements of the OHS Act and Regulations.
- Complete the registers for each piece of plant, tool and equipment brought on and used on site.
- Maintain a complete, continuous and comprehensive inspection and service history in these registers or checklists.
- Ensure daily, weekly, monthly inspections are done and recorded for all plant, tools & equipment by a competent person and/or authorized operator as required by the OHS Act and Regulations.

- Have the inspection and maintenance records available for audit purposes.

## E1012 OCCUPATIONAL HEALTH AND HYGIENE

### a) **Medical Fitness for Duty**

All contractor employees shall undergo medical examinations and be certified fit for duty by an Occupational Health Practitioner before they are allowed to work on site.

The medical certificate must be in the form of Annexure 3 of the Construction Regulations and stipulate the possible exposures the employee might be exposed to during the execution of the project.

It is recommended and in the best interest of The Principal Contractor to implement pre-employment, periodic, as well as exit medical surveillance, especially with regards to Section 8 of the Noise Induced Hearing Loss Regulation.

### b) **First Aid**

According to GSR 3(4), where more than 10 (ten) employees are employed at a workplace/worksites, The Principal Contractor shall ensure that there is at least one trained first aider for every group of 50 (fifty) employees at the workplace/site. First Aid boxes must be provided where more than 5 (five) employees are employed and must be readily available and accessible for the treatment of injured persons at the workplace.

To ensure immediate treatment of an injured person, it is recommended that all work crews have at least one trained first aider, with a fully stocked first aid box, irrespective of the number of people in the work crew. This is especially important when contractors work at great distances from the nearest emergency facility or town. These persons shall be appointed in writing as the first aiders with their certificates attached as proof of competency.

The minimum contents of the first aid box shall be as per the supplied list in the General Safety Regulations.

All treatments done must be recorded on a register and kept with the first aid box. A trained and appointed first aider must be responsible for the first aid box and its content. Used content must be replenished as soon as possible.

In order to ensure prompt response at the emergency facility it is recommended that the W.CI 2 forms be partially completed with the Employers' details.

### c) **Hygiene Facilities**

The Principal Contractor and his contractors shall ensure compliance to Section 30 of the Construction Regulations with regards to facilities on the construction site as well as where accommodation is provided to employees on remote sites. The Principal Contractor shall ensure that the facilities are kept clean at all times, either through a service provider or self-employed persons. The Principal Contractor shall provide employees with at least one sanitary facility for each sex and for every 30 (thirty) workers, changing facilities for each sex and sheltered eating areas.

### d) **Health related Epidemics and Pandemics**

The contractor shall, as far as reasonably practicable describe in his health and safety plan how health related epidemics and pandemics will be dealt with. The Employer is aware that this section in the health and safety plan will not speak to specifics, but generic procedures. The Contractor must ensure that the requirements stipulated in the Hazardous Biological Agents (HBA) Regulation are addressed in his health and safety plan, training and information given to staff and procedures implemented on site to prevent health risks on site.

Once the nature and scale of the epidemic or pandemic is known, the Contractor must update his health and safety plan with the relevant information and send the updated plan to the relevant

appointed OHS Agent for approval. Once approved, the Contractor must implement the updated health and safety plan and maintain the updated plan on site.

#### E1013 waste management

The Principal Contractor shall comply with all applicable and relevant Waste management legislation, as well as municipal bylaws applicable to waste management.

The Principal Contractor shall remove all waste generated at the construction site as soon as possible after generation to ensure good housekeeping at all times. The Principal Contractor shall have a waste management plan which must be implemented on the construction site, and which will have the objective to ensure that waste is managed according to the Waste Management Hierarchy:

- Reduce what you can. If you cannot reduce then,
- Re-use what you can. If you cannot re-use then,
- Recycle what you can. What you cannot recycle,
- Convert into energy sources. If it cannot be converted to an energy source,
- Dispose of in a landfill – this is only to be done as a last resort and disposed without endangering human health and without using processes or methods which could harm the environment.

#### E1014 HAZARDOUS SUBSTANCE MANAGEMENT

The Principal Contractor shall ensure that hazardous substances brought onto site are easily identifiable and stored according to the requirements of the General Safety Regulations, GNR. 1031 of 1986, Section 4.

Where flammable liquids are being used or stored, this must be done in a manner which would not cause a fire or explosion hazard.

The Principal Contractor shall have Material Safety Data Sheets (MSDS) readily available for flammable, hazardous and toxic chemical substances and materials brought onto site and shall ensure that his employees are trained in these MSDS's.

Flammable, hazardous or toxic chemical substances may not be stored in empty food or drink containers. Empty flammable, hazardous and toxic containers must be disposed of in a safe manner, which will prevent further use of such a container.

A survey of the construction site must be done during site establishment, to locate any asbestos. Should asbestos be located, the conditions of the Asbestos Regulations, GNR. 155 of 2002 must be followed and complied with.

#### E1015 contractors

##### a) **Consultations, Communications and Liaison**

OH&S liaison between the Employer, The Principal Contractor, The Contractors, the designer and other concerned parties will be through the OH&S committee. In addition to the above, communication may be directly to the Employer or his appointed agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their construction managers and supervisors, OH&S representatives and the OH&S committee. The Principal Contractor shall be responsible for the dissemination of all relevant OH&S information to The Contractors e.g. design changes agreed with the Employer and the designer, instructions by the Employer and/or his/her agent, exchange of information between subcontractors, the reporting of hazardous/dangerous conditions/situations etc. The Principal Contractors' most senior manager on site shall be required to attend all OH&S meetings.

**b) Operational Procedures**

Each construction activity shall be assessed by The Principal Contractor so as to identify operational procedures that will mitigate against the occurrence of an incident during the execution of each activity. This specification requires The Principal Contractor:

- to be conversant with all relevant Regulations;
- to comply with their provisions;
- to include them in his OH&S plan where relevant

**c) Checking, Reporting and Corrective Actions**

**i) Monthly Audit by Employer (Construction Regulation 5(1)(o))**

The Employer will conduct monthly health and safety and document verification audits in compliance with Construction Regulation 5(1)(o) in order to ensure that The Principal Contractor has implemented and is maintaining the agreed and approved OH&S plan.

The Principal Contractor will be provided with a copy of the Health and Safety audit report within seven days after the audit. The Employer or his representative may stop any Principal Contractor from executing a construction activity which poses a threat to the health and safety of persons which is not in accordance with the client's health and safety specification and the Principal contractor's health and safety plan for the specific site.

**ii) Other Audits and Inspections by the Employer**

The Employer reserves the right to conduct other ad hoc audits and inspections as deemed necessary. This will include site safety walks.

**iii) Principal Contractor's Audits and Inspections**

The Principal Contractor must conduct his own regular internal audits to verify compliance with his own OH&S management system, as well as with this specification.

The Principal Contractor shall furthermore ensure that each contractor's health & safety plan is being implemented and maintained. The Principal Contractor will ensure that periodic health and safety audits and document verification are conducted at intervals mutually agreed upon between the Principal Contractor and any contractor, but at least once every 30 days.

**iv) Inspections by OH&S Representatives and other Appointees**

OH&S representatives shall conduct monthly inspections of their areas of responsibility and report thereon to their foreman or supervisor, as well as the OH&S Committee, whilst other appointees shall conduct inspections and report thereon as specified in their appointments e.g. vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

**v) Recording and Review of Inspection Results**

All the results of the abovementioned inspections shall be in writing, reviewed at OH&S committee meetings, endorsed by the chairman of the meeting and placed on the OH&S File.

**d) Project Health and Safety Management Plan**

As per Section 5(1) (l) and Section 7(1) (a) of the Construction Regulations of 2014, The Principal Contractor shall develop, implement and administer a Health and Safety Management Plan. The plan shall be in writing and shall be negotiated between The Principal Contractor and SANRAL or designated OHS Agent and must be approved by SANRAL or the designated OHS Agent prior to the commencement of work on site. The plan shall demonstrate management's commitment to ensure employee health and safety as their primary objective during the contract. The H&S plan shall be site and project specific and must address all aspects of the project H&S specification.

e) **Project Health and Safety File**

The Principal Contractor shall compile a project specific Health and Safety File that consist of all the relevant project specific documentation. The Health and Safety file may consist of multiple files, which when combined should contain all the required documentation.

It is recommended that the project specific Health and Safety file contain at least the following:

- Scope and summary of the project as well as any scope changes.
- Notification of Construction Work to DoL / Copy of Work Permit
- Proof of COID registration (Letter of Good Standing)
- Contractor Health and Safety Policy statement signed by management
- Appointment of Principal Contractor
- Mandatory Agreement – OH&S Act 37.2 (Between Employer and Principal Contractor)
- Client Health and Safety specification
- Latest copy of the OHS Act and Regulations
- Company Organogram depicting Health and Safety Responsibilities, including sub-contractors
- Employee list including copy of IDs and medicals
- Project specific Health and Safety Management Plan agreed with the Employer – See E1015(d) above
- Relevant OH&S Legal appointments which includes duties and responsibilities as well as competencies (training certificate)
- Copies of minutes of meetings – OH&S committee and other relevant OH&S meeting minutes
- Site specific Fall Protection Plan (if applicable)
- Risk Assessments
- Contractor Induction material
- Waste management Plan
- Emergency preparedness (first aid, firefighting, emergency plan, etc.)
- Emergency Contact Telephone numbers
- List of hazardous chemical substances used on site
- Material Safety Data Sheets of hazardous chemicals on site
- List of plant & equipment to be used on site
- Inspection Checklists/Registers of plant & equipment and emergency equipment
- List of Sub-contractors including type of work
- Sub-contractor 37.2 Mandatory Agreements
- Sub-contractor appointments which shall include the type of work The Principal Contractor is appointed for.

f) **Contracting Philosophy**

Any site-specific hazards and safety management expectations will be made known to the Principal Contractor prior to the work commencing on site. This will be done through the OH&S Specification for the project. SANRAL as the Employer/Client may specify requirements that are stricter than Legislative requirements in this OH&S Specification. Legal OHS requirements contained in the OHS Act and Regulations, SANS Codes and the project OH&S Specifications are the minimum requirements the Principal Contractor must apply during this contract with regards to Occupational Health and Safety. The Principal Contractor shall implement the minimum OH&S requirements and ensure conformance to these at all times.

g) **Workers Compensation Registration**

The Principal Contractor shall ensure that his employees are covered for any occupational injuries and illnesses in terms of the Occupational Injuries and Diseases Act 130 of 1993, which cover shall remain in place and up to date for the duration of the project.

The Principal Contractor shall ensure that his sub-contractor employees are covered for any occupational injuries and illnesses in terms of the Occupational Injuries and Diseases Act 130 of 1993, which cover shall remain in place and up to date for the duration of the project.



**h) HSE Non-Compliance**

It is a legal duty of the client according to the Construction Regulation 5(1)(q) that a Principal Contractor is stopped from executing any activity which poses a threat to the health and safety of persons. Depending on the seriousness of the non-compliance only the specific activity may be stopped until the non-compliance is rectified or the whole operation may be stopped.

It is also the duty of every employee to take reasonable care of his own health and safety and of other persons who may be affected by his acts as per OHS Act, Section 14(a). Keeping this in mind, it is required of The Principal Contractor to ensure his employees has the right to remove themselves from any unsafe situation or work activity, without any negative consequence to them until such time as The Principal Contractor has made the unsafe situation or activity as safe as practicable possible.

**i) Indemnity by Contractor**

The Principal Contractor shall indemnify the Employer against and from all damages, losses and expenses (including legal fees and expenses) resulting from:

- i) the loss of output and delay caused by the slowing down or partial or total stoppage of work caused by:
  - all or any of The Principal Contractor's workforce as a result of a dispute between all or any of the Principal Contractor's workforce and The Principal Contractor; or
  - all or any of the Principal Contractor's suppliers' difficulty or impossibility to deliver goods or materials needed to perform the Works;
- ii) Any unlawful, riotous or disorderly conduct by or amongst the Principal Contractor's personnel."

**j) The Principal Contractor Conduct**

Guidelines to the most important rules that shall be implemented and maintained by the Principal Contractor:

- Complete compliance to the OH&S Act 85 of 1993 and Regulations,
- Hazard identification and Risk Assessments for all activities,
- Daily communication of DSTI's before work commences, even if it is a repetitive task,
- Safe access and egress to and from work areas,
- Compulsory use of lifelines, Safety Harnesses and Fall Arrestors (Lanyards to be attached at all times), when working in elevated positions,
- Scaffold shall comply with Legal and SANS standards at all times,
- Good housekeeping and stacking practices,
- Safe lifting, rigging and slinging practices,
- Complying to Legal standards for lifting machinery & equipment,
- No lifting in wind conditions exceeding 30km/h (This is a guide and is dependent on risk assessments),
- Securing of tools, equipment and material at heights,
- Wearing of appropriate personal protective equipment as identified in the risk assessment.

Supervisors in charge are responsible for ensuring that the employees are aware of the hazards/risks involved in the work they will be doing/are doing and shall ensure the safety rules are obeyed.

No person shall act in a manner that endangers or is likely to endanger the safety of any other person, or cause harm to any other person.

An employee who observes any dangerous situation shall as soon as possible inform the person who is responsible for that section of the site.

Any employee who becomes aware of any person disregarding any safety rules, shall remind that person of the rules. If he persists in disregarding the rules, the matter must be reported to his supervisor.

No person shall damage, alter, remove, render ineffective or interfere with anything that has been provided for the protection of the site, or for the health and safety of persons.

No person shall interfere with or use firefighting equipment without authority and training.

No person in a state of intoxication or condition that renders him incapable of controlling himself shall enter or be allowed to enter the site.

No alcohol or illegal drugs shall be taken onto the site.

All safety and warning signs shall be obeyed.

Always be alert of construction vehicles as well as traffic. Never turn your back to oncoming traffic, always have a line of sight.

**k) Principal Contractor and Contractor Management**

The Principal Contractor shall establish, maintain and ensure that all his contractors establish and maintain OH&S standards and systems as necessary and to comply with the Legal requirements as well as these OH&S specifications.

The Principal Contractor shall be solely responsible for carrying out work on the project, having the highest regard for the health and safety of his employees and people in the vicinity of his work area.

**l) Public Health and Safety**

The Principal Contractor shall, as far as is reasonably practicable, be responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimise those dangers.

This includes:

- Non- employees entering the site for whatever reason
- The surrounding community
- Passers-by to the site.

**E1016 DESIGNING FOR HEALTH, SAFETY AND THE ENVIRONMENT**

Designing for safety is a process aimed at minimizing injury, death, property damage or destruction and harm to the environment, by utilizing an approach to identify and eliminate or control hazardous conditions and material during the design process. The Principal Contractor is responsible for appointing the temporary works Designer and shall ensure that the temporary works Designer implement a process and designs the temporary works in such a way that ensure the safety of employees during the erection, use and dismantling of the temporary works. The temporary work designer shall comply with the duties of the Temporary Work Designer as per the Construction Regulations, 2014 Section 6(2).

The Principal Contractor must communicate the anticipated risks and hazards resulting from the design to his employees and establish safe work procedures for the temporary works.

**E1017 incident management**

The Principal Contractor shall ensure that a culture exists within his company that promotes the recognition, response, reporting and investigation of incidents, including near misses (near hits). The Principal Contractor must implement a procedure for reporting and investigating accidents, incidents and near misses. The Principal Contractor should have a clear objective and target to obtain zero injuries for the duration of the project and such an objective must be communicated to all employees.

Appropriate corrective actions must be implemented, and the applicable learnings must be shared within The Principal Contractors business to prevent a recurrence of the incident or to prevent the near miss from becoming an incident in future.

**(a) Incidents and Accidents**

The Principal Contractor and his contractors shall coordinate their investigation of all accidents/incidents where employees and non-employees were injured to the extent that he had to be referred for medical treatment by a doctor, hospital or clinic. The results of the investigation shall be entered into an accident/incident register, which must be updated with each accident/incident.

The Principal Contractor shall notify the relevant SANRAL Project Manager and or SANRAL OHS Specialist of any incident/accident within the Principal Contractors or his Contractors area of responsibility in writing as soon as possible.

Although the accident/incident is reported to the client, the Principal Contractor has a responsibility and is required by law to report any Section 24 accidents and incidents to the Department of Labour. Any road traffic accident must be reported to the relevant authorities.

It is essential that the Principal Contractor demonstrates that corrective and preventative action has been taken to prevent a similar incident in future and that it is communicated to all the Principal Contractors affected staff. A copy of the investigation, corrective and preventative action taken as well as the attendance register of the employees who attended the discussion of the incident and the action implemented to prevent a similar incident, must be forwarded to the SANRAL Project Manager and or the SANRAL OHS Specialist.

Investigations must be completed for:

- Near Miss Incidents (To prevent it from becoming an incident)
- First Aid case Incidents
- Medical treatment case Incidents
- Fatalities

**(b) Incident Reporting**

The Principal Contractor shall provide the Employer with copies of all statutory reports required in terms of the Act within 7 days of the incident occurring. In addition, The Principal Contractor shall update monthly the Disabling Injury Frequency Ratio (DIFR) and display this information on a signboard at the site office.

The Principal Contractor is responsible for collecting, recording, calculating and reporting his and his subcontractors Health & Safety statistics to the SANRAL OHS Specialist.

The statistics should contain at least the following for all employees of all contractors working on the project:

- Total Number of workers
- Total Number of hours worked (on the SANRAL project)
- Total Number of Near Miss Incidents
- Total Number of First Aid case Incidents
- Total Number of Medical Treatment case Incidents (Excluding Section 24 type incidents)
- Total Number of Section 24 type Incidents
- Preventative actions taken on incidents that have occurred
- Communication to employees and contractors of incidents and preventative actions.

**E1018 PROJECT SPECIFIC CONSTRUCTION REQUIREMENTS**

The clause contains specific requirements for Contract SANRAL SANRAL N.002-180-2018/1R FOR THE PROVISION OF WORK CONSTRUCTION SERVICES FOR THE UPGRADE ON NATIONAL ROUTE N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6) AND MTHATHA (KM 85.0) FOR A PERIOD OF FIFTY-THREE (53) MONTHS INCLUDING FIVE (5) MONTHS MOBILISATION , which must be adhered to in addition to minimum legislative requirements.

a) **Baseline Risk Assessment**

The following is a list of activities, hazards and risks identified which forms the Baseline Risk Assessment for the project prepared by the Client in terms of Construction Regulation 5(1) (a):

Risks associated for identified activities and hazards:

<u>Activity</u>	<u>Associated Hazards</u>	<u>Associated Risks</u>	<b>Risk Rating</b> <div>High</div> <div>Medium</div> <div>Low</div>
Site establishment	Extreme temperatures; Pesticides, herbicides, dust. Snakes, bees, spiders, vermin (rats & mice); Portable electrical equipment; Electrical hand tools; Lifting equipment; Aggrieved members of the public.	Heat exhaustion; Dehydration; Poisoning; Fatality / Serious health effect; Silicosis; Electrical shock; Personal Injuries; Falling objects; Strikes / riots	M
Security	Aggrieved members of the public; Uncontrolled people	Protest Riots Theft	M
Loading / Unloading of materials / plant & equipment from trucks	Lifting equipment; Inexperience operators; Inexperienced workers;	Material / plant falling from height; Operator losing control; Employees under/close to suspended loads.	M
Transportation of personnel / materials	Overloaded vehicles; Transportation of workers in vehicles not designed to transport people; Transporting vehicle defective / not roadworthy	Operator losing control of vehicle; Vehicle overturning; Vehicle accidents; Fatality; Serious injuries	H
Erection of temporary site offices / Laboratory	Extreme temperatures; Pesticides, herbicides, dust, cement; Snakes, bees, spiders, vermin (rats & mice); Portable electrical equipment; Electrical hand tools; Lifting equipment; Temporary works; Aggrieved members of the public.	Heat exhaustion; Poisoning; Fatality / Serious health effect; Silicosis; Electrical shock; Personal Injuries; Falling objects; Strikes / riots	M
Working with and handling of hazardous / flammable / toxic materials	Hazardous, flammable and toxic substances	Chemical burns; Fire; Serious injuries; Fatalities	M
Disposal of waste materials	Hazardous waste	Environmental pollution Re-use of containers can have serious health effect on people or fatal.	H
Traffic accommodation / calming	Public vehicles; Extreme temperatures Stop & Go	Employees run over by public vehicles – serious injuries / fatalities Heat exhaustion	H

<u>Activity</u>	<u>Associated Hazards</u>	<u>Associated Risks</u>	<b>Risk Rating</b> <b>High</b> <b>Medium</b> <b>Low</b>
		Public not adhering to stop & go signals / try to bypass stop & go – fatality / serious injuries / vehicle accidents.	
Working in elevated positions - Working at heights, on slopes, next to excavations, on trucks.	Defective / Inadequate equipment; Improper use or non-use of fall protection equipment; Environmental conditions – rain / strong wind, lighting; Live electrical power lines; Suspension trauma.	Inadequate protection of employees against falls; Electrical Shock; Electrical arching; Slippery work surfaces; Fatality / serious injuries;	H
Stockpiling	Material falling from stockpile	Serious personal injuries; Material damage	M
Operations involving Noise	Noise	Noise induced hearing loss	M
Operations involving Vibration	Vibration	Damage to joints, muscles, circulation and sensory nerves.	M
Working above / near water environments	Working at heights Water environment	Drowning	M
Working near existing services – overhead/underground power cables; telecommunication cables	Electricity	Electrical Shock; Electrical arching; Fire; Burns Fatality Serious injury	H
Working with portable electrical equipment – grinders, circular saws, generators	Electricity Electrical tools Portable electrical equipment	Electrical shock Cuts Personal injuries	M
Lifting / Lowering operations	Elevated objects Lifting machines Improper rigging Electrical cables	Lifting machine / crane overturning; Falling objects Dropped loads Strong winds Loads striking personnel, vehicles or equipment. People working underneath High voltage power lines may arch onto crane boom.	H
Driving and operation of construction vehicles and mobile plant	Distracted drivers; Recklessness; Impaired driving; Poor visibility; Poor road conditions; Unsecured loads; Uncontrolled vehicle entry; Equipment failure; Public vehicles;	Fatalities; Serious injuries; Crashes; Vehicles, plant and equipment damage; Workers not seen by operators; Workers working too close to mobile plant and vehicles;	H

<u>Activity</u>	<u>Associated Hazards</u>	<u>Associated Risks</u>	<b>Risk Rating</b> <b>High</b> <b>Medium</b> <b>Low</b>
	Uneven ground surfaces	Construction vehicles & mobile plant not road worthy / defective; Roll over of construction vehicles / plant.	
Excavation work	Unstable ground Underground electrical cables; Underground pipelines; Excavation equipment, construction vehicles & plant.	Cave-ins; People falling into excavation; Workers buried in excavation due to cave-ins; Construction vehicles / plant falling into excavation; Fatalities; Serious injuries	H
Use of explosives	Explosives; Flying debris	Fatality; Serious Injuries	M
Gabion work	Manual handling Slopes Slippery Rocks	Personal injuries Trips, Slips & Falls	M
Work adjacent or in proximity of railway lines	Trains	Working too close to railway track can cause train draft to suck workers under trains. People falling onto or in front of trains while working above railway track.	H
Work adjacent or near traffic	Public vehicles	Workers not attentive to approaching vehicles. Drivers not slowing down to indicated speed limit. Drivers losing control of their vehicles.	H
Temporary works – Form work & support work	Temporary works	Falls from height; Collapse of temporary work overloading	H
Demolition work	Demolition equipment Flying debris Explosives;	Fatality; Serious Injuries; Damage to equipment; Damage to public assets	H
Work adjacent to public property	Construction plant and equipment; Excavation activities; Demolition activities;	Injury to public persons; Damage to public property and assets;	H
Protection of public H&S	Unprotected temporary works; Stockpiles; Incomplete structures.	Public persons accessing construction area, stockpiles and incomplete structures. Fatality / Serious injury to public persons	H
Welfare facilities – drinking water; eating facilities; sanitary facilities	Water not suitable for human consumption; Shortage of water; Hazardous substances; Environmental impact.	Serious health effects; Dehydration Environmental pollution	M

<u>Activity</u>	<u>Associated Hazards</u>	<u>Associated Risks</u>	<b>Risk Rating</b> <div>High</div> <div>Medium</div> <div>Low</div>
Working in the environment	Bees Snakes Spiders Lighting Strong winds Heavy rain Hot/cold conditions	Poisoning; Fatality / Serious health effect; Electrical shock / burns; Personal Injuries; Slips; Drowning; Heat exhaustion; Dehydration;	M
	Hazardous biological agents	Serious health effects; Fatality; Pandemic; Epidemic	H

b) **Daily Site Attendance Register**

The Principal Contractor shall keep a daily site register so as to be able to identify the entire Contractors personnel on site in case of an emergency or evacuation situation. The attendance register must include permanent as well as temporary workers working on the site.

All contractors shall report to security/reception upon arrival at site. The Principal Contractor will only grant first time access to work on the site if all required documentation has been provided by the contractor and has been approved by the Principal Contractor.

All site visitors, suppliers and any new contractors shall report to security/reception upon arrival at site. All visitors need to sign an attendance register when visiting the site. Visitors include all persons who are not permanently working on the site but excludes temporary site workers. Visitors must undergo site induction training before they are allowed on site to make them aware of the site dangers.

c) **Emergency Numbers / Emergency Evacuation**

A list with emergency numbers must be readily available to first aiders and supervisors. Emergency numbers must be site specific and must display the nearest emergency facilities.

The Principal Contractor shall identify and formulate emergency procedures in the event an incident does occur. The emergency procedures thus identified shall also be included in The Principal Contractor's OH&S plan and communicated as part of induction training. It is the responsibility of the first aid worker, together with the construction supervisor, to make an assessment regarding the severity of injuries and which actions are appropriate. For example: transfer to a medical facility by ambulance or helicopter.

The Principal Contractor must implement an emergency evacuation procedure on site to ensure that in case of an emergency, all staff will leave their place of work when the emergency siren is sound and proceed to the designated emergency assembly point. The emergency assembly point at the site office must display the sign "Emergency Assembly Point".

An evacuation route diagram must be displayed and visible at strategic points in the site office buildings and on notice boards.

All staff working on site must be given awareness training on the emergency evacuation procedure and evacuation drills must be exercised to ensure all staff know the correct procedure to follow in case of an emergency.

d) **Site Security**

Certain areas where work must be carried out is recognized unsafe areas and certain other areas may from time to time become unsafe, due to 3<sup>rd</sup> party actions. The Principal Contractor must, as

far as reasonably possible, anticipate unsafe areas and must ensure that his site staff is safe from 3<sup>rd</sup> party actions, which include but is not limited to:

- Unrests,
- Violent Demonstrations,
- Theft,
- Injury to staff due to 3<sup>rd</sup> party actions.

The Principal Contractor must, when work is to be carried out in the above-mentioned areas, make provision for security services to accompany site staff during the execution of their work, as The Principal Contractor is responsible for the Health, Safety and Security of his own staff. The provision for security services must form part of The Principal Contractors tender.

e) **Personal Protective Equipment**

Comply with General Safety Regulations, Section 2

The Principal Contractor shall identify the hazards in the workplace and follow the hierarchy of controls to prevent incidents. Where possible, hazards must be eliminated or, where impracticable, mitigate the hazards through implementing control measures. Where mitigated hazards still pose a risk to the health and safety of workers, take steps to protect workers and make it possible for them to work safely and without risk to their health under the hazardous conditions, by wearing personal protective equipment and clothing.

Personal protective equipment (PPE) should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigate hazardous situations before the wearing of PPE is considered. The hierarchy of hazard control must be followed before the option of personal protective equipment is considered. The following hierarchy of controls must be followed:

- Elimination
- Passive Controls
  - Substitution – Using a cherry picker or man-lift instead of a ladder.
  - Engineering Controls – Installing barrier railings; Installing stairs instead of using vertical ladders.
- Active Controls
  - Administrative policies and procedures
  - Personal protective equipment

Where it is not possible to create an absolutely safe and healthy workplace, the Principal Contractor shall inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the Principal Contractor maintain the said equipment, that he instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s.

Employees do not have the right to refuse to use/wear the equipment prescribed by the Employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition/s for which the equipment was prescribed but an alternative solution has to be found that may include relocating the employee.

The Principal Contractor shall include in his OH&S plan the PPE he intends issuing to his employees for use during construction and the sanctions he intends to apply in cases of non-conformance by his employees. Conformance to the wearing of PPE shall be discussed at the DSTI and Toolbox Talk meetings.

The Principal Contractor shall ensure that all his personnel, excluding those who are permanently office bound, are equipped with reflective safety jackets and that these are worn at all times when working on site. Any person found not wearing a reflective jacket on site must be removed from the site until such time as he is in possession of and wearing a reflective jacket. Reflective safety jackets shall be kept in good condition and any jackets that are ineffective must immediately be replaced by The Principal Contractor.



f) **Site Supervision**

Comply with Construction Regulation, Section 8.

The Principal Contractor shall appoint a competent Construction Manager who shall be responsible for the construction activities and for ensuring occupational health and safety compliance on the construction site.

g) **Working in Elevated Positions**

Comply with Construction Regulation, Section 10

The Principal Contractor shall ensure that a fall protection plan, developed by a competent person who is designated as the Fall Protection Plan Developer, is available on site and understood by all employees who will be working in elevated positions.

All employees working in elevated positions shall protect themselves from falls by wearing a full body harness and the lanyard shall be attached as far as possible above the head of the worker to a lifeline or other approved and anchor point indicated in the fall protection plan.

In addition to obvious elevated work activities, work activities which include:

- Working on the edge of an excavation where there is a risk of falling into the excavation; or
- Work on the edge of a vertical drop where there is a risk of falling;

shall be considered work in elevated positions and Section 10 of the Construction Regulations must be adhered to at all times. The hierarchy of controls must be implemented when such activities are carried out. As a minimum the employee must wear PPE as identified in the risk assessment, which shall include a full body harness.

h) **Structures**

Comply with Construction Regulations, Section 11.

The Principal Contractor shall ensure that all practicable measures are taken to prevent the uncontrolled collapse of new or existing structures or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work. No structure may be loaded in a manner which would render it unsafe.

When a structure is of temporary nature, all conditions as required by the Construction Regulations Section 12 - Temporary Works, must also be complied with.

i) **Excavations**

Comply with Construction Regulations, Section 13

The Principal Contractor shall ensure that all excavations are carried out under the supervision of a competent person who has been appointed in writing as Excavation Supervisor.

The Principal Contractor must evaluate the stability of the ground before excavation work begins as well as during excavation work.

Excavations must be barricaded to prevent unauthorized access.

Material removed from excavations, as well as heavy machinery and construction vehicles, must not be closer than 1 meter to the edge of the excavation, to prevent additional loads on the excavation edge, which could cause cave-ins, to prevent construction vehicles from falling into the excavation and to prevent the accumulation of carbon monoxide gas inside the excavation.

The principal contractor and its contractors must cause every excavation which is accessible to the public or which is adjacent to the public roads or thoroughfares, or whereby the safety of persons may be endangered, to be –

- Adequately protected by a barrier or fence and as close to the excavation as is practicable; and

- Provided with warning illuminants or any other boundary indicators that are clearly visible at night or when visibility is poor.

People working in the excavation must be adequately protected from cave-ins, by means of protection systems such as trench boxes and shielding and must have a safe means of access into the excavation and egress from the excavation.

**j) Scaffolding**

Comply with Construction Regulations, Section 16, General Safety Regulations, Section 6 and SANS 10085 – The Design, erection, use and inspection of access scaffolding

The Principal Contractor shall appoint a competent person in writing as scaffolding Supervisor. Scaffolding Inspectors and Scaffolding Erectors must be trained and found competent to carry out scaffolding work. It is important to note that only competent scaffold erectors are allowed to build the scaffolding. The scaffold inspector is not allowed to build the scaffold with the scaffold erector team.

Scaffolding shall be erected according to SANS 10085 and shall be tagged “Unsafe for use” while it is being build and “Safe for Use” after inspection indicated that the scaffold is safe to use. The inspection of the scaffold shall be in writing and proof thereof shall be available for any user of the scaffold as well as for audit purposes.

Scaffold left erected while The Principal Contractor is not in attendance, must be tagged with a “Not Safe for Use” tag and all reasonably practicable measures must be taken to prevent unauthorised access to the scaffold.

Scaffold must be inspected by the competent scaffold inspector on completion of the scaffold build, weekly thereafter or following severe weather conditions.

Hazards such as overhead power lines must be identified before the scaffold is build and must be reflected in the risk assessment.

When using mobile scaffold, employees and materials must be removed from scaffold before moving the mobile scaffold. Hazards such as overhead power lines must be identified before moving mobile scaffold and must reflect in the risk assessment.

**k) Suspended Platforms**

Comply with Construction Regulation, Section 17, SANS 10295-2 - Suspended access equipment Part 2: Temporary suspended platforms (TSPs)

All suspended platform work must be carried out under the supervision of a competent appointed Suspended Platform Supervisor. Suspended platform erectors, operators and inspectors must be competent.

The Principal Contractor must be in possession of a certificate of design for the use of the suspended platform system.

**l) Cranes**

Comply with Construction Regulation, Section 22, Driven Machinery Regulation, Section 18.

Crane operators must be trained and found competent to operate the particular type of lifting machine and have a valid operator's card. The crane operator must be in possession of a valid medical certificate of fitness, issued by an occupational health practitioner.

The wind factor should always be taken into consideration when operating cranes and a wind speed device must be fitted so that it provides the operator with an audible warning when the speed exceeds the safe lifting speed. Upon noticing that the wind speed is equal or more than the specified speed limit, the operator should stop immediately.

m) **Construction Vehicles & Mobile Equipment**

Comply with Construction Regulation, Section 23, National Road Traffic Act, 1996

Construction vehicle operators must have received training to operate the class of construction vehicle or mobile equipment and must be in possession of an operator's card as proof of competency. Construction vehicle operators must be authorised in writing and have a medical certificate of fitness issued by an occupational health practitioner to operate the construction vehicle and/or mobile equipment.

All construction vehicles operating on a public road, must be roadworthy, licenced and when operated on a public road, comply with the National Road traffic Act.

n) **Electrical Equipment**

Comply with Construction Regulations, Section 24.

The Principal Contractor shall take adequate steps to ascertain the presence of and guard against danger to workers from electrical cables or apparatus which is under, over or on the site.

The exact location of underground electric power cables must be determined before any excavators are used for excavation purposes.

The location of overhead electrical cables must be assessed when working with cranes and lifting equipment. Injury may be possible from touching the electrical cables with the crane boom, or from arching when the crane boom comes too close to the electrical cable.

All temporary electrical installations must be inspected at least once a week by a competent person and the records of the inspections must be recorded in a register which must be kept on site.

Electrical machinery and extension cords must be in a serviceable condition and must be inspected on a daily basis before use on a construction site by the authorised operator and the inspection checklist must be kept on the construction site.

Comply with Electrical Installation Regulations.

All electrical installations shall be inspected and approved by an accredited electrical inspector and a valid Certificate of Compliance must be issued for the installation.

All electrical installations carried out on site (permanent and temporary) must be in accordance and comply with the Electrical Installation Regulations.

All power supplies and generating units must be fitted with a functional earth leakage device.

o) **Temporary Storage of Flammable Liquids**

Comply with Construction Regulation, Section 25 and General Safety Regulations, Section 4

The Principal Contractor must ensure storage areas of flammable liquids are well ventilated and "No Smoking" signs are placed at the entrances and ventilation ducts of the storage areas. Firefighting equipment must be available in suitable positions around the storage areas.

The Principal Contractor must ensure that good housekeeping is practiced in and around the flammable storage areas.

p) **Water Environments**

Comply with Construction Regulation, Section 26.

The Principal Contractor must ensure that a life jacket forms part of the employees PPE and is worn when the employee is exposed to the risk of drowning, by falling into water.

The risk assessment must make provision for the rescuing of persons in danger of drowning and for preventing employees from falling into the water.

When working next to a river, the Principal Contractor shall put a system in place to monitor the river water level in order to evacuate employees in case of a flood.

When working over water environments, Section 10 of the Construction Regulations – Fall Protection will also apply.

q) **Housekeeping**

Comply with Construction Regulation, Section 27, Environmental Regulations for Workplaces, Section 6(3).

The Principal Contractor shall ensure that suitable and acceptable housekeeping is continuously implemented and maintained on the construction site. Off-cuts and waste must be removed as soon as practicable.

r) **Stacking & Storage of Material, Plant & Equipment**

Comply with Construction Regulations, Section 28 and General Safety Regulations, Section 8.

The Principal Contractor shall appoint a competent person in writing with the duty of supervising all stacking and storage operations on site.

Stacking shall only take place in areas specifically demarcated for this purpose. Circular items must be secured with wedges or chocks.

Items removed from a stack shall only take place from the topmost layer of the stack.

Stacks shall not obstruct any fire extinguishing equipment, first aid equipment, electrical switchgear (DB Boxes) and ventilation or lighting installations.

Unstable stacks must be broken down immediately.

s) **Fire Precautions**

Comply with Construction Regulation, Section 29.

The Principal Contractor must provide his own firefighting equipment that is within the service date and safe for use. Firefighting equipment must be on a register and inspected by a competent person who has been appointed in writing.

Suitable and sufficient fire extinguishing equipment must be placed at strategic locations and a sufficient number of firefighters must be available, who must be trained in the use of it.

t) **Intoxicating Liquor and Drugs**

Comply with General Safety Regulations, Section 2A.

The principal Contractor must compile a Substance Abuse Policy, which must be communicated to all employees. This policy should form part of the induction material for employees as well as visitors.

The Substance Abuse Policy should set the limit for intoxication to zero in order to complement a vision of zero tolerance.

Any person found to be intoxicated, or consuming intoxicating liquor or illegal drugs, shall not be allowed onto the premises and/or must be removed from the premises.

The Principal Contractor has the right to test any person entering the premises for intoxicating liquor or illegal drugs and may refuse entrance on the basis of the outcome of the test.

The Principal Contractor shall ensure that employees taking prescription medicine informs the Principal Contractor of such and shall ensure that the side effect of such medicine does not constitute a hazard to the employee himself or people working with, or in close proximity to the employee.

u) **Confined Space Work & Tunnelling**

Comply with Construction Regulation, Section 15 and General Safety Regulations, Section 5.

The Principal Contractor shall ensure that only authorized persons enter confined spaces.

An entrance log must be kept to ensure people are not left inside the confined space. Adequate air monitoring must be carried out before entering the confined space. When air monitoring indicated the oxygen to be less than 20% by volume, the confined space must be purged and ventilated to obtain a safe atmosphere or self-contained breathing apparatus must be used.

**v) Site Services**

The Principal Contractor shall provide and maintain on the site adequate facilities for employees to use, which must be serviced and kept sanitary and hygienic at all. The following site services should be taken not of:

**i) Drinking Water**

The Principal Contractor must ensure that an adequate supply of potable drinking water is available for all persons engaged in managing and working on the construction site and, if necessary, similar facilities elsewhere for such personnel off the site. Employees working in hot conditions must consume enough water per hour to prevent dehydration.

Where water is unsafe for human consumption, it must be so indicated by means of adequate signage.

**ii) Accommodation**

The Principal Contractor shall comply with the requirements of Construction Regulation 30 with regards to employee's accommodation. Reasonable and suitable living accommodation must be provided to employees who are far removed from their homes.

**iii) Sanitary Facilities**

The Principal Contractor shall comply with the requirements of Construction Regulation 30 with regards to employees' sanitary facilities. Sanitary facilities must be positioned in close proximity of the work area. Sanitary facilities must be serviced regularly and kept in a clean and hygienic condition.

**w) Traffic Accommodation**

The Principal Contractor must develop a clear Traffic Management Plan, which must be approved by the Engineer. Traffic must be organized and controlled in accordance to the Traffic Management Plan and any work area must have adequate signage, signaling or other control arrangements to guard against the dangers relating to the movement of vehicles. Where reasonably practicable, solid barriers must be placed between workers and traffic passing by.

When the Principal Contractor is executing night work, permission should be obtained from the Engineer. The Principal Contractor must put in place visible or reflective signs that can be seen by motorists at a distance. If a stop and go method is used flag persons must be properly trained on how to control the traffic.

The contractor shall however remain responsible to identify, assess, implement the controls and the mitigation of all risk associated with the traffic accommodation plan should he choose to accept the proposed traffic accommodation plan as his own.

Traffic accommodation must be done strictly in accordance with the South African Road Safety Manual and Road Traffic Signs Manual Volume 2, Chapter 13

Special attention must be afforded to amongst others, the following:

- Ensure safe access to/egress from the works during hauling activities
- Enforcing traffic control and access restrictions on construction vehicles

**x) Blasting**

Blasting operations must be adequately managed and comply with all legal requirements to include amongst, the following:

- Ensure the operations are under the immediate supervision and control of a person in possession of a valid permit
- Ensure to obtain the necessary possession and transport permits
- Ensure to cooperate with the PC (Principal Contractor)
- Ensure the site safety and security before, during and after blasting
- Ensure to prepare blast plans and keep records
- Ensure to provide PPE
- Ensure to manage misfires

**y) Temporary Works**

The Contractor shall appoint a competent Temporary works designer as contemplated in CR 12(1) to ensure the following:

- Detailed activity-specific drawings pertaining to the design are available on site
- Ensure to appoint a competent person to supervise temporary works
- Ensure that the temporary structures are done with close reference to the drawings
- Ensure that the temporary work structures are adequately erected, supported, braced and maintained by a competent person to support anticipated loads.
- Ensure that the foundation conditions are suitable to withstand the structure and the anticipated loads
- Ensure that the temporary work structures are not overloaded
- Ensure that adequate safe access is provided
- Ensure all persons required to erect, move and dismantle temporary works structures receive adequate training and instruction
- Ensure that all equipment is carefully examined by a competent person before use
- Ensure that temporary works structures are inspected by a competent person and the results recorded in a register:
  - Before, during and after the placement of concrete
  - Inclement weather or any other imposed load
  - At least on a daily basis
- Ensure that temporary works structures that are found to be weakened and its integrity compromised, it is safely removed or reinforced immediately
- Ensure that no concrete is placed until authorized in writing by the competent person
- Ensure that curing times are adhered to and temporary works structures are only removed until authorized in writing by the competent person

**z) Special Instructions**

Construction activities must be adequately segregated from the general public with the development and implementations of the following:

- Site establishment plan
- Hoarding plan
- Traffic accommodation plan
- Road traffic management plan
- The Principal Contractor shall keep a daily site register so as to be able to identify the entire Contractors personnel on-site in case of an emergency or evacuation situation. The attendance register must include permanent as well as temporary workers working on the site.
- All site visitors and any new contractors shall report to security/reception upon arrival at the site. The Principal Contractor will only be granted first-time access to work on the site if all required documentation has been provided and approved.
- All visitors need to sign an attendance register when visiting the site. Visitors include all persons who are not permanently working on the site, but excludes temporary site workers. Visitors must undergo site induction training before they are allowed on site to make them aware of the site dangers
- The transportation of workers in open vehicles is prohibited and the Principal Contractor must make provision for the cost to transport workers in a safe manner to and from the site. This applies to contractors and SMME's.
- An adequate Emergency Preparedness and Response Procedure must be developed and maintained.
- In mitigation of immediate emergency response and irrespective of minimum legal requirements, a competent first aider and box must be deployed with each team. Additionally, adequate emergency routes must be maintained and communicated to all IAP's

- Adequate provision must also be made to engage the services of a security services provider to protect persons and equipment in the eventuality of criminality
- Adequate welfare facilities must be introduced and maintained to include the availability of potable water.
- An adequate process must be implemented to identify all potentially affected services with the introduction of controls measures to protect and safely conduct the construction work.
- Additionally, a communication plan to include all services owner must be developed and implemented
- Adequate provision must be made for PPE in mitigation of the exposure to environmental conditions

#### aa) Demolition work

Demolition work must be adequately managed and comply with all legal requirements to include amongst, the following:

- Ensure that a competent person conduct a detailed structural engineering survey and develop a procedure to be followed in demolishing the structure
- Ensure that a competent person conduct a detailed survey of all services and hazards that may be present
- Ensure to appoint a competent person in writing to supervise demolition work
- Ensure that a Demolition Plan is developed to include amongst others, the following:
  - Identification of services/hazards and the method of making them safe
  - Method to protect adjacent structures and services
  - Safe access
  - Sequence and method of demolition
  - Support, shoring and bracing requirements
  - The requirement of catch platforms and hoarding to control debris
  - The requirement of chutes to move demolished material from heights
- Ensure that the structural integrity is checked at intervals as contemplated in the method statement by the competent person

#### bb) Occupational hygiene stressors

Exposure as detailed below will be experienced during the cause of this project:

Type	Exposure
Chemical	Dust, smoke, fumes, mists, gasses
Physical	Illumination, noise, vibration, radiation, temperature
Ergonomic	Heavy lifting, unnatural posture, repetitive motion
Psychological	Shift work, working away from home, phobia
Biological	Poor hygiene, insect and snake bites

Occupational Hygiene Stressors must be adequately managed and comply with all legal requirements.

Control measures must be developed and maintained if elimination is impracticable to include amongst others, the following:

- Suppression, extraction and venting techniques must be implemented and maintained where practicable
- Selection and placement through medical and psychological examination
- Adequate provision and maintenance of manual handling devices and aids
- Adequate provision for the selection and procurement of plant and equipment with occupational hygiene dampeners
- Adequate management of OEL (Operating Exposure Limit) and duty rosters
- Adequate provision of hygiene facilities
- Adequate provision for awareness communication of wellness and personal hygiene
- Adequate provision of PPE
- Adequate provision for medical surveillance and remedial action
- Ordinary construction work

- Ordinary construction activities and processes must be adequately managed and comply with all legal requirements.



SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED

CONTRACT SANRAL N.002-180-2018/1R

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MOBILISATION

**SECTION F: STREET LIGHTING**

## **SECTION F: STREET LIGHTING**

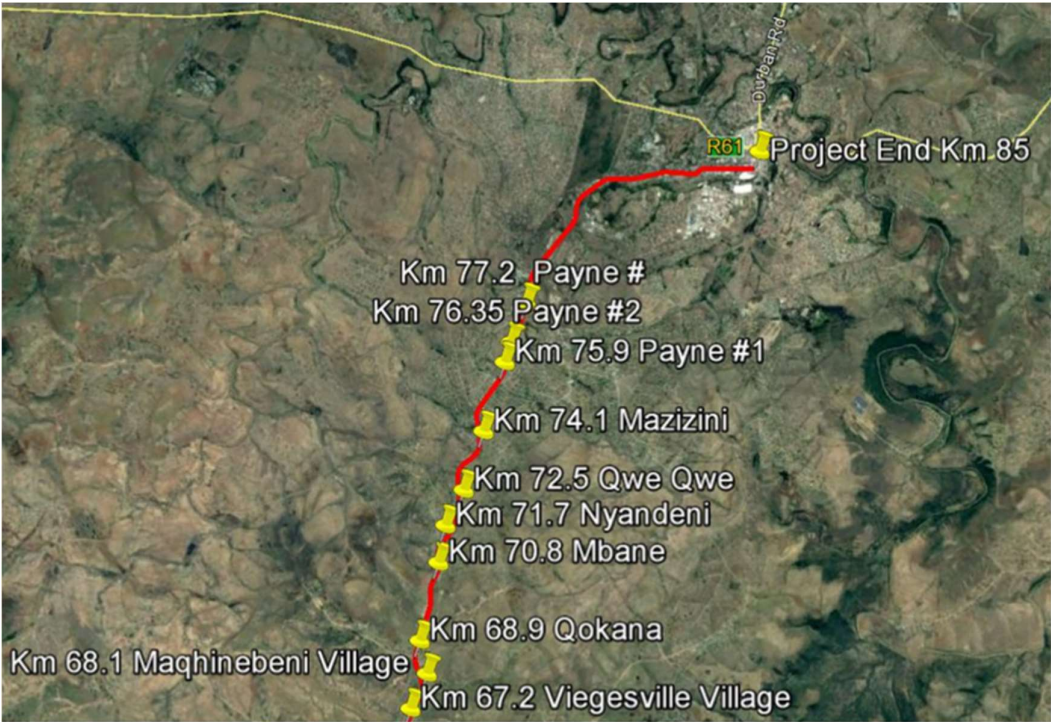
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F1 SCOPE

The work covered by this contract comprises the supply, delivery, installation, installation of materials purchased, testing, commissioning, handing over in working order and maintaining for the Defects Liability Period of the MV, LV and Street lighting reticulation network as fully detailed in the documentation and on the accompanying drawings.

The site is situated on National Route N2 Section 18, between Viedgesville (km 65.6) and Mthatha (km 85.0) in the Eastern Cape province of South Africa. The full extent of the site is indicated on the tender drawings.



The project scope requires the lighting of the section of the N2 to be in accordance with:

- South African National Standard for Public Lighting, SANS 10098: Part 1 – 2007, The Lighting of Public Thoroughfares.
- South African National Standard for Public Lighting, SANS 10098: Part 2 – 2007, The Lighting of certain specific streets and highways.

The lighting installation will include all materials and equipment to be appropriately selected and provided to comply with the requirements of lighting to the road profiles described below.

The road is divided into three distinct sections, owing to location and traffic speed of the section. These sections along with their respective speed limits are summarised below:

Road Section	Location	Speed Limit
Peri-urban	Viedgesville – Ian Woods Drive	80 to 100 km/hr
Urban	Ian Woods Drive – Madeira Street	60 km/hr

These sections along with their respective current and projected future traffic volumes (year:2036) are summarised below:

**Road Section Peak Traffic Volume Current Projected**

Rural > 500 > 450 per lane

Peri-urban > 650 > 500 per lane

Urban > 1 500 > 1 000 per lane

The following parameters shall be applied when making the selection of the appropriate luminaire and fittings:

**Peri-Urban Road Section:**

- Lighting Category (SANS 10098:2007) A1; 600 vehicles With Median
- Dual Carriage Road with new jersey barrier
- Road consists of:
  - Shoulder 2.5m
  - Slow lane 3.7m
  - Fast lane 3.5m
  - Setback 2.5m to new jersey barrier
- Mounting height of luminaire 12m
- Street luminaire wattage To be determined

**Urban Road Section:**

- Lighting Category (SANS 10098:2007) A3; 900 vehicles With Median
- Dual Carriage Road with kerbed median and sidewalks
- Road consists of:
  - Sidewalk 1.8m
  - Shoulder 2.0m
  - Slow lane 3.4m
  - Fast lane 3.4m
  - Median 6.5m (Setback 3.25m – worst case, varies)
- Mounting height of luminaire 10m
- Street luminaire wattage To be determined

The works involved and for which the Contractor must allow is briefly described as follows:

- Connect to Municipal points of supply (underground and overhead)
  - Payment to KSD Municipality
  - Coordination with KSD Municipality
  - Connections and terminations
- Supply and Installation of Miniature Substations
- Cabling (MV and LV)
- Installation and wiring of street lighting control kiosks
- Removal and recovery of existing street lighting equipment
- Removal and Relocation of existing electrical infrastructure
- Trenching, Excavation and backfill
- Street lighting installation (Steel Masts and Luminaires)
- Earthing
- Cable Terminations
- All excavation, reinstatement, and removal of excess spoil from site necessary to complete the above, including provision of imported backfill and the shoring of trench walls where necessary
- Verification and testing of new- and existing street lighting installation works
- Testing and commissioning of all the above.
- Provision of as-built drawings, operating and maintenance instructions and manuals
- Service tools and accessories
- Maintenance of installation

- Guarantee of equipment and installation against all defects for a period of 12 months after handover.

## **F2 SUPPLY AUTHORITY**

The Electricity Supply Authority is King Sabata Dalindyebo Municipality (KSD).

All equipment supplied for the works to be approved by the King Sabata Dalindyebo Municipality (KSD).

The electrical work shall include the application and co-ordination with the local supply authority (KSD) for the installation of medium voltage supply points in accordance with the standards of KSD and as indicated on the electrical design drawings.

The electricity system is an 11 kV: 400V/230V 3 phase, 50 Hz 4 wire system with neutrals solidly earthed at the transformers. The phase rotation is standard anti-clockwise and shall be maintained on all cables, transformers, switchgear, and distribution equipment. The Contractor shall ensure that the load is balanced as equally as possible over the multiphase supply.

## **F3 GENERAL PARTICULARS REQUIREMENTS**

### **F3.1 Regulations and Standards**

The material supplied, construction, installation and testing shall be in accordance with the following Acts and regulations:

- a) The latest issue of SANS 10142-1: "Code of Practice for the Wiring of Premises-Part 1: Low Voltage Installations",
- b) The latest issue of SANS 10142-2: "Medium Voltage installations above 1kV a.c. not exceeding 22kV a.c. and up to and including 3000kW installed capacity",
- c) The latest issue of SANS 475: 2005: "Code of Practice for Streetlight Luminaires",
- d) The latest issue of SANS /IEC 10098-1: "Lighting of public thoroughfares",
- e) The latest issue of SANS /IEC 10098-2: "Lighting of certain specific areas of streets and highways",
- f) SANS 97: Electrical cables with impregnated paper insulation
- g) SANS 1507: Electrical cables and flexible cords with poly-vinyl chloride (PVC) insulation
- h) SANS 10198: The choice, handling, and installation of electrical power cables with a rating not exceeding 33 kV
- i) SANS 1339: Electrical cables with insulation of cross-linked polyethylene (XLPE) Insulated Electric Cables
- j) SANS 10225: The design and construction of lighting masts
- k) SANS 121/ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles
- 
- l) Specifications and test methods
- m) The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended,
- n) The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended and the municipal by-laws and any special requirements of the local supply authority,
- o) The Fire Brigade Services Act 1993, Act 99 of 1987 as amended,
- p) The National Building Regulations and Building Standards Act 1977 (Act 103 of 1977) as amended,
- q) The Post Office Act 1958 (Act 44 of 1958) as amended,
- r) The Electricity Act 1984 (Act 41 of 1984) as amended,

- s) The Regulations of the local Gas Board where applicable.
- t) Relative Municipal Authority specifications
- u) SANRAL: Standard Electrical Specifications Revision 00 dated 1 August 2021

It shall be assumed that the Contractor is conversant with the above-mentioned requirements. Should any requirement, by-law, or regulation, which contradicts the requirements of this Document, apply, or become applicable during erection of the Installation, such requirement, by-law or regulation shall overrule this Document and the Contractor shall immediately inform the Engineer of such a contradiction. Under no circumstances shall the Contractor carry out any variations to the installation in terms of such contradictions without obtaining the written permission to do so from the Engineer.

No claims for extras in respect of failure by the Contractor to comply with any of the above regulations will be considered. Where conflict exists between any of the above regulations and the specifications, the said conflict shall be referred to the Engineer in writing for his ruling in writing.

### **F3.2 Notices and Fees**

The successful Tenderer for this Contract shall, immediately after he has been officially notified that his tender has been accepted, and at any time thereafter as may be necessary, notify all the relevant authorities, pay fees including inspection and re inspection fees and take any other steps which may be required or prescribed to execute the installation as specified.

Copies of such correspondence with the relevant authorities shall be forwarded to the Engineer. At all times the Engineer shall be kept informed. Submission of copies to the Engineer to keep him informed does not relieve the Services Contractor of his responsibilities in terms of the contract. The contractor shall give all notices required by and pay all necessary fees, including any inspection fees, which may be due.

### **F3.3 Quality of Materials**

Only materials of highest quality shall be used, and all materials shall be subject to the approval of the Employer. The Employer's specifications for various materials to be used on this Contract are attached to and form part of this specification.

Wherever applicable, the material shall comply with the relevant South African National Standards and Specifications, or to IEC Standards Specifications where no SANS Specifications exist. The material shall be approved, installed, and commissioned in accordance with these Specifications and Codes and to the satisfaction of the Employer.

### **F3.4 Workmanship and Staff**

An accredited person shall exercise general control over all electrical installation work being carried out. The workmanship shall be of the highest grade and to the satisfaction of the Employer. All inferior work shall, on indication by the Employer's inspecting officers, be immediately removed, and rectified by and at the expense of the contractor.

### **F3.5 Certificate of Compliance**

On completion of the service, certificates of compliance shall be issued to the Employer in terms of and in accordance with the relevant Annexures and clauses in the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

### **F3.6 Maintenance of Installations**

With effect from the date of the Taking-Over Certificate the contractor shall commence with maintenance of the installation as specified in paragraph 18.

If during the maintenance period the installation is not in working order for any reason for which the contractor is responsible, or if the installation develops defects, the contractor shall immediately, upon being notified thereof, take steps to remedy the defects and make any necessary adjustments.

Should failures however be so frequent as to become troublesome, or should the installation otherwise prove unsatisfactory during the Defects Liability Period the contractor shall, if called upon by the Engineer or the Employer, at his own expense replace the whole of the installation or such parts thereof as the Engineer or the Employer may deem necessary, with apparatus specified by the Engineer or the Employer.

## **F4 CONTRACTORS RESPONSIBILITY**

### **F4.1 The works**

The Contractor shall be responsible for the supply, factory testing, delivery to site, offloading, storage until required, installation, erection, site testing, commissioning, and handing over in working order the electrical reticulation system detailed by this Specification and the accompanying drawings. The Contractor shall provide all materials, equipment, and services necessary for the complete, safe, and efficient progress and completion of the Contract.

### **F4.2 General Requirements and Provisions**

The Contractor shall arrange timeously with the Local Supply Authority for the isolation and earthing of the existing electrical services as and when required.

The Contractor shall ensure that the unnecessary interrupting of electrical services is avoided and shall schedule the work to minimise power outages.

The Contractor shall draw up and submit to the Main Contractor a programme of works.

Where applicable the programme of works shall be drawn up in close collaboration with the Main Contractor. Liaison with the Main Contractor shall be the responsibility of the Electrical Contractor.

Should the programme be altered for any reason prior to completion of the Contract then the Contractor shall submit the revised programme to the Main Contractor.

### **F4.3 Delivery and Storage**

The Contractor shall make his own arrangements for the provision, transport, off-loading and storage of materials and shall provide his own handling plant. Under no circumstances shall he expect or request the Local Supply Authority or the Employer to provide, take delivery of or to store materials on his behalf. The Contractor shall make his own arrangements for the collection, loading, offloading and storage of material purchased for the works.

Equipment identified for removal and recovery during construction, shall be temporarily stored at the Contractor's site camp. The safe keeping of the equipment remains the responsibility of the successful tenderer. The client accepts no responsibility for the loss of equipment, due to damage or theft, while stored at this location.

## **F5 WORK BY OTHERS**

The civil works associated with the installation of masts, poles and cables shall be done by the Main Contractor. This includes:

- a) Mast footings including anchor bolts (integrated into F-type median barrier)
- b) Sleeves
- c) Cable ducts in median barriers
- d) Manholes
- e) Retaining walls for footings and bases where required
- f) Modifications to bridge parapets.
- g) Directional drilling of sleeves

- h) Guardrails
- i) Traffic Accommodation

## **F6 EARTHING AND BONDING**

All accessible conductors, portions of electrical plant or apparatus which do not form part of an electrical circuit, and which can become alive accidentally, shall be bonded to earth.

The LV distribution system shall be earthed in accordance with the TN-C-S earthing system.

The supply neutral shall be connected to the load via an insulated connector and terminated onto the luminaire. A separate protective and neutral connection shall be connected to the pole earthing stud, with a 16mm<sup>2</sup> PVC insulated Cu conductor. The Live, Neutral and Earth shall be connected to the luminaire.

The armouring of underground supply cables shall be twisted together and lugged and connected to the earthing terminal provided on the steel poles. A separate insulated earthing conductor shall be connected to the inspection cover/cover plate, where this cover is provided with a weather-proofing gasket.

All low voltage cables shall be supplied with integral earth continuity conductors (ECC).

The luminaire earth connection shall be bonded onto an earth stud, positioned below the inspection chamber, as described above.

Notwithstanding the above, the contractor shall acquaint himself with and adhere to the requirements for earthing and bonding associated with the specific items in the Standard Electrical Specifications of SANRAL, revision 00, dated 1 August 2021. As described in clause C3.18 for cables, in clause C3.19 for Distribution Kiosks, in clause C3.35 for Luminaires, in clause C3.37 for Mast Lighting and in clause C3.39 for Miniature Substations.

## **F7 MINIATURE SUBSTATION**

### **F7.1 General**

The area of installation is defined as HIGH risk. The miniature substation (mini-sub) shall there for comply with clause C3.39.2 of the SANRAL Standard Electrical Specification version 01, dated 01 August 2021. This is the anti-vandal miniature substation with electronic security as specified in this clause.

The miniature substation shall be installed in the position as indicated on the drawings. This section comprises the supply, delivery and installation of Type B miniature substations as subsequently specified in accordance with SANS 1029: 2016.

The sizing and ratings of switchgear and busbars as indicated on the SANRAL typical detail drawings TD-E-P-1000-1-V1 and TD-E-P-1001-1-V1 shall be adjusted to reflect the transformer power rating given below.

The outgoing LV circuit breakers shall remain as indicated on the drawing and described in the SANRAL Standard Electrical Specification.

### **F7.2 Ratings**

Transformer power rating	200 kVA
Nominal voltage of system	11 kV
System frequency	50 Hz
Number of phases	Three (3)
Rated no-load secondary voltage	415 Vrms
Rated power frequency voltage	12 kVrms
Rated lightning impulse withstand voltage	95 kV peak
Rated short-duration power frequency withstand voltage (50Hz : 1 min)	28 kVrms
Induced voltage withstand level	22 kVrms



### F7.3 Construction Design

Layout : Type B

Construction : Modular

Require removable base sections adjacent to MV compartment (sections to lap bolted with nuts on the inside of the channel and housing).

Require concealed door and roof hinges.

Overall length : 2.8 m

Overall width : 1.124 m

Base width : 0.8 m

Provision shall be made for lifting of complete miniature substation on a concrete plinth without need for dismantling.

Provision shall be made for lifting lugs on roof for ease of removal.

In terms of NRS 004 the MV switchgear, LV panel and transformer shall be confined to separate compartments.

All miniature substation housing sections/doors to be electrically bonded.

#### Transformer Unit

Electrical requirements	As per SABS 780 and NRS 005
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Vector group	Dyn 11
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Oil indication	is required
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LV transformer neutral earthing	Solid earthing
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MV system fault level	350 MVA
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Temperature rise limits	As per SANS 780 : Table 6
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Secondary voltage regulation (%)	$\pm 6.0$ , + 3.0, 0, - 3.0, - 6.0
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The transformer unit to be sealed (Welded cover)

The transformer MV bushings internal screen to be earthed and to comply with BS7215, Type C with M16X2 thread

Clearances:

MV bushing-centre clearances	105mm (minimum)
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Outer bushing-centres and minisub metal enclosure	90mm (minimum)
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The winding material (MV and LV) to be Copper or Aluminium

#### **F7.4 MV Compartment**

The MV compartment shall be equipped with a SF6 ABB Safering type CCV 3-way non extensible ring main unit complete or equivalent approved with cable end-boxes suitable for terminating the 11 kV cable specified elsewhere herein.

The MV compartment shall have a front door only.

Incoming MV cable requirements:

Two x 3-core cables  
Cable material : Copper/Aluminium  
Maximum size of core cross section : 185 mm<sup>2</sup>  
Type of cable : PILEGDSTA or XLPE insulated  
Cable support (clamping) is required  
Cable identification tags

Allow for Type A earth fault indicator (SCSSCABA9).

#### **F7.5 LV Compartment**

A main **300A** LV isolating switch shall be provided in the LV compartment to isolate the LV busbar from the transformer.

The switch disconnecter shall comply with the requirements of IEC 60947-3.

Busbar rating to be 400A.

In accordance with NRS 004 the current density of the busbars shall be 1.8 A/mm<sup>2</sup> maximum.

The rated withstand current shall be 25 kA for 1 second.

The minimum clearance to earth and between phases shall be 20 mm.

An LV neutral surge arrester as per D-DT-3088 shall be fitted between the mini substation earth bar and LV neutral earth busbar.

The LV neutral earth busbar shall be earthed (via an electrical bridge to the minisub earth bar).

Provision shall be made for six (6) number of outgoing LV feeder bays (drill busbar Ø 14 mm holes, 110 mm spacing between holes).

The LV panel shall be designed for LV large frame circuit breakers..

Spacing (vertical):  
Between phase busbars : 185 mm  
Between lowest LV busbar and LV neutral : 300 mm  
Between LV neutral and gland plates : 200 mm

#### **F7.6 LV Outgoing Feeder Bay Gland Plates**

The following shall be provided:

One gland plate per LV feeder bay  
The hole sizes: 6 x M75  
6 x M63  
6 x M50

6 x M32  
 6 x M25  
 The distance between gland plate centre lines to be 110 mm  
 Alternatively, a rail for the provision of "K-clamps" will be provided

### F7.7 LV Auxiliaries

The LV distribution circuit is depicted on the standard SANRAL detail drawings.

The following shall be provided for:

1 x 3 pole on-load main circuit breaker (300A, based on the transformer size)  
 1 x set 3P+N Surge arresters  
 9 x 32amp 1 Phase streetlight circuits.  
 1 x 32amp 3 Phase streetlight circuit.  
 1 x 20amp 1 pole spare circuit breaker  
 1 X 63amp 1 phase ELU, 3 x 20amp CB's + 1 x 16 amp SSO  
 1 x concrete base per Mini-substation manufacturer's approval  
 4 x keyed alike 61mm black all weather brass lock with a strength rating of >5,  
 1 x daylight switch complete with control circuit to contactors  
 3 x 32amp 3 pole AC1 contactors  
 1 x 5amp 1 pole CB, 1 x bypass circuit breaker

The following specifics shall apply:

Main circuit breaker : The moulded case circuit breaker shall be supplied with thermal overloading and magnetic instant fault protection. The fault current capacity shall be 25 kA.

Street lighting : The moulded case circuit breakers shall be supplied with thermal over current and instant magnetic fault protection.

One three phase, electronic kWh energy meter suitable for 400 Volt and 0 - 80 Amp. Or three single phase units.

The control contactor with coil, suitable for 242 Volt continuous operations and with 3 contacts suitable for the switching of 80 Amp per phase.

One photocell with a single pole by-pass switch.

Low tension distribution : Extra positions for six non-adjustable moulded case distribution circuit breakers (mixed load) feeder circuit breakers. Minimum 25kA.

Measuring : 1 x Maximum Demand meter with 3 x 500/5 current transformers on load side of main circuit breaker for total consumption purposes meters to be protected by a 1 x 5 Amp 5 kA C2 T/P circuit breaker (4 mm<sup>2</sup> wiring)

Light : 1 x 15W energy efficient lamp (bulkhead) with switch protected by a 1 Amp fuse (2,5 mm<sup>2</sup> wiring)

Earth fault indicator	1 x earth fault indicator with supply point protected by a 2 Amp fuse (1,5 mm <sup>2</sup> wiring) Earth fault indicator unit to be installed in the HV compartment
Plug	1 x 3 point (15 Amp) plug point, protected by a 20 Amp fuse (2.5 mm <sup>2</sup> wiring) with double pole C/B / E/L unit.
Ammeter	LV maximum demand Ammeters are required on all three phases.
Voltmeter	An LV indicating voltmeter (with a selector switch) shall be provided.
	The Ammeter and voltmeter shall be positioned on the top right hand side in LV compartment and have the following size and display : 96 x 96 mm, 90°.
	A non-flammable removable barrier shall be provided to separate the LV end compartment and front LV compartment.

#### **F7.8 Materials and Corrosion Protection**

The miniature substations shall be manufactured from minimum 4.5mm thick 3CR12 plate metal. All sides shall be welded so as to prevent entry by rodents.

The finishing shall be as follows:

Subsequent to manufacture, the entire box, the base, roof, as well as the radiator, shall undergo a hot dipped galvanising process according to SANS 121/ISO 1461.

Subsequent to galvanising, an approved etch primer shall be applied and thereafter a layer of red oxide/zinc chromate priming coat before submerging it in one layer alkaline based synthetic enamel outdoor paint.

The final finish shall be of high quality enamel paint to resemble the colour “ Moss Green. RAL 6005” according to SANS 780.

All doors will be equipped with a New Risi locking mechanism and the necessary danger signs. Doors will also have a device to support door when opened.

A pre-drilled cable gland mounting plate with the following holes must be provided per LV feeder bay : 6 x 75mm, 6 x 63mm, 6 x 50mm, 6 x 32mm and 6 x 25mm or rail for K-clamps or lead-in tubes.

#### **F7.9 Concrete Plinth**

The mini-substation plinth shall be the design of the tenderer and approved by the Engineer.

A 20mm thick wax-impregnated polyurethane foam strip (“Sondorbond” or similar approved) shall be placed between the minisub base frame and the plinth. The inside of the plinth shall be filled with sifted sand to a level of 30mm below the top surface of the plinth. The remaining 30mm to the top of the plinth shall be filled with a 6:1 sand/cement screed that is neatly levelled and compacted.

## **F7.10 Notices, Signs and Labels**

### **F7.10.1 Transformer rating plate information**

In addition to the relevant requirements of SANS 780, the following information shall be clearly shown on the transformer rating plate:

The manufacturer's name and year of manufacture.

The serial number

Order number.

The statement: "Corrosion protected in accordance with relevant specification".

The total mass of the mini-sub.

The rating plate shall be permanently affixed in a prominent position at the LV transformer terminals so that it is clearly visible when the door to the LV compartment is open.

### **F7.10.2 Signs**

A sign depicting "Treatment and Full First Aid Instructions" shall be permanently attached to the inside of the MV and LV compartment doors.

External aluminium or 'Chromadek' electrical symbolic MV warning signs and LV warning signs shall be permanently attached to all the doors. If pop-rivets are used to attach the signs to the mini-sub doors, only aircraft or blind pop-rivets will be acceptable. Normal pop-rivets are not acceptable.

The barrier used to barricade the air insulated cable junction box of the 11 kV Type B mini-sub shall have a sticker applied to it depicting an electrical symbolic warning sign (warning against "Unauthorized entry").

The barrier used to barricade the LV bushings of the transformer shall have a sticker applied to it depicting an electrical symbolic warning sign (warning against "Unauthorized entry").

### **F7.10.3 Labels**

Labels with black engraved "Trafalite" with white letters shall be provided and mounted with a suitable slide-in frame.

The contractor shall adhere to and comply with the requirements for labelling as detailed in the SANRAL Standard Electrical specification, clause C3.20.

Labels shall be painted in the middle of the transformer section of the miniature substation against the vertical side, as well as on the inside of the LV door of the miniature substation. Labels must be mounted not more than 100mm from the roof of the miniature substation under the overhang.

All LV auxiliary and additional equipment provided in the LV compartment shall be labelled and securely fixed by means of pop-rivets.

A label shall be provided in the LV compartment adjacent to the control relay of the temperature sensing element that indicates the relay setting temperature (i.e., "Temp. setting = 90°C").

Phase labels shall be provided below all the bushings (primary and secondary) of the transformer.

The LV busbars shall be colour-coded in the preferred colours of red, white, blue and black by a clearly visible painted-on spot at least 20 mm diameter.

Main circuit designation labels that can be removed for engraving purposes shall be provided for each of the incoming cables in the MV compartment. The labels shall be at least 150 mm wide, 35 mm high and shall be blank sandwich-board or equivalent (orange-black-orange).

A label shall be provided in the LV compartment adjacent to the top-oil temperature sensing element pocket that states "CHECK THERMOMETER POCKET FILLED WITH OIL BEFORE COMMISSIONING".

The Contractor shall submit details of the proposed enclosure for approval prior to manufacture.

#### **F7.11 Documentation**

The following shall be provided:

Workshop drawings for the minisubs within 28 days of the award of the contract.  
Manufacturing of the minisubs shall commence only on approval of the workshop drawings by the Engineer.

One set of Type Test Certificate (provide reference numbers of reports).

One set of Routine Test Certificate

Two sets of drawings (Final Shop Drawings)

Two sets of Circuit Diagrams (HV Auxiliary wiring and equipment)

#### **F7.12 MV Switchgear**

The Switchgear shall be approved by KSD Municipality.

The switchgear shall conform to SANS 62271-200, High Voltage Switchgear and Control gear.

##### **F7.12.1 Type:**

ABB, Safe Ring compact switchgear (CCV12ESK-AC) or equivalent approved complete with ARC barrier. It shall consist of:

- 1 x circuit breaker
- 2 x isolators

##### **F7.12.2 Location:**

Outdoor : Shall be installed into a painted 3CR12 enclosure suitable for outdoor activities.

Continuous current rating : 630 A

##### **F7.12.3 Fault Level:**

Must be adequate for fault level of 350 MVA at 11.5 kV/400V and rated for 630 A and T-off 400 A.

T-off switch circuit breaker rating : 400 A at 11 kV

#### **F7.12.4 Cable Terminations:**

Indoor heat shrink terminations

Cable boxes:

Air insulated steel cable box without glands

#### **F7.12.5 Enclosure:**

The enclosure for the whole ring main unit to be 2 mm thick 3CR12 hot-dip galvanised after manufacture. The enclosure shall be complete with all statutory signage requirements. The enclosure shall further be complete with arc duct, and blow-out plate. The enclosure shall be earthed and bonded. The Contractor shall submit details of the proposed enclosure for approval prior to manufacture.

#### **F7.12.6 Accessories:**

The SF6 RMU shall include:

Earthing switches

Operating mechanism with integral mechanical interlocking

Operating handle

Facilities for padlocks on all switching equipment

Bushing for cable connections in front with arc-resistant cable covers

Manometer for SF6 gas pressure monitoring (if applicable)

Facilities for fitment of an integrated remote control and monitoring unit

#### **F7.13 Earthing**

The earthing system shall be contained within the minisub foundations. The earthing of the minisubs shall as a minimum include four 1.5m earth spikes (installed in the corners of the foundation excavation) plus a trench earth of at least three coils of 70mm<sup>2</sup> copper earth conductor connecting the spikes.

The earthing system provided shall obtain an earth resistance value of 1 (one) Ohm or less.

Where soil conditions are deemed to be unsuitable to reasonably obtain this value, a maximum reading of 10 Ohms will be accepted.

Two 70mm<sup>2</sup> copper tails shall be provided for extending the minisub earthing with a trench earth if so required.

Where precast minisub footings are used, the earthing scheme describe above shall be installed under the concrete cover between the precast footing and the security fence.

Immediately after installation and before energising the equipment the Contractor shall test the earth resistance of the earth system. The contractor shall submit a report to the Engineer, in duplicate, confirming the first and second values measured.

##### **F7.13.1 Measurement**

The unit of measurement shall be the number of miniature substations provided and completely installed.

The measurement shall include the number of concrete plinths, earthing of the miniature substations, site preparation for the placement of the plinth, set of locks for the miniature substation and the labelling of the miniature substation.

The measurement shall include all testing and commissioning as described elsewhere in the specification.

## **F8 LV CONTROL KIOSKS**

### **F8.1 Compartments**

The low voltage kiosks shall be suitable for the housing of equipment. The kiosks shall have two sections (compartments) as follows, except pole mounted kiosks (where required). The kiosks shall be designed and constructed to accommodate the equipment shown on the schematic diagrams.

The kiosks shall have at least 50% spare capacity.

One section (back) containing all the incoming and outgoing switchgear and cables.

The second compartment (front) containing the relevant circuit breakers with flash barriers.

The terminals for the incoming feeder cables shall be sized to accommodate cables up to 120mm<sup>2</sup>. The terminals for the distribution cables shall be sized to accommodate cables up to 70mm<sup>2</sup>.

All moulded case circuit breakers shall comply with SANS/IEC/EC 60947-2. All MCCB's shall be inverse current time delay overload characteristics and instantaneous short circuit characteristics on each phase

Rupturing capacity shall be adequate relative to maximum transformer fault levels but not less than Class 6kA, 415V.

All main circuit breakers shall be connected to the busbars with solid copper connections of adequate section to resist short circuit stresses.

### **F8.2 Busbars**

Busbars and busbar connections shall be in accordance with SANS 1195

Spacing of busbars shall be calculated in accordance with SANS 1195, but shall not be less than 50mm.

Bus bars shall be mounted on polymer or other approved insulators and spaced that they will prevent busbar distortion under maximum short circuit conditions.

Busbars shall be pre-drilled and plated for connection to the maximum number of circuit breakers.

The busbars shall be shrouded to protect them from inadvertent contact from above and in front. The shroud shall be removable and shall be labelled "Danger Live Busbars".

All terminations onto bus bars and interconnections shall be bolted with cadmium plated high tensile bolts, washers, spring washers and nuts.

All connections from transformer to busbars and busbars to equipment are to be made with colour coded PVC insulated copper conductors terminated with crimped lugs. The connections to the transformer bushings shall be puttied and taped.

Bare conductors shall be so spaced that with all clamps, lugs and lead-offs in position, the spacing between any conductor and earth shall not be less than 40mm.

Connections to the bus bars shall be made by means of the correct clamps or lugs with soldered connections or with connections crimped with the correct equipment.

Bus bars shall each be identified by means of 100mm long painted (or other approved) phase colouring bands spaced not more than 300mm apart.

All bus bar contact surfaces shall be tinned.

### **F8.3 Construction**

The kiosk shall be completely manufactured of 1,5mm 3CR12 Stainless Steel plate, dip pickled and passivated after welding, and Powder coated (60-80 microns paint thickness) (interior and exterior) in the colour specified by the electrical Engineer.

The units shall be properly ventilated (100mm X 50mm louver type slots, on fixed sides of kiosk) against overheating and adequate measures shall be taken to prevent condensation.

The units shall be completely weatherproof (minimum IP55), vermin and insect. It shall be of a neat and of esthetical design. The kiosks will be designed in such a way that no dust will be collected on switchgear.

All kiosks will be equipped with a covered, tamper free locking system to be approved by the Municipality. All kiosks will also be equipped with a covered tamper free, lock system for padlock that cannot be cut by bolt cutter.

The doors shall be ingress protected by means of a minimum of 10mm thick non- perishable gasket, resistant to heat deterioration and chemicals and shall allow the door to close securely.

No windows to be provided on any kiosk.



Circuit breaker trays/racks/Din-rail to be provided to ensure the safe operation of circuit breakers. All circuit breakers to be well covered against any arcing and suitable shrouds to be provided as required.

A busbar flash barrier (polycarb) must be installed in all kiosks with back compartments (sliding plates), of which the barrier must have its own sliding slot.

**NOTE:**All steelwork shall be machine punched and drilled to suit. No modifications or alterations due to non-alignment of equipment including panels. Non-threaded blind-rivets (Head size 16mm, shaft length 20mm and shaft thickness 10mm) to be used as hinges on horizontal laying type doors.

#### **F8.4 Earthing**

The kiosks shall be fitted with a 6.3 x 50 x 200mm Cu earth bar, predrilled with holes of 6mm diameter.

The door and mounting plate of each electrical kiosk shall be bonded to the enclosure in at least two separate positions.

Surge arresters shall be provided for each phase and neutral in all kiosks.

Surge arresters shall conform to EN/IEC 61643-11 (Type 2/ Class 2).

A 1.8m x 16mm Cu earth spike shall be installed at each kiosk and connected to the kiosk's earth bar by a 16mm<sup>2</sup> Cu earth conductor. The soil conditions at each site shall be tested to determine the most appropriate earthing arrangement (deep earth or distributed earth system) to achieve an earth resistance reading of 3 Ohms.

The tenderers shall allow a minimum of 30m of 70mm<sup>2</sup> stranded copper conductors, installed in such a way to form 120° angles between the conductors. At the centre of the 120° angle all wires shall be Exo-welded together with a 70mm<sup>2</sup> earth conductor to the main earth bar of the kiosk.

#### **F8.5 Finish and Painting**

All metal work that is to be painted shall be finished neatly and shall be of good workmanship. The corners must be squared and rounded, neatly bent and welding must be free of welding grain and sharp points – it must be grinded where required.

The preparation for painting must be done strictly in accordance with the directions of SANS 064. All surfaces must be cleaned thoroughly and all rust, grease, scale or other foreign objects must be removed with a wire brush, sandblasting/or any other approved process.

All internal indoor surfaces shall be treated within 8 hours after cleaning with prime coat of high-grade zinc chromate and two layers of white baked enamel unless otherwise specified in the detail specification. No holes to be made in material after process have taken place.

Color of meter boxes must be "light Pastel Grey" (SANS 1091 – 1975 CODE G69), only streetlight meter kiosk's sliding doors will be electric orange.

A 10mm Red indication line must be painted in the center of the ground plate indicating the planting depth of the kiosk.

#### **F8.6 Labelling**

All control equipment and circuits shall be labelled.

All safety warning notices shall be in English.

All kiosks shall be labelled in the sequence shown on the drawings and as specified or approved.

The Contractor shall obtain final information and approval before labelling is manufactured.

Black letters on white background shall be used for all normal labels and red letters on white or yellow background for danger notices. All labels used shall be engraved Traffolite.

External number labels shall be black letters on yellow background and shall be installed facing the road in the direction of travel.

Size and origin of supply cables and bus bars shall be clearly labelled on all boards.

All control equipment inside the kiosk shall be clearly marked, indicating function, circuit controlled and fuse rating (where applicable).

The main designation label shall be fitted at the top centre of the board and shall be in English.

Individual labels are to be fitted to each compartment door and corresponding fixed portion of rear panel (if accessible).

Letter size:

- Main label – 20mm, other labels – 6mm.

The following labels shall be installed in English:

- NOTICE/LABEL warning to switch off in case of accidental contact, etc.
- NOTICES in all places as required by the Occupational Health and Safety Act of procedures prescribed in case of fire and/or electric shock.
- NOTICES on doors together with warning sign prohibiting unauthorised entry.

The labels for power cables shall be provided with holes for the clips to pass through for fastening. Each power cable label shall be fastened with at least two clips.

A legend card, covered by removable 2mm thick transparent acrylic plastic ('PERSPEX') or equivalent panel, shall be installed on the inside of the door of the kiosks and circuits shall be designated on this card.

### **F8.7 General**

The contractor shall supply workshop drawings for the electrical kiosks within 45 days of the award of the sub-contract. Manufacturing of the electrical kiosks shall commence only on approval of the workshop drawings by the Engineer and KSD.

Danger signs must be shown on front and rear sides of the kiosk. All danger signs will be steel type and pop-riveted onto the kiosk with four pop-rivets (on all corners of plate). All danger signs must be approved by the Engineer and KSD before installation on kiosks.

One kiosk of each type, to be installed or supplied will be inspected and approved by the Electrical Engineer, before manufacturing can continue. The inspection of these kiosks must be arranged to be either at the factory or kiosks must be brought to KSD. Drawings for these kiosks must also be provided for approval.

On pre-wiring, only one connecting point will be allowed per stud on the busbars.

All internal wiring must be minimum 25mm<sup>2</sup> PVC Insolated Cu Conductor, according to phase coloring.

### **F8.8 Measurements**

The unit of measurement shall be the number of specific equipment items per description noted.

Where the unit of measurement is indicated as sum, the measurement shall be deemed to include all provisions for the completion of the specific item.

The measurement shall include all testing and commissioning as described elsewhere in the specification.

## **F9 EXCAVATION AND TRENCHING**

### **F9.1 General**

The contractor shall adhere to and comply with the requirements for excavations as detailed in the SANRAL Standard Electrical specification, clause C3.18.3.

Rates for excavation shall include all labour, tools and plant, backfilling and compacting, restoration of surfaces, removal, or surplus material, bearing in mind the possible need to re-instate existing facilities where these are damaged and hire a registered land surveyor to calculate the position and to replace any surveyed pegs removed in the process of excavation or backfilling.

Rates shall also include, where necessary, timbering, shoring and pumping of water to clear the trenches.

In case where more than one billed rate is applicable to any single excavation, or to a group of such excavations, the quantity or excavation at each separate rate shall be measured and form the basis for payment. The Engineer may, however, in his discretion, determine an intermediate rate based on the average proportion of each applicable rate and may use such intermediate rate for evaluation of the prices of such excavation.

Tenders shall be based on billed quantities and any variations shall be measured on site during the course of excavation work.

The contractor shall advise the Engineer before backfilling excavations, to enable the Engineer to determine the applicable rates. Sufficient notice shall be given to the Engineer to enable the Engineer to arrange a visit to site to determine the applicable rates.

The soil type shall be identified and classified in accordance with project specifications and the discretion of the Engineer.

## **F9.2 Route Survey**

### **F9.2.1 Pre-Installation**

The Contractor shall prior to work commencement, carry out a pre-installation route survey which shall include digging test holes and guided by the drawings and wayleave information determine a suitable route.

The final route shall be agreed with the Engineer or his nominated representative.

### **F9.2.2 Post Installation**

After completion of all cable laying and jointing and before commissioning of any cable the Contractor shall carry out a final "as-built" survey of the cable routes.

Accurate indication of the position of each cable joint by indicating two distances to each joint from permanent structures on site.

## **F9.3 Excavation**

The Electrical Contractor's rates for excavation shall include for the following:

Any shoring which may be required to prevent the collapse of trench walls before cable and conductor laying and danger tape laying are completed.

Any pumping which may be required to remove water from the trenches before cable and conductor laying and marker tape laying are complete. Extra over cost for excavations in intermediate soil, as described in the contract document. The Engineer in conjunction with the successful Contractor shall agree the soil classification. When trenching the Contractor shall take all necessary precautions to prevent damage to underground services.

On encountering any uncharted service, the Contractor shall promptly advise the Engineer who will give the necessary instructions. Additional excavations shall be paid for at scheduled rates. Should any underground service, water mains, road pavement, drainage system, building or any other structure be damaged by the Contractor's staff, it shall be reported immediately to the Engineer. The Contractor shall be responsible for the cost of repairs.

The removal of obstructions along the cable routes shall be subject to the approval of the Engineer and shall be paid for at the agreed rates. Trenches across roads, access ways or footpaths shall not be left open. If trenching, cable laying and backfilling cannot be done during the same shift, the portion of trench across the full width of the road etc, must be temporarily backfilled and consolidated sufficiently to carry the traffic concerned without subsidence. Alternatively, adequately strong cover plates shall be laid across the trench.

Power driven mechanical excavators may be used for trenching operations, subject to approval by the Engineer. The Client shall not be responsible for any damage to other services in close proximity when using mechanical excavators.

Trenches shall be as straight as possible, and the bottom of each cable trench shall be firm and of smooth contour without sharp dips or rises which may cause tensile forces in the cable during backfilling. Trenches shall have no sharp objects which may cause damage to the cable during laying or backfilling. The unfinished depth of trenches unless otherwise stated shall be as detailed in the SANRAL Standard

Electrical Specification detail drawings as follows:

- LV cables:TDE-E-P-3000-1-V1 LV Cable Trench
- MV cablesTDE-E-P-3001-1-V1 MV Cable Trench

The width of the trench unless otherwise stated shall be as stated on the details provided above. The width of the trench at any bend or places where cable slack is required, shall be such that the bending radius of the cable shall not be less than that specified for the particular cable as per specification SANS 150, SANS 97 and SANS 1339.

The material excavated from each trench shall be placed in such a manner as to prevent nuisance or damage to adjacent ditches, drains, gateways, and other properties and shall not interfere with traffic.

Where, owing to certain considerations, this is not possible the excavated materials shall be removed from site and be returned for refilling the trench on completion of laying. Removal of accumulated water or other liquid from trenches shall be done by the Contractor at his expense. The Contractor shall provide all pumps and appliances required to carry out this operation. Water of any other liquid removed shall be disposed of without creating any nuisance or hazard.

No cable shall be installed in water-filled trenches.

The Engineer reserves the right to alter any cable route or portion thereof prior to cable laying. Payment in respect of any additional work shall be at scheduled rates.

#### **F9.4 Backfilling**

The contractor shall adhere to and comply with the requirements for backfilling as detailed in the SANRAL Standard Electrical specification, clause C3.30.

Topsoil shall be saved on excavation and replaced as topsoil after backfilling.

Filling of trenches shall not commence before the Engineer, or his authorised representative has inspected and approved the cables and cable joints in situ in the section of trench concerned.

The minimum dry densities of backfilling after compaction shall be not less than 1 600 kg/ cubic metre.

Where sifted backfill (6mm square mesh size) is not deemed suitable, imported builder's/ river sand shall be used.

No rocks or boulders shall be used for backfilling of trenches.

All excavations made (whether for the purpose of cable laying, joint bays or trial holes) shall be backfilled in 150 mm layers, the earth in each layer being well rammed and consolidated and sufficient allowance being made for settlement. The backfilling shall be completed to the satisfaction of the Engineer. If necessary, water shall be used to obtain the specified compacted density. Any cable damaged during backfilling shall be replaced by the Contractor at his own expense.

Backfilling at pipe entries shall be such as not to stress or damage the cable during compaction from the top.

A continuous plastic cable warning tape shall be laid directly above each HV cable, 150 mm below the normal surface level and run for the full length of the cable before completing the backfilling.

The backfilled trench shall be maintained in a thoroughly safe condition by the Contractor for the duration of the contract.

All backfilling shall be mechanically rammed.

#### **F9.5 Measurement**

Determination of trench quantities for measurement purposes shall be based on measured length and specific width and depth. No allowance for additional widenings at cable joints or pole excavations.

Soil classification shall be as described in the Main Contract Document.

The unit for extra over measurement shall be the volume in cubic metre of the specific soil type noted.

The measurement for the excavation and repair of existing asphalt surface to accommodate trenches or ducts shall be metre of asphalt excavated and repaired. The rate shall include trenching to the required depth and reinstatement.

#### **F9.6 Pole hole excavation**

The poles shall be planted at the following minimum depths:

<b>Pole</b>	<b>Planting depth</b>
9m	1.7m
10m	1.8m
11m	1.8m
12m	2m
13m	2.2m
14m	2.2m
15m	2.2m

#### **F9.6.1 Compacting of holes**

The soil used for backfilling the hole after the pole has been planted shall be slightly damped for good compaction purposes.

When filling up a hole, layers of 300mm soil shall be added at intervals and compacted with a mechanical compactor or with a hand-stomper, weighing not less than 25kg.

Proper compacting of the ground around a pole is essential and shall be done with a 1:10 cement/sand mixture (soilcrete) for the backfill of all pole holes.

#### **F9.6.2 Measurement**

All measurements for payment purposes shall be made jointly by representatives of the Contractor and the Engineer and shall be agreed upon by both parties.

The unit of measurement shall be the number of specific equipment items per description noted.

Where the unit of measurement is indicated as sum, the measurement shall be deemed to include all provisions for the completion of the specific item.

The measurement shall include all testing and commissioning as described elsewhere in the specification.

### **F10 LAYING CABLES**

The contractor shall adhere to and comply with the requirements for laying of cables as detailed in the SANRAL Standard Electrical specification, clauses C3.18, C3.29 and C3.30.

#### **F10.1 In Prepared Trenches**

Before the cables are laid, the bottom of the trench shall be covered with a 50 mm layer of earth which shall have been passed through a sieve with a maximum mesh of 6 mm. Where excavated material is deemed unsuitable for bedding, clean builder's sand or river sand shall be provided. The Electrical Contractor shall lay the cables on the prepared bed carefully to avoid cuts and damage. Cable rollers shall be used.

Anti-theft cable protection measures as required in the SANRAL Standard Electrical Specification clause C3.30 (e) shall be adhered to.

To prevent theft and possible damage, long lengths of cable shall not be left exposed in an open trench overnight. The balance of the trench shall be backfilled and compacted in layers to achieve the required compaction.

The contractor shall provide security on site from the time the cable is laid to prevent cable theft, the contractor shall make provision for at least 48 hours after the cable has been laid.

All cables shall be "Megger" tested prior to covering, to ensure no insulation damage is present prior to the commencement of backfilling.

Orange PVC warning sheet shall be laid along the entire LV cable routes at 300 mm above the cable or duct as may be the case.

Water shall not be allowed to accumulate at any part of any works. The Electrical Contractor will therefore ensure that no cable laying is carried out until the trenches are free from water.

## **F10.2 In Ducts**

Before cable installation the ducts shall be inspected to determine their suitability and to ensure it is clean and shall not cause damage to the cables.

The cables shall be neatly placed, and crossovers avoided.

Cables shall not be pulled through ducts by mechanical machines, such as cable winches.

Cables shall be hand-drawn.

Cables in the median barrier shall be installed in the ducts provided.

One duct is provided which links every mast base. A second duct is provided which passes from manhole to manhole only.

Where cables are installed onto a bridge or another structure, through sleeves in the structure, the entry and exits shall be encased in concrete for a length of 2m at either end of the bridge.

## **F10.3 In Access Chambers (Manholes)**

Before cable installation the Access Chambers shall be inspected to determine their suitability and to ensure it is clean and shall not cause damage to the cables.

It is essential that the installed cables are not installed at bending radii less than the manufacturer's recommendations. In general, cables shall not be installed at a bending radius of less than 10-times the cable diameter. The contractor shall always make every effort to exceed the minimum requirement and obtain the maximum possible cable bending radius.

# **F11 DUCTS AND ACCESS CHAMBERS**

## **F11.1 Equipment: Ducts**

The ducts shall comply with the SANRAL Standard Electrical Specification's clause C3.9.

The minimum requirement is for the cables to be installed in high-density polyethylene pipes or heavy-duty class 34 uPVC sleeves with a wall thickness of not less than 1.5mm thick and a smooth finish inside.

The following is recommended:

110 mm inner diameter to SABS 1601: Class 400 CORFLO

160 mm inner diameter to SABS 1601: Class 400 CORFLO

## **F11.2 Installation: Ducts**

Only one MV and two LV cables are allowed per single duct and a maximum of four street lighting cables (where 2-core cables are used) are allowed in a single duct. A spare duct should be laid at each crossing position of MV- & LV feeder cables

Ends must be sealed with polyurethane plugs or double layer of warning tape bound with wire at each end to prevent backfill entering the pipe prior to and after installation. Also, a galvanised draw-wire of 2.5mm in diameter should be left in the spare ducts.

The spacing of parallel pipes shall be at least that of the spacing of the cables in the ground and as indicated on the SANRAL standard detail drawings.

Cable sleeves shall be installed at a depth as indicated on the SANRAL standard detail drawings. All sleeves shall extend 1 m beyond the road kerb.

The pipes must be plugged.

Pre-cleaning of pipes, use of bell mouths, rubber grommets, lubricants and well positioned rollers may be required to prevent the cable from being damaged during installation. Separate lengths of pipe shall be properly jointed.

## **F11.3 Equipment: Access Chambers**

Access chambers shall be constructed in accordance with the design details provided. All masonry work shall conform to SANS 1200 GA.

Before cable installation the Access Chambers shall be inspected to determine their suitability and to ensure it is clean and shall not cause damage to the cables. No debris will be accepted inside access chambers.

#### **F11.4 Measurement**

Determination of duct quantities for measurement purposes shall be based on measured length and specific size provided.

The unit of measurement shall be metre of duct installed that is backfilled and compacted to the required compaction level as described on the detail drawings.

The measurement for the installation of sleeves by means of thrust boring shall be the length of sleeves installed of the specified size. The rate shall be deemed to include all costs associated with this activity, inclusive of, but not limited to site establishment, take-off pits, receiving pits, sleeves, and reinstatement.

### **F12 RELOCATION OF EXISTING ELECTRICAL SERVICES**

#### **F12.1 Street Light Poles and Luminaires**

Where the tender drawings show luminaires/poles to be “relocated”, or such poles and luminaires are identified on site, tenders shall allow at least the following:

- Excavation around the existing pole to loosen it.
- Mechanical means to secure the pole for removal.
- Disconnection of the electrical supply.
- Excavation of new hole for the pole (if re-positioned).
- Mechanical means to remove- and re-plant existing poles (all pole lengths).
- Reconnection/termination of the supply cable.
- Provision of soil-cement mixture as described in this specification.
- Compaction of soil around the pole, to fully secure it after planting.
- Joint/electrically secure the abandoned electrical connection.
- Re-instatement of the existing pole hole, to match or better its surrounding area.

#### **F12.2 LV Overhead Lines**

The contractor will be required to re-route and or remove existing 400 V (LV) open wire distribution lines as part of the contract works. The design of these works will be undertaken by the Client, at no cost to the Contractor.

The Contractor will be required to execute the works associated with the re-routing of the overhead lines as indicated on site or on the design drawings. The overall length of line/s to be re-routed and or removed are measured in the bill of quantities.

The works may further include the relocation of such overhead lines, not identified at tender stage. Where such lines are identified during construction, the contractor will be required to relocate or remove these lines as instructed.

#### **F12.3 kV Overhead Line**

The contractor may be required to re-route existing 11 kV open wire distribution line as part of the contract works. The design of these works will be undertaken by the Client, at no cost to the Contractor.

The Contractor will be required to execute the works associated with the re-routing of any such overhead lines that may be identified during construction. The works may further include the relocation of such overhead lines, not identified at tender stage. Where such lines are identified during construction, the contractor will be required to relocate or remove these lines as instructed

### **F13 MV CABLING**

The Contractor shall supply and install cabling in accordance with the requirements depicted on the drawings and as specified elsewhere herein. All scheduled cable lengths are for tendering purposes only. The Contractor shall be responsible for the measurement for the actual lengths required before ordering.

### **F13.1 Equipment**

The MV cable shall be circular stranded aluminium, three core, screened, PILC, 6.35/11 kV, PVC sheathed cable to Table 19 of SANS 97: 1991.

The sizes required for the project is: **25 mm²**.

### **F13.2 Cable Joints**

Details of the type of joints and terminations proposed by the Contractor shall be submitted to the Engineer for approval before work commences and shall be approved by KSD.

All cable through joints and terminations shall be made in accordance with the cable manufacturer's recommendations and shall be carried out by a qualified cable jointer. Proof of his training and experience may be required.

Joints shall only be made at full drum length intervals and shall be compound filled or heat shrink type joints: Medium Voltage accessories for power cables with rated voltages from 11 kV to 33 kV.

Cable joint ID tags shall be provided with all joints, including the following:

- Manufacturer's name
- Manufacturer's part number
- Jointer's name
- Date of installation

### **F13.3 Cable Terminations**

Cable terminations shall be terminations supplied by approved supplier such as Raychem or Tank. "RICS" boots 3133 series to be used for unscreened separable connectors (USC).

Cable terminations labels, manufactured from an A1 plate or Plastic/Engraved Celeron, complete with 7mm black letters on an orange background shall be used, containing the following:

- Cable destination
- Cable voltage
- Cable size
- Conductor material
- Cable type (PILC, XLPE)

Termination ID tags shall be provided, excluding the following:

- Manufacturer's name
  - Manufacturer's part number
  - Jointer's name
  - Date of installation
- (The ID tag shall be attached to the termination crutch).

### **F13.4 Installation of cables in prepared trenches**

Installation of cables shall generally be done in accordance with SABS 0198 – Installation of Cables.

Notwithstanding the above, the following general provision shall apply:

MV cables shall be spaced at a minimum of 300 mm apart (centre to centre).

LV cables shall be spaced at a minimum of 150 mm apart (centre to centre).

HV and LV cables (and pilot cables not associated with HV cables) shall be spaced at a minimum of 300 mm apart.

Pilot cables when they are routed separately from their associated power cables may be run next to one another.

Cables shall not be buried on top of each other except where cable runs cross.



Where the cable cannot be laid down at the specified depth, prior authority shall be obtained from the Engineer by the Contractor to protect the cable by means of 150 mm diameter half round pipes with 50 mm concrete slab coverings, or other approved methods.

Where cable have to be drawn around corners well lubricated skid plates shall be used. The skid plates shall be securely fixed and constantly examined during cable laying operations. Suitable rollers will be used during the laying of cables.

Cables shall be visually inspected for damage during and after laying. Any damage shall be reported immediately to the Engineer who will issue the necessary instructions

### **F13.5 Cable Tests**

The Contractor shall supply test certificates for the insulation of the installed cable, ie HV pressure test of all 11 kV cables

### **F13.6 Measurements**

Measurement of cable length shall be made from centre of cable joints and to the cable ends and will exclude any wastage due to jointing and terminating.

The rate for the installation of cables shall include the installation of cables in trenches, ducts, cable trenches and inside street lighting poles.

The unit of measurement shall be meter of cable supply and installed in prepared trenches or cable ducts or as required.

The unit for cable terminations shall be the number of cable terminations supplied and installed per cable of specific size.

The unit of measurement for cable joints shall be the number of cable joints supplied and installed per cable type.

The unit of measurement for cable end-caps and seals shall be the number of end-caps supplied and installed per cable size provided.

The measurement shall include all testing and commissioning as described elsewhere in the specification.

## **F14 LV DISTRIBUTION AND STREET LIGHTING CABLES**

### **F14.1 Distribution Cables**

Cables PVC/SWA/PVC/PVC Alu 4-Core to SANS 1507/2020.

LV cables shall be terminated by means of tinned crimped lugs. The shank of the cable lugs shall be sealed and insulated by means of colour coded SPO tubing.

Joints shall only be made at full drum length intervals (This provision does not apply to street lighting cable, where no joints shall be allowed).

The Contractor shall provide test certificates for the insulation of the installed cables i.e., "Megger" test for all LV cables.

### **F14.2 Street Light Cabling**

The Contractor shall install LV cabling in accordance with the requirements depicted on the drawings and as specified elsewhere herein.

Street lighting cables shall be 4-core PVC/PVC/SWA/PVC Alu to SABS 1507/1990 sized as shown on the drawings.

LV cables shall be laid in trenches and ducts, as indicated on the drawings.

Where bolted connections are used, lighting cables shall be terminated by means of tinned crimped lugs. The shank of the cable lugs shall be sealed and insulated by means of colour coded SPO tubing.

Cable connections in poles shall be done by approved insulated "Pratley" connectors or similar approved connectors. Any alternative connection method to be approved by the Engineer, prior to construction.

Joints in street lighting supply cables shall not be allowed.

Orange PVC warning sheet shall be laid along the entire LV cables routes. These sheets shall be installed at minimum 300 mm above the cable.  
The Contractor shall supply test certificates for the insulation of the installed cables i.e., “Megger” test for all LV cables.

### **F14.3 Measurement**

Measurement of cable length shall be made from centre of cable joints and to the cable ends and will exclude any wastage due to jointing and terminating.  
The rate for the installation of cables shall include the installation of cables in trenches, ducts, cable trenches and inside street lighting poles.  
The unit of measurement shall be meter of cable supply and installed in prepared trenches or cable ducts or as required.  
The unit for cable terminations shall be the number of cable terminations supplied and installed per cable (4-core or 2-core) of specific size and not the number of cable cores terminated.  
The unit of measurement for cable joints shall be the number of cable joints supplied and installed per cable type.  
The unit of measurement for cable endcaps and seals shall be the number of endcaps supplied and installed per cable size provided.  
The measurement shall include all testing and commissioning as described elsewhere in the specification.

## **F15 STREET LIGHTING LUMINAIRES**

### **F15.1 Scope of Specification**

This portion of the specification covers the detail requirements for the manufacture, supply and delivery of lighting luminaires for this project. The luminaires shall comply with the requirements as stipulated in the SANRAL Standard Electrical Specification, clause C3.35.

### **F15.2 General**

Street Lighting infrastructure will be installed as per SANRAL Standard Electrical Specification.

### **F15.3 Street lighting Supply and Control**

The street lighting circuits will be supplied from and controlled at street lighting control kiosks. These kiosks will be positioned at each minisub or as identified during construction. The electrical supplies to the kiosks will be supplied from fuses or large frame Circuit Breakers (to be advised), installed in the minisub connected to the minisub's LV busbar or as required.

### **F15.4 Luminaires and Internal Wiring**

The following standards contain provisions which, through reference in this text, constitute requirements of this specification.

1.	IEC 60598-1	Luminaires - Part 1: General requirements and tests
2	IEC 60598-2-3	Luminaires - Part 2: Particular requirements - Section 3: Luminaires for road and street lighting
3	ISO 4762	Hexagon socket head cap screws
4	SANS 529	Heat-resisting wiring cables
5	SANS 121	Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods.
6	SANS 1088	Luminaire entries and spigots
7	SANS 60529	Degrees of protection provided by enclosures (IP Code)
8	SANS 1507	Electric cables with extruded solid dielectric insulation for fixed installations (300/500V to 1 900/3 300V) Part 3: PVC Distribution cables
9	SANS 1574	Electric flexible cores, cords, and cables with solid extruded dielectric insulation Part 3: PVC-insulated cores and cables

10	SANS ARP 035:2014	Guidelines for the installation and maintenance of street lighting
11	SANS 61000-3-2	Electromagnetic compatibility (EMC) Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
12	OHSACT (Act 85 of 1993)	Occupational Health and Safety Act and Regulations
13	SANS/IEC 62262	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)

All compliant luminaire solutions will be considered.

The Tenderer shall supply a copy of the LDT/IES files on a “Flash” drive and a printed copy of the simulation report in a CIE compliant format of the proposed luminaires to be used.

Tenderers are referred to SANRAL specification clause C3.35 (b) for requirements relating to the provision of lighting data and luminaires as part of their tender submission.

The luminaires shall be Class 1 of IEC 60598-1 and be of the totally enclosed type. Luminaires shall be delivered completely assembled with housing, driver, LED module and protector lens.

The luminaire output shall be provided as nominal flux at T<sub>q</sub> of 35 °C.

The colour temperature of the luminaires shall be neutral white, 4000K and a colour rendering index of 70 (minimum).

The luminaires shall deliver 80% of the initial lumens, when installed for a minimum of 50 000 hours. The bidder shall provide a lumen depreciation graph by means of the IES LM 80-08 data of the LEDs. The LED light source test data shall provide the expected data for at least 25% of rated LED light source lifetime, i.e., 15 000 hours.

The LED module or array shall be designed in such a manner that the failure of one LED shall not cause additional LED's to switch-off. Documentary evidence of this shall be submitted.

Temperature sensors shall be fitted as protection devices to the luminaire, placed directly next to the LEDs. These shall not switch off the luminaire completely. Full details of how the luminaire manages its temperature, through the use of sensors and the effect on lumen maintenance, shall be supplied.

The entire assembly and testing of the complete LED luminaire shall be undertaken within an ISO 9001 certified factory, within South Africa.

#### **F15.5 IP Rating**

The luminaires shall have minimum rating of IP 66 in accordance with SANS 60529 for both the driver and LED module compartments, when normally mounted as per SANS 475.

#### **F15.6 Construction of Luminaires**

Luminaires shall be suitable for operation at an ambient temperature, T<sub>a</sub>, of 35 ° C. Fixing devices, junctions, lips and the like shall be designed to shed water. Pockets and ledges in which condensation may accumulate shall be avoided.

The luminaires shall contain a heat sink with no fans, pumps or liquids, and the design thereof on the external surfaces shall prevent the accumulation of dirt and nesting of insects or ants, thus ensuring continuous effective cooling. Heat from the LED source should take the shortest path to the exterior by direct conduction or any other reliable form of cooling that will not compromise the useful life of the LEDs.

The luminaires shall have aluminium housings of grade EN1706 AC-44300 (or higher) aluminium alloy. This shall be substantiated by an independent metallurgical report confirming the grade of aluminium for the luminaires offered.

Luminaires shall be supplied in raw aluminium and shall not be powder coated.

Ferrous components shall be hot-dip galvanised and shall withstand the test specified in the current edition of SANS 121 for heavy duty application.

External small components (such as toggle clips, bolts, screws, nuts, washers) shall be stainless steel (grade 316 or better).

Due attention shall be paid to the accessibility of parts and to other requirements necessary for efficient maintenance and cleaning, where required. If screws are used to secure covers, they shall be held captive when opened.

The upgrading and/or service of the LED unit and the driver/power supply shall be possible without removing the whole luminaire but by means of replacing only the optical/gear compartment by means of a hinging mechanism.

Various items/components such as the aluminium housings, printed circuit boards (PCB's), glass protectors, silicon gaskets and stainless-steel latches/clips shall be manufactured (not simply assembled) in South Africa.  
All fittings shall be equipped with a 7-pin Nema socket (NEMA/ANSI C136.41 compliant).

### **F15.7 Mounting**

Spigot entries shall be designed to fit easily over the bracket pipe and shall be truly parallel to the fitting axis and shall comply with Table 1 of SANS 1088:1990  
Attachment of the luminaire base casting to its bracket arm should be by means of at least two stainless steel M8 grub screws into stainless steel sockets or any other methods to prevent cathodic corrosion between stainless steel and aluminium. The attachment of the luminaire should be designed to withstand wind speeds of up to 150 km/hour on the projected surface of the luminaire, without due deflection.

### **F15.8 Optics**

For LED luminaires with non-replaceable LED modules, the intensity values shall be given in candela. The results should be published in an intensity distribution table, indicating the intensity in cd/klm at each horizontal and vertical angle. This intensity distribution table should be converted by an accredited test facility and/or luminaire supplier into a suitable electronic format for use with any of the commercially available lighting computer programs.

### **F15.9 Protector**

The protector shall be high impact, toughened, clear flat glass.  
The protector shall form a seal completely preventing the entry of moisture, dust, and insects into the lamp housing.  
A one-piece gasket, made of silicon sponge material, shall be fitted into a groove in the housing and shall be seated in a manner ensuring the integrity of the IP66 rating and shall not work loose during maintenance of the luminaire.

### **F15.10 Power Supply or Driver Requirements**

LED module(s) drivers shall be housed fully within the sealed body of the luminaire.  
The output frequency of the drivers shall be 100 Hz or greater, to avoid visible flicker. The harmonic distortion levels of the LED module driver(s) shall comply with the limits as stipulated in SANS 61000-3-2.  
The LED module driver(s) shall operate at a power factor of 0,95 or greater, and the harmonic distortion levels shall be limited so as to not cause interference on the electrical network.  
The power supply or driver compartment shall be sealed in the same manner as described in "construction of luminaires".  
The power supply or driver compartment shall be so designed that there is sufficient space to permit replacement of components or repairs and reassembly without difficulty and without the removal of the luminaire from its mounting.  
The power supply or driver shall be able to withstand surges of up to 2 kV/10 kA by means of an external inline fused surge protection device mounted inside the gear compartment. This surge protection shall be easily replaceable.  
The power supply or driver should incorporate a thermal switch to prevent exceeding the case temperature for maximum lifetime of equipment.  
The lifetime of the power supply or driver shall be 100 000hrs with 90% survival over the lifetime.

### **F15.11 Earthing**

The luminaire shall be earthed in accordance with Clause 13 of the Electrical Machinery Regulations of the OHSACT (Act 85 of 1993).  
Metal parts of luminaires which may become alive in the event of insulation fault and which are not accessible when the luminaire is mounted, but liable to come into contact with the supporting surface, shall be permanently and reliably connected to an earthing terminal and shall withstand the test specified in IEC 60598-2-3.

Earthing terminals shall comply with sub-clause 7.2 of IEC 60598-1. All parts of an earth terminal shall be made of brass or other corrosion resistant metal and the contact surfaces shall be bare metal and not painted or varnished surfaces.  
Earth connections shall be affected by means of suitable lugs in a manner avoiding all possibility of electrolytic corrosion.

#### **F15.12 Wiring**

The internal wiring of the luminaires shall be flexible and suitably insulated to withstand the voltage and the temperature encountered in service.  
Wiring to the LED module compartment shall be suitably grommited, ensuring a perfect seal between compartments.  
The supply terminals shall accept 4mm<sup>2</sup> wires and be easily accessible. No part of the cover shall damage the supply wires when closed.

#### **F15.13 Guarantee**

All luminaires offered shall have a minimum guarantee period of five years.  
The scope of this guarantee includes the LED module drivers, luminaire housing, LED module(s), brackets, and protector.  
If luminaires are found to have failed within this period as a result of poor manufacturing processes and/or poor materials it shall be replaced free of charge by the manufacturer.

#### **F15.14 Measurement**

The unit of measurement shall be the number of light fittings to be supplied and installed. The rate shall be all inclusive to complete this activity.  
The unit of measurement shall be the number of light fittings to be supplied and delivered into the municipalities stock for future maintenance.

### **F16 GALVANIZED STEEL POLES**

This part of the specification provides for the manufacture, testing, supply, delivery and off-loading of galvanised steel street lighting poles and steel outreach arms.

#### **F16.1 Normative References**

The following documents contain provisions that, whether referenced in the text or not, constitute requirements of this specification. Information on currently valid national and international standards can be obtained from the South African Bureau of Standards.

SANS 62-1	Steel pipes Part 1: Pipes suitable for threading and of nominal size not exceeding 150 mm
SANS 121	Hot dip galvanised coatings on fabricated iron and steel articles – Specification and test methods
SANS 657-1	Steel tubes for non-pressure purposes Part 1: Sections for scaffolding, general engineering, and structural applications
SANS 1088	Luminaire entries and spigots
SANS 9001	Quality management systems - Requirements
SANS 10064	The preparation of steel surfaces for coating
SANS 10160-1	Basis of structural design and actions for buildings and industrial structures Part 1: Basis of structural design
SANS 10160-3	Basis of structural design and actions for buildings and industrial structures Part 3: Wind actions
SANS 10225	The design and construction of lighting masts
SANS 14713	Protection against corrosion of iron and steel in structures – Zinc and aluminium coatings - Guidelines
SANS 14713-1	Zinc coatings – Guidelines and recommendations for the protection against corrosion of iron and steel structures Part 1: general principles of design and corrosion resistance
SANS 14713-2	Zinc coatings – Guidelines and recommendations for the protection against corrosion of iron and steel structures Part 2: Hot dip galvanising
SANS 10044	Welding

Reference to a particular standard or recommendation in this specification does not relieve the manufacturer of the necessity of the work complying with other relevant standards or recommendations.

Tenderers offering equipment to standards other than those mentioned above may be considered provided it is clearly indicated in which respects the equipment offered does not comply and the likely consequences of such non-compliance.

## **F16.2 Design and Fabrication**

The design features of all equipment shall be based on the SI system of units.

The poles shall be designed and manufactured in accordance with the recommendations of SANS 10225 and SANS 14713-1.

The design calculations shall be carried out by a registered professional Structural Engineer who shall certify the design complies with the requirements of this specification.

The terrain category shall be Category 2 as defined in SANS 10225. (Altitude 0m to 300 m)

The regional basic design wind speed shall be taken to be 30 m/s.

The poles shall comply with the applicable typical drawings included with this enquiry.

The required pole sizes are as follows:

Designation	Description	Pole Length	Mounting Height	Mounting type
Type 1	Light Duty	12m	10m	Direct plant
			12m	

Tenderers will be required to provide supporting documentation along with their submissions that show the equipment offered. The information shall clearly show the pole dimensions and manufacturing details deemed necessary.

The poles shall be designed for the combination of pole, outreach arms that results in the highest stresses for all types of poles.

Poles shall be direct burial type poles complete with baseplates and anti-rotation devices to the tenderers design.

The tenderer shall provide design calculations or similar approved software simulations that prove that the poles meet the design requirements stipulated in the SANS standard.

Poles shall be manufactured of steel sections of increased wall thickness.

The pole shall be clearly marked (engraved) to indicate the maximum bearing strength to ensure the correct use of the different types of poles. (A separately attached/removable label will not be accepted.)

The successful tenderer shall provide design calculations or similar approved software simulations that prove that poles provided can support the following equipment under the prevailing conditions noted:

- Double sided spigot/outreach of 1 500mm Long
- Two luminaires

To allow interchangeability between pole stems and outreach arms, the outreach arms shall be manufactured exactly to the requirements noted. Any poles that do not comply will be returned at the Tenderer's expense.

The spigot (short adaptor/out-reach) shall comply to the following requirements:

- Main body shall be maximum 300mm long
- Main body shall be manufactured from an 88.9mm outer diameter (hollow pipe section with minimum 4.5mm wall thickness
- 6 x M8 grub screws shall be provided: one at 20mm from the base of the main body and the second at 70mm from the base. (These holes shall align vertically)
- The six grub screws shall be distributed evenly around the circumference of the body in pairs of two as described.
- A 10mm diameter round bar shall be inserted though the body (provide 11mm diameter hole both sides) at 100mm from the base of the spigot and welded on the outside of the body.

- One (single spigot) or two (double spigot) 42.8mm diameter x 3mm thick x 150mm long outreach arms shall be welded to the main body at 10mm from the top of the main spigot body at a 0°, 10° or 15° angle (to be confirmed).
- The outreach arms shall be welded to the main spigot body around 2 x 40mm diameter holes installed at 180° apart in the body.
- The top of the main body shall be sealed with a closing plate welded to the body.

The steel used in the manufacture of the poles shall be grade 300W to SANS 657-1. Only steel bearing the SANS standardisation mark signifying compliance with the appropriate SANS specification shall be used in the fabrication of the poles. The chemical composition of the steel shall be specified appropriately to ensure that a bright finish to the zinc coating is obtained.

The maximum horizontal and vertical deflections of the two pole types at the spigot when subjected to the design loads due, respectively, to wind and to the self-weight of a double side entry adaptor, 2 luminaires as applicable shall not exceed the values specified in SANS 10225 and included for reference below.

Mounting Height	No. of luminaires on each outreach arm	Mass of each luminaire kg	Projected area of each Luminaire m <sup>2</sup>	Maximum permissible deflection under design loads	
				Horizontal mm	Vertical mm
12 m pole with 2 x 1,5m long outreach	1	20	0,1	SANS10225	50

The minimum thickness of steel used shall be as informed by the design calculations sheet. Poles of reduced cross-section at the access opening will not be considered.

Manufacture shall not commence until the design drawings have been approved by the Engineer. The Contractor shall not depart from the approved drawings except where a variation has been approved by the Engineer in writing.

The poles must be straight and true to within 10 mm in 6 m.

Whenever there is a need for reducing the diameter, it must be swaged down to the required diameter. Pipe reducers are not acceptable. The swaged joint between sections shall achieved within a 285mm swage to obtain the required diameter. No welding at the start of the reduction will be allowed, except the butt welding at the spigot where the smaller diameter fits into the larger diameter.

### F16.3 Corrosion Protection

Unless otherwise stated or implied the whole of the finished work shall be protected internally and externally by hot dip galvanising in accordance with SANS 121.

The mass per unit area of the zinc coating over the whole of the galvanised surface shall not be less than that specified for general applications in Table 3 of SANS 121.

All material shall be substantially free from white rust when delivered. Close attention shall be paid to the manner in which the material is stacked at the galvaniser's works and during subsequent handling prior to delivery.

Material that has been inspected at the galvanizer's or manufacturer's works and passed by the Engineer shall still be liable to rejection if it has been found that white rust, or other defects, have developed between the date of inspection and the date of delivery to site.

### F16.4 Access Openings, Covers, etc

Each pole shall have an access opening of not less than 300mm long and 115mm wide.

A shaped hot dip galvanised steel access cover shall be secured to the pole by means of two stainless steel 8 mm diameter countersunk Allen cap screws (cadmium plated). The screws shall be captive to the cover-plate. A 3 mm thick synthetic rubber gasket shall be fixed to the cover. Details shall be provided by the successful tenderer.

The access cover shall be able to slide along the pole.

The access opening shall be provided with bottom at 3.5m from the finished ground level or as determined by the Engineer.

Alternatively, subject to approval, injection moulded materials or other non-metallic materials may be used for the cover instead of galvanised steel. Full details of any alternative material shall be submitted.

A treated hardwood backboard or gear-plate shall be fixed inside each pole opposite the opening. The top bolt used to fix the backboard to the pole shall be extended to act as an earthing stud and be provided with a washer and two nuts. Alternative earth connection gland plate can be provided. Details shall be provided by the successful tenderer.

The planting depth to obtain the required mounting height shall be marked on the poles in a permanent manner. The method of marking shall be approved by the Engineer prior to manufacture.

All cover plates shall be provided with 8 mm x 15 mm long threaded earth studs, welded to the inside of the cover plate. (The position of the earth stud shall such to ensure maximum travel of the cover plate.)

Each pole shall have two cable entry holes one on each side of the pole. The minimum size of each entry hole shall be minimum 80mm diameter. The one opening shall be directly aligned with the access opening, with the second opening displaced by 180° from the first. Details shall be provided by the successful tenderer.

Cable entry holes shall be machined such that no sharp edges or burrs are present after manufacture. The manufacturer shall ensure that all burrs are removed prior to galvanising.

#### **F16.5 Baseplates**

Poles shall be supplied with a hot dipped galvanized mild steel baseplate at the bottom of the pole.

#### **F16.6 Anti-Rotation Devices**

Poles shall be provided with suitably sized anti rotational "fins" as required.

Angled sections of 50mm x 50mm minimum (or as calculated) shall be used for this purpose.

#### **F16.7 Welding**

All welding shall comply with SANS 10044.

Butt welds shall have 100% penetration and seam welds shall have 60% penetration except for slip joint areas where the penetration shall be 100%.

Butt and seam welds shall be ground flush with the adjacent metal. Butt sections shall be neatly joined without noticeable discontinuity from one section to another.

#### **F16.8 Particulars**

Tenderers shall submit with their tenders:

Full particulars and technical details of the poles offered, including details of the steel used and other requirements as stated in this specification.

A method statement describing the method of manufacture and typical installation of both types shall be included.

A copy of the manufacturer's Certificate of Listing in terms of SANS 9001 shall be included.

Where the tenderer or the tenderer's manufacturer's SANS 9001 certificate has expired in the past 12 months, the tenderer must submit proof of the expired certification including proof that the tenderer or the tenderer's manufacturer is in the process of renewing a Certificate of Listing in terms of SANS 9001. The City reserves the right to cancel the contract should the successful tenderer or the tenderer's manufacturer fail to attain the SANS 9001 certification.

A copy of the Structural Engineer's Professional Indemnity Insurance, Certificate and professional registration number shall be included as part of the tender offer.

A copy of the permit authorising the galvanizer to apply the SANS standardisation mark.

The design of the poles offered shall be supported by full calculations which shall be submitted as part of this tender submission. The calculations shall detail the derivation of resultant nominal wind forces. Failure to submit the required information will result in the tender being ruled non-responsive.

##### **F16.8.1 Tenderers shall also complete and submit with their tenders:**

The Schedule of Manufacturer's Technical Particulars and Equipment Guarantees.

Notwithstanding the submission of design calculations, complete details of the structural performance of the poles shall be entered into this schedule.

The Statement of Compliance or Qualifications by Tenderers.



Tenderers who are not the OEMs of the Galvanised Steel Streetlight Poles and Brackets offered shall provide a letter from the OEM verifying that they are an authorised reseller or distributor of those Galvanised Steel Streetlight Poles and Brackets and providing confirmation by the OEM of full compliance with the Specification, together with all detailed particulars and drawings listed above. The letter from the OEM shall state that the tenderer is an authorized reseller or distributor for the duration of the contract. Such Tenderers shall include details of their experience as authorised resellers or distributors of similar Galvanised Steel Streetlight Poles and Brackets as an annexure to their tender offer.

#### **F16.8.1.1 Marking**

The year of manufacture as well as the pole length, type (light/heavy duty) shall be marked visibly and indelibly inside each pole at access opening. The method of marking shall be to the engineers approval. Heavy duty poles shall be marked "HD" and light duty poles shall be marked "LD" marking immediately below the access opening prior to galvanizing.

A 25mm thick line indicating the planting depth of the pole shall be welded on the pole prior to galvanizing indicating the required planting depth.

The poles shall bear the approved SABS standardisation mark signifying compliance with SANS 121.

Pole covers to be bare marked with "Property of NMBM".

The pole is to be stamped prior to galvanising with the Manufacture's name and date of manufacture. The stamp shall be placed on the outside of the pole 100mm above the access opening centred on the access opening. The font type shall be Arial narrow, font size shall be minimum 10mm with a stamp depth of minimum 0.5mm. The name shall be visible after galvanising.

#### **F16.8.1.2 Inspection and Tests**

During manufacture and prior to despatch, all poles maybe be inspected at the Manufacturer's works by the Engineer both before and after galvanising and, unless otherwise specified, not more than 5% of the poles (but at least one of each type) shall be subjected by the Contractor in the presence of the Engineer to such tests as may be deemed necessary by the Engineer to ensure good quality workmanship. The tests shall be for the contractors account and shall include the following, where applicable:

##### **F16.8.1.2.1 Bending Test (Strength and Stiffness)**

Poles shall be subjected to a bending test to verify the deflections stated by the Tenderer in the Schedule of Manufacturer's Technical Particulars and Equipment Guarantees. The poles shall be clamped vertically and rigidly for a length of 1,5 m from the base, and with specified test loads applied horizontally at a point 300 mm from the top of the pole the temporary deflection produced shall not exceed the values given in 3.33.

The details of the test shall be agreed upon between the Contractor and the Engineer. Where for convenience in testing the pole may be fixed horizontally and the test load applied vertically, the test loads shall be adjusted to compensate for the overhanging mass of the pole. On completion of the tests, the test reports and the type test certificates shall be submitted to the Engineer.

##### **F16.8.1.2.2 Drop Test**

Poles of swaged construction shall be dropped vertically, butt downwards, three times in succession from a height of 2 m on to a hard wooden block 150 mm thick, laid on a concrete foundation. The pole shall withstand this test without showing any signs of telescoping or loosening of joints.

##### **F16.8.1.2.3 Welding Test**

All welds shall be checked visually. If transverse butt welds are to be used, the poles shall be subjected, at each joint, to a bending load which causes the butt weld (half circumference) to be in tension. The load shall be varied according to the section and shall not cause permanent set. The load (or the amount of deflection produced) shall be to the satisfaction of the Engineer and sufficient to ensure that each butt weld is of adequate strength. Any joint in

which cracking occurs shall be ground out to the full thickness of the material, re-welded and tested again.

#### **F16.8.1.2.4 Galvanising Test**

The quality of the galvanising shall be tested in accordance with SANS 121. The surface of the zinc coating shall have a bright finish. Any poles with a dull finish will be rejected. Poles which exhibit discolouration after galvanising will be rejected. Painting as a remedial measure is not acceptable.

In the event of any pole tested in accordance with this clause not fulfilling the test requirements, a further 5% of the poles shall be subjected to the tests enumerated. Should any further failure occur, the whole lot from which the poles have been selected shall be liable to rejection.

All poles shall be tested after galvanising to ensure that there is no internal blockage.

Not less than seven days' notice in writing shall be given to the Engineer when the poles are ready for inspection and tests.

A copy of the Inspection Certificate certifying compliance with SANS 121 shall be submitted to the Engineer for each batch of poles. The items inspected shall be clearly identified on the certificate. The form of the certificate shall be approved by the Engineer.

Unless the Engineer shall otherwise direct, no poles shall be delivered to the City until the Engineer has issued to the Contractor, in respect of such poles, a certificate to the effect that the poles have passed the tests required.

### **F17 TESTS**

The contractor shall take cognizance of the clauses in the SANRAL standard specification dated 1 August 2021 in respect of tests (clause C3.3).

#### **F17.1 Definitions**

##### **F17.1.1 Commissioning procedures:**

The documented method whereby the Contractor shall ensure that the installation is constructed in accordance with the requirements of the applicable manufacturers' specifications, the Engineer 's specification and design, regulations, and codes of practice.

##### **F17.1.2 Performance tests:**

The physical testing in the manufacturing works or on site of the equipment or systems as needed to demonstrate the ability to reach the performance levels specified or required.

##### **F17.1.3 Acceptance tests:**

The physical testing and inspection on site of the system or sub-system to show that it is supplied, installed, and operates generally in accordance with the specifications, design and regulations.

#### **F17.2 Inspection and Tests**

The Engineer reserves the right to inspect any equipment being manufactured in terms of the Contract, and to require that up to 5% of such equipment be subjected to such tests as may be defined in writing by the Engineer prior to delivery to site of the said equipment. All such tests shall be carried out in the presence of the Engineer.

Any waiving of this right does not relieve the Contractor of supplying and installing equipment in full accordance with the Contract and to the approval of the Engineer. In the event of inspection and testing being required the detail of this requirement will be conveyed in writing. The Contractor is required to test the works completed on site, but not energised. This includes the entire street lighting installation (cables and luminaires). Any defects to the installation or defective material recovered during the execution of the works, must be reported to the Engineer or his representative prior to the equipment being incorporated into the permanent works. Failure to do so, may result in the contractor being liable for the repairs of such defects without compensation.

The Contractor is required to provide a testing plan, outlining the type of tests to be conducted and detailing the infrastructure to be tested. As a minimum requirement, the pre-construction testing shall include the following:

- Miniature substation Routine tests in accordance with clause 7.101 to 7.105 of SANS 62271-202: 2014.
- MV Cable pressure tests.
- Insulation resistance tests on all cables installed.
- Luminaire testing to confirm operation.
- Pole wiring and circuit breaker operation.
- Control operation.

### **F17.3 Commissioning**

The Contractor shall supply, as part of the contract documentation and for approval before implementation, the commissioning procedures to be used on the project.

The commissioning procedure will cover in detail all the major items of equipment and sub-systems of the works.

The procedures must allow for the recording in writing and the signing off by a qualified person in terms of applicable regulations for any inspections or tests made in accordance with the procedures. The records and signed documents will form part of the as-built records.

### **F17.4 Performance Tests**

Where required in terms of the commissioning procedure, specification or an instruction, a supplier or Contractor shall carry out on site or at the manufacturer's premises, performance tests on selected equipment or portions of the works. Type test certificates in accordance with appropriate standard specifications will be accepted as performance tests unless otherwise specified.

On-site performance tests will always be carried out on the following:

- Voltage withstand tests of all cabling, wiring and distribution boards.
- The mechanical operation and tripping and control of all LV circuit breakers and all MV switchgear and control gear.
- Earth continuity and resistance.
- Polarity and phase rotation of three phase circuits.
- Rigidity of all fastenings.
- The results of all tests shall be recorded in writing by the Contractor.
- Only a representative sample of performance tests on site will be witnessed.

### **F17.5 Acceptance Tests**

Acceptance tests will be carried out in terms of the commissioning procedure and in particular the following:

- All switching procedures.
- Repetition of selected performance tests on a random basis.
- Operation of the most important control, protection and emergency systems.

On completion of acceptance tests, a test certificate shall be signed by the Contractor and taking-over authority to the effect that the tests specified on the certificate have been completed successfully.

### **F17.6 Responsibility of the Contractor**

The Contractor shall provide not less than seven days' notice in writing of all performance and acceptance tests so that they may be witnessed if considered necessary.

Notwithstanding the attendance at or failure to attend performance or acceptance tests by any witness, the Contractor is responsible for the correctness of the installation in terms of the manufacturers' requirements, the design and specification and applicable regulations and for the preparation of a written record of the tests and test results.

### **F17.7 Record Drawings**

The Contractor shall supply, after approval of the works, three bound sets of operating instructions, parts lists and maintenance manuals covering all items of equipment forming part of the contract.

The Contractor shall supply two bound copies of the records of all inspections and tests carried out in accordance with the commissioning procedures, performance tests and acceptance tests, not later than two weeks after completion of the acceptance tests.

The Contractor shall supply marked up original size, transparency drawings of the as-built installation. The original drawings may be used as the basis for the as-built record provided that the marking up is neat and clearly understandable.

### **F17.8 Measurement**

The unit of measurement for this item shall be the all-inclusive cost to perform the required testing and commissioning test described above. The rate shall be deemed to be exhaustive, and no additional cost shall be entertained. The rate shall include the provision of all documentation as described above.

The rate provided shall exclude the Contractor's on-site testing, which is deemed to be included in the installation rate of individual equipment.

## **F18 MAINTENANCE**

### **F18.1 General**

The contractor shall take cognizance of the clauses in the SANRAL standard specification dated 1 August 2021 in respect of the maintenance of installations (clause C3.4).

The scope of work includes maintenance of the entire installation for a period of 12 months from the date of issue of the Taking-Over Certificate i.e., during the 12-month defects liability period.

The extent of the installation included in the maintenance is the kiosks, masts, poles, electrical cables and equipment, luminaires, and complete lighting management system.

The scope of maintenance and repair shall include but not be limited to:

Responsive maintenance, performed to correct a system or component breakdown/fault

Preventive maintenance or routine maintenance, including setting up and implementation of procedures to service and inspect all components of the system systematically and according to a fixed schedule.

Set up of complete maintenance plan. After initial setup the maintenance plan shall be continuously updated to reflect the most recent maintenance procedures and status.

The maintenance procedures shall be based on manufacturers' guidelines and installers' maintenance experience.

Maintenance shall not interfere with traffic. Notifications and traffic accommodation plans shall be submitted to SANRAL prior to the commencement of any maintenance work.

The contractor shall make extensive use of the Lighting Management System to assist with maintenance e.g.

Respond to alarms/fault notifications

Identify replacement luminaires

Testing of installation and replaced luminaires

### **F18.2 Spares Stock**

The Contractor shall hold sufficient spares stock to cover all equipment replacement necessitated by responsive maintenance, preventative maintenance, accidents and vandalism/theft.

It shall be the responsibility of the Contractor to store the spares and insure the same. SANRAL shall have the right to audit the spares stock.

The Contractor shall procure and pay for the initial spares stock as part of the tendered maintenance rates. During the 12 month defects liability period replenishment of the spares stock shall be for the cost of the Contractor as part of the tendered maintenance rates. Where the Contractor can provide clear evidence of accident, theft or vandalism (e.g. CCTV footage) replenishment of the spares stock will be paid for under the contract at tendered rates plus escalation.

After the 12 month defects liability period has lapsed, replenishment of the spares stock shall be paid for under the contract at tendered rates plus escalation, with the exception of luminaires. Luminaires shall be replaced free of charge given two year guarantee requirement specified in paragraph 2.11.7.

At the end of the maintenance period the Contractor shall hand over the entire spares stock to SANRAL in good working order, at a price to be agreed, together with the asset register/database set up on the LMS.

## **F19 QUALITY ASSURANCE SPECIFICATION**

### **F19.1 General**

This Quality Assurance specification defines the minimum requirements which must be met by the Contractor in respect of quality processes, procedures, and records. This specification shall be read in conjunction with the Project Specification, which defines the extent of work required.

### **F19.2 Quality Assurance System**

The contractor shall prepare and submit a quality assurance system to SANRAL for approval.

The quality assurance system shall include procedures for:

- design and preparation of workshop drawings
- installation
- commissioning
- acceptance testing
- lighting level testing
- documentation control

## **F20 DRAWINGS AND DOCUMENTATION**

The contractor shall take cognizance of the clauses in the SANRAL standard specification dated 1 August 2021 in respect drawings (clauses C3.11 and C3.27).

### **F20.1 Engineers Drawings**

The Engineer's Drawings included with the tender documents are for tender purposes only. Construction drawings shall be issued prior to construction. The Engineer's drawings covering the various sections of the installation are listed in the SCHEDULE OF DRAWINGS.

All details, dimensions and instructions shown on the Engineer's drawings shall form part of this Specification. The drawings generally show the scope and extent of the proposed work and shall not be held as showing every minute detail of the work to be executed.

The position of power supply points, mini-substations, poles, masts, luminaires, cable and sleeve routes may be influenced by site conditions (landscape, etc) and shall be established on site, prior to these items being installed.

If there is any discrepancy in or contradiction between drawings and specifications, it shall be referred to the Engineer in writing for a ruling.

Unless otherwise specified, three sets of paper prints of the Engineer's drawings will be issued to the Electrical Subcontractor for installation purposes.

Where work is incorrect due to failure by the Contractor to consult the working drawings, the cost of corrective or remedial work shall be for his own account.

### **F20.2 Drawings to be submitted with the Tender**

The following drawings and information shall be submitted with the tender:

- Details of masts and foundations of masts including dimension drawings and design calculations
- Drawings of all luminaires
- Drawing of tendered electrical kiosk
- Dimensioned drawing of security fencing enclosure
- Overview drawing of Lighting Management System
- Drawings indicating any special features.

Drawings and information required with the tender is to illustrate specific features such as layout or size of equipment offered.

These drawings are not regarded as workshop drawings. Workshop drawings shall be specifically and separately submitted as specified below.

### **F20.3 Workshop Drawings**

Within 28 days after the electrical sub-contract has been awarded the electrical sub-contractor shall submit two (2) copies of the following drawings to the Engineer for approval:

- Poles: Design calculations and manufacturing drawings
- Mid-hinge masts: Design calculations and manufacturing drawings.
- Detailed dimension drawings including mounting detail of Luminaires
- Kiosks
- Minisubs and associated switchgear

In addition, samples of all luminaires and LMS components shall be submitted for approval.

The Engineer's approval of shop drawings or samples shall not relieve the Contractor of responsibility for any deviation from the requirements of this Contract unless the Contractor has informed the Engineer in writing of such deviations at the time of submission of shop drawings or samples and the Engineer has given written approval for the specific deviation, nor shall the Engineer's approval relieve the Contractor of responsibility for errors or omissions in the shop drawings or samples.

All equipment shall be fully dimensioned showing all fixing details, cable entry positions and other details and dimensions that may be required for construction of foundations.

Electrical and electronic drawings shall consist of detail circuit and wiring diagrams, overall schematic diagrams, and equipment layout and equipment details. The drawings shall also contain the voltage, power, current, resistance and other component values.

All mechanical drawings shall show equipment layouts and details and all static and dynamic loads where this is relevant to the design of foundations and baseplates.

### **F20.4 As-built Drawings**

On receipt of the Engineers Construction Drawings the Contractor shall retain one set at the site office for the purpose of mark up for as-built drawings. This set of drawings shall be marked up with all on-site details and changes as construction progresses.

If the Contractor cannot provide as built drawings for cable routes, then the Engineer will arrange re excavation to determine the positions of cables, joints, etc. All costs for the re- excavations to determine and record the positions of the cables will for the Contractor's cost.

As built drawings shall be submitted of all workshop drawings submitted by the Contractor during the contract period unless the Engineer has granted written exemption.

Submission and approval of submitted as-built drawings is a prerequisite to the issue of the Taking-Over Certificate

#### **F20.5 Drawing Requirements and Standards**

All drawings shall be prepared using AutoCAD and comply with the following standards:

- SANS Code of Practice 0111
- BS 308

All drawing TEXT shall be in English.

Drawing symbols used shall be clearly defined and consistently used. Symbols shall be standardised and generally used such as BS, DIN, or IEC symbols. The Contractor's own concoction of symbols, where standardised symbols exist, will not be accepted.

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## **PART C4: PROJECT INFORMATION**

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## **PART C4: PROJECT INFORMATION**

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### Information Only

All data and descriptions contained in this section of the contract documents are given for information purposes only and cannot be interpreted as prescriptive or as an instruction despite the fact that the text may give the opposite perspective. If any conflict arises between the content of this section and other sections of the contract documents, the latter take precedence.

## C4.1 DESCRIPTION OF THE WORKS

The contract for the upgrading of National Road N2 between Viedgesville and Mthatha consists of 2 sections, being a peri-urban section between the Viedgesville interchange at km 65.6 and DR 08269 intersection at km 78.26, and an urban section which lies between the DR 08269 intersection and Madeira Street in Mthatha at km 85.0.

The project is located in the King Sabata Dalindyebo Local Municipality within the OR Tambo District Municipality.

Currently the posted speed limit for the peri-urban section between Viedgesville (km 65.6) and Ian Woods drive (km 78.45) is 100 km/h and 60km/hr for the urban section between Ian Woods Drive (km 78.3) and Madeira Street (km 85.0).

The Employer's pavement management system, panel inspections and routine road maintenance condition assessment indicates that N2 Section 18 from Viedgesville to Mthatha is in too poor a standard/condition to benefit from maintenance actions and is therefore in need of rehabilitation/upgrading. For this reason and based on the high traffic volumes (AADT>14 000, Ref Section C4.6), the project has been registered as DNURT (Development/New Facility/Upgrading/Single to Dual Carriageway - 4 lane undivided with physical barrier).

The peri-urban section of the N2 is classified as a Class R1 high mobility route. Between km 77.3 and km 78.26 the two carriageways have been separated to form the future ramps that will accommodate the (future) tie in with the Wild Coast Toll Road. Refer Figure C4.1.3 for the typical cross section of this section.

The central portion of the N2 will continue as a Class R1 high mobility route (Wild Coast Toll Road) on the proposed southeastern Mthatha bypass (currently being designed as a separate project) while the left and right carriageways (ramps) merge at the proposed DR 08269 intersection (km 78.26) to form a Class U2 road into the Mthatha CBD which will allow for other roads to join onto it via signalised intersections. Refer to Figure C4.1.1 below for an illustration of the transition from Class R1 to Class U2.

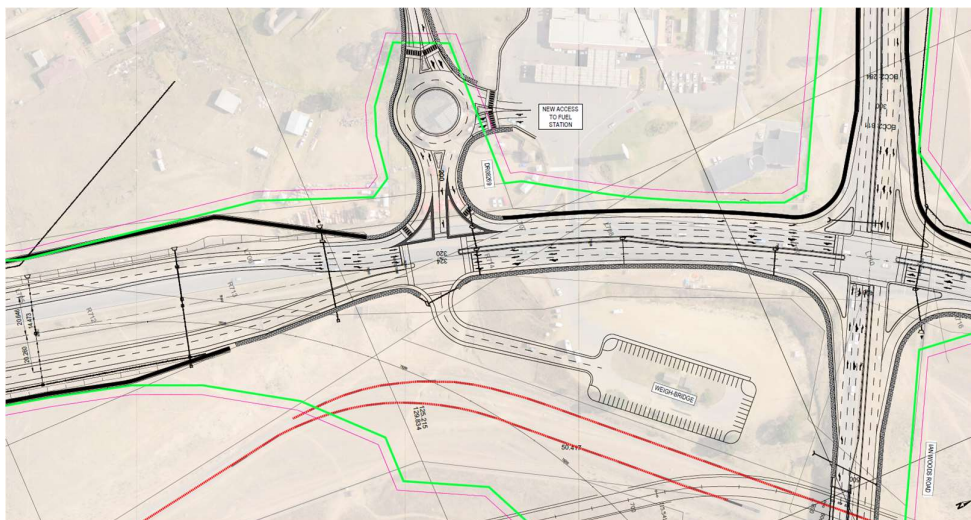
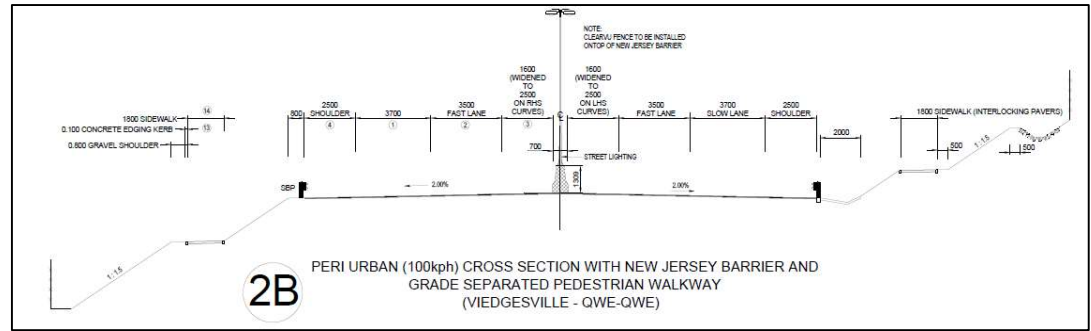


Figure C4.1.1 Road layout at transition from Class R1 to Class U2.

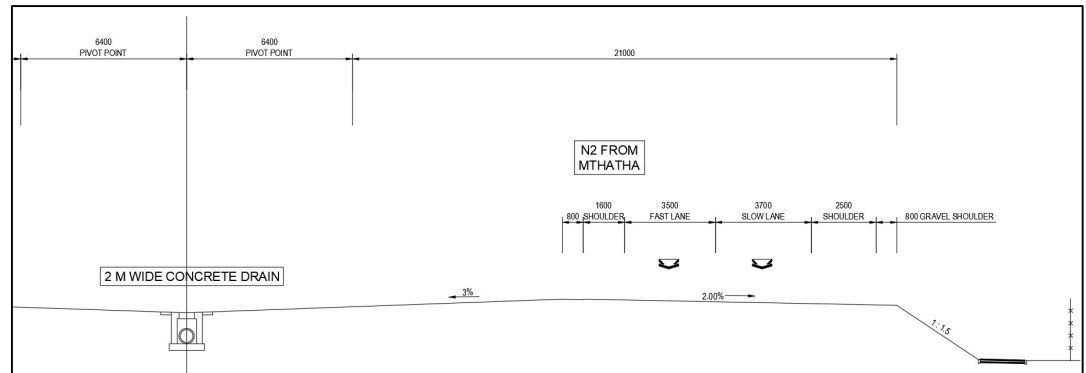
The typical cross section of the (upgraded) N2 peri-urban section between Viedgesville and km 77.3 has a total surfaced width which varies between 11.3m and 12.2, with a concrete median barrier. It has a 2.5m outside shoulder, 3.7m slow lane, 3.5m fast lane and a varying inside

shoulder (1.6m to 2.5m) to provide sight distance on right hand bends . A typical cross-section for the peri-urban section is shown in **Figure C4.1.2**.

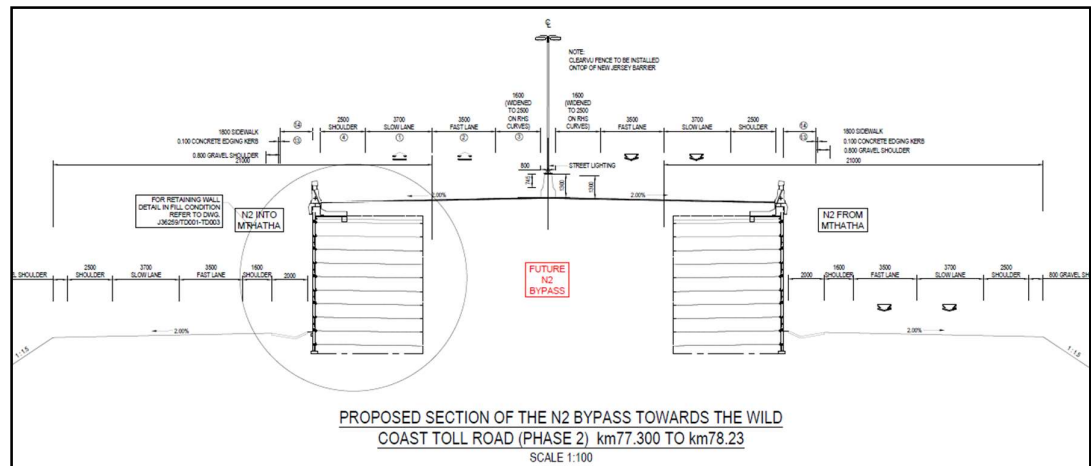


**Figure C4.1.2** Peri-Urban Cross Section between Viedgesville (km 65.3) and km 77.3

The typical cross section of the (separated) N2 peri-urban section between km 77.3 and km 78.23 is indicated in Figure C4.1.3. It has a 2.5m outside shoulder, 3.7m slow lane, 3.5m fast lane and a 1.6m inside shoulder. Figure C4.1.4 provides an illustration of the future Wild Coast Toll Road tie in.



**Figure C4.1.3** Peri-Urban Cross Section between km 77.3 and 78.23



**Figure C4.1.4** Illustration of the future Wild Coast Toll Road tie in.

The typical cross section of each carriageway of the upgraded N2 for the urban section from DR 08269 intersection (km 78.26) to Madeira Street in Mthatha (km 85.4) has a total width of 9.7m with a 2.0m outside shoulder, 3.4m wide inside and outside lanes and 0.3m surfaced shoulder with a 0.3m wide channel. This section has a median varying from 5m to 1.5m. The typical cross section is shown in C4.1.4.

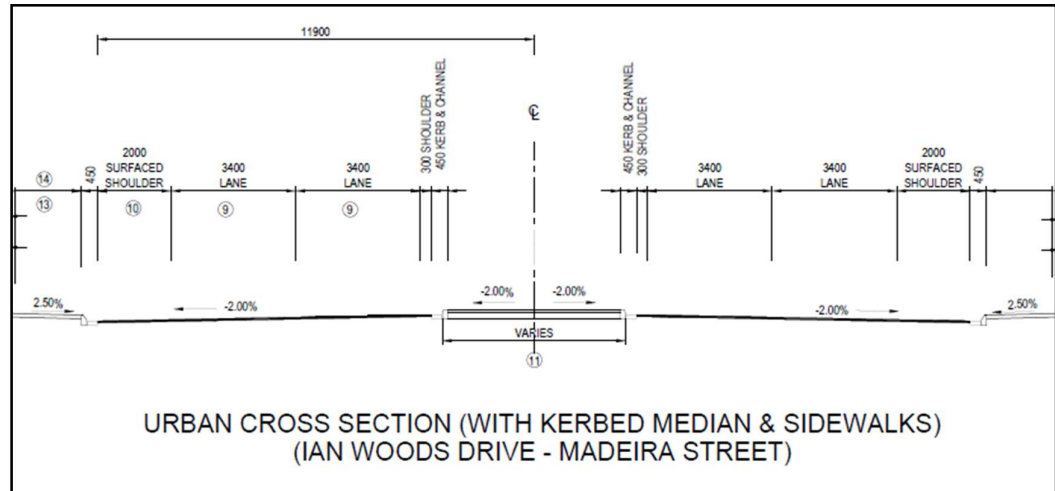


Figure C4.1.4 Typical Cross Section for Urban Section from Ian Woods Drive (km 78.3) to Madeira Street (km 85.4)

To inform the design and assist in implementing a system of access management for the proposed upgrade of the N2 to freeway standard, a pedestrian and public transport study was conducted to determine the movements, destinations and volumes that need to be catered for. Accordingly, the design makes provision for grade separated crossings for pedestrians, walkways for the peri-urban section and sidewalks in the urban area. Provision has also been made for public transport facilities.

Schedule A 2 includes Provisional Sums for Targeted Enterprises to construct 12 km of access collector roads, which work packages shall be awarded via the tender process prescribed in D1007. The access roads form part of the traffic management for construction and must be awarded during the first year of construction.

#### C4.1.1 ROADWORKS

##### (i) General aspects of intended roadworks

- Establishment of the contractor on site;
- Provision of offices and housing for the engineer as well as a shared laboratory which will be under the control of the engineer;
- Detailed ground survey for comparison with the design digital terrain model;
- Accommodation of traffic using offset construction and the construction of deviations where required;
- The opening and rehabilitation of road cuttings and borrowpits to source road construction materials;
- The maintenance of the existing road and/or deviations until the contract has been handed over to the employer; and
- Removal of site camp on completion.

##### (ii) Drainage

- Removal and disposal/extension of existing minor drainage culverts;
- Cleaning and repairing existing stormwater infrastructure in the urban area;
- Installing new stormwater infrastructure on the peri-urban and urban sections, including inlets, outlets and scour mitigation measures;
- The installation of subsoil drains in cuttings as well as other locations as required;
- The construction of concrete lined side drains and grid inlets in cuttings;
- The construction of inlets and down pipes on high fills;
- The construction of concrete lined berms and down chutes at cuttings; and
- The construction of erosion protection measures where required.

##### (iii) Material Requirements and Proposed Sources

There are five (5) existing cuttings which will be significantly impacted by the revised horizontal and vertical alignment in the peri-urban section, which will be a primary source of material. It is proposed to source materials partially from the cuttings and partially from commercial sources.

Refer to Figure C4.1.5 - material requirements and proposed sources for the project. The following assumptions have been made:

- The total cut available amounts to 950 810 m3, measured in place (tight).
- It was conservatively assumed that approximately 30% of the cut will be unsuitable. The geotechnical report indicates that rockfill, pioneer layer, bulk fill and (crushed) selected/capping layer material can be obtained from the cuttings.
- For hard rock from cuttings a bulking factor of 30% has been assumed for spoil and 20% for fill.
- Materials calculations therefore indicate that the borrow pits will not be required because sufficient good quality rock is available in the cuttings.
- To ensure that pioneer layer and bulk fill material is available during the startup phases prior to the contractor having access to material from the cuttings, allowance has been made for 246 000m3 of fill (33%) and 130 000m3 of pioneer material (33%) to be sourced commercially.
- The establishment of a two-stage crusher and crushing and screening will be included in the schedule of quantities for breaking down hard material from the cuttings for use as selected subgrade, capping layer for pioneer layer and bedding and backfill to minor and major culverts.
- 100% of the materials for the road pavement layers, concrete and surfacing aggregates, gabion rock etc will be sourced commercially.
- All the road construction material required for the community access roads will be obtained from commercial sources.

The intention is to source approximately 49% of the road building materials from commercial quarries. The bulk of this quantity will be sourced from Targeted Enterprise (TE) material supplier/s via an open tender process. Provision has been made under Section D1000 for the additional costs associated with TE material suppliers.

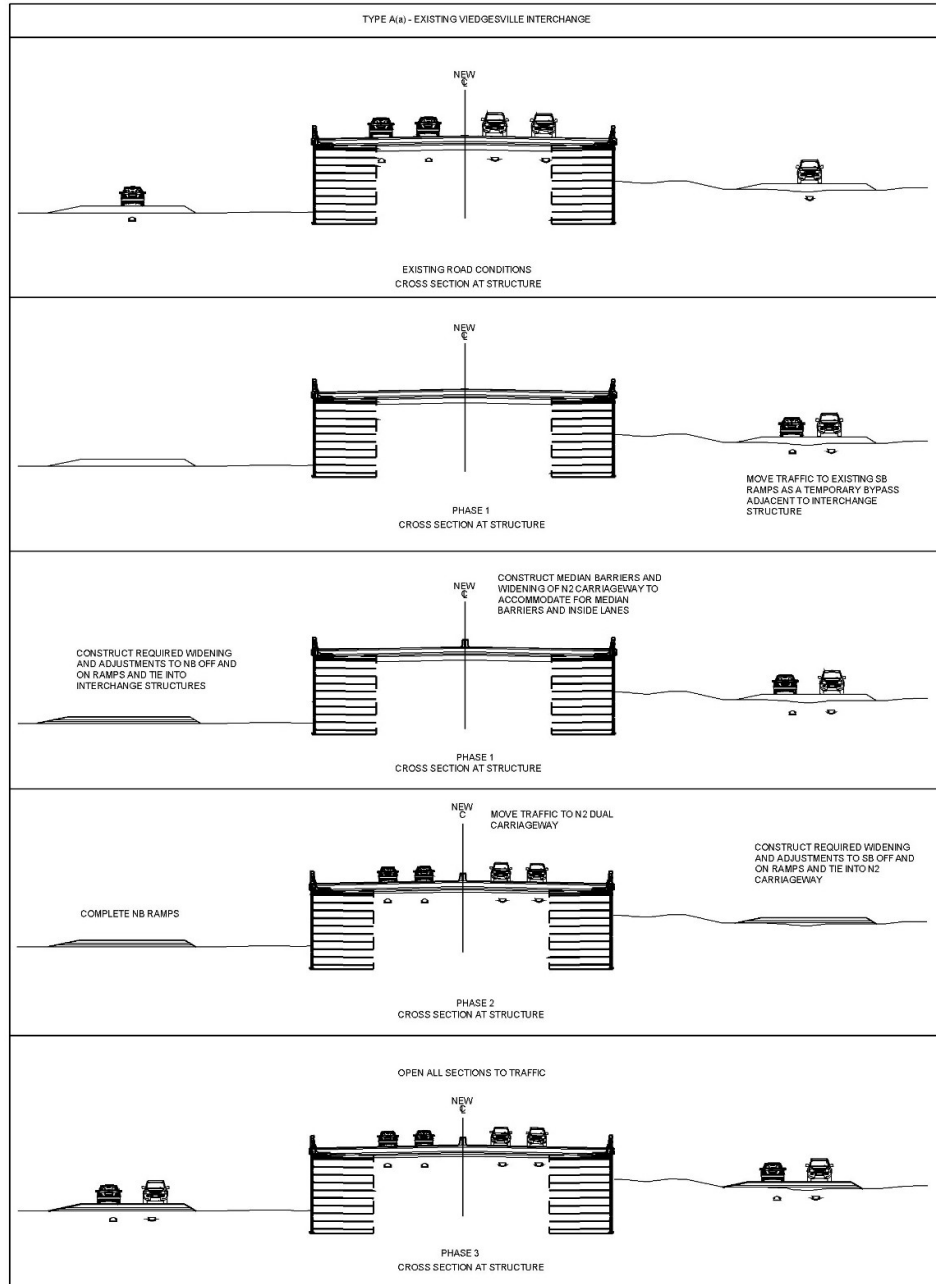
Summary	unit	Main Project and deviations	Access roads	Total	
G1 Base	m3	73 000.00	-	73 000.00	
Macadam base	m3	-	5 000.00	5 000.00	
G5 for C3 subbase	m3	152 000.00	-	152 000.00	
G5 - unstabalised	m3	11 000.00	-	11 000.00	
G6/G7 SSG	m3	242 000.00	16 000.00	258 000.00	
Pioneer layer	m3	120 000.00	10 000.00	130 000.00	
Pioneer layer	m3	267 350.14	-	267 350.14	
Bulk Fill	m3	392 321.30	-	392 321.30	
Bulk Fill	m3	110 100.00	26 000.00	136 100.00	
Rockfill	m3	110 000.00	-	110 000.00	
Rockfill	m3	110 100.00	-	110 100.00	
Capping stone	m3	94 337.54	-	94 337.54	
Gabion Stone	m3	11 000.00	3 000.00	14 000.00	
Concrete Stone	m3	12 000.00	3 000.00	15 000.00	
		<b>1 705 208.98</b>	<b>63 000.00</b>	<b>1 768 208.98</b>	<b>TOTAL</b>
		864 008.98	51%	864 008.98	CUT/BORROW
		841 200.00	49%	904 200.00	COMMERCIAL

Figure C4.1.5 - material requirements and proposed sources for the project

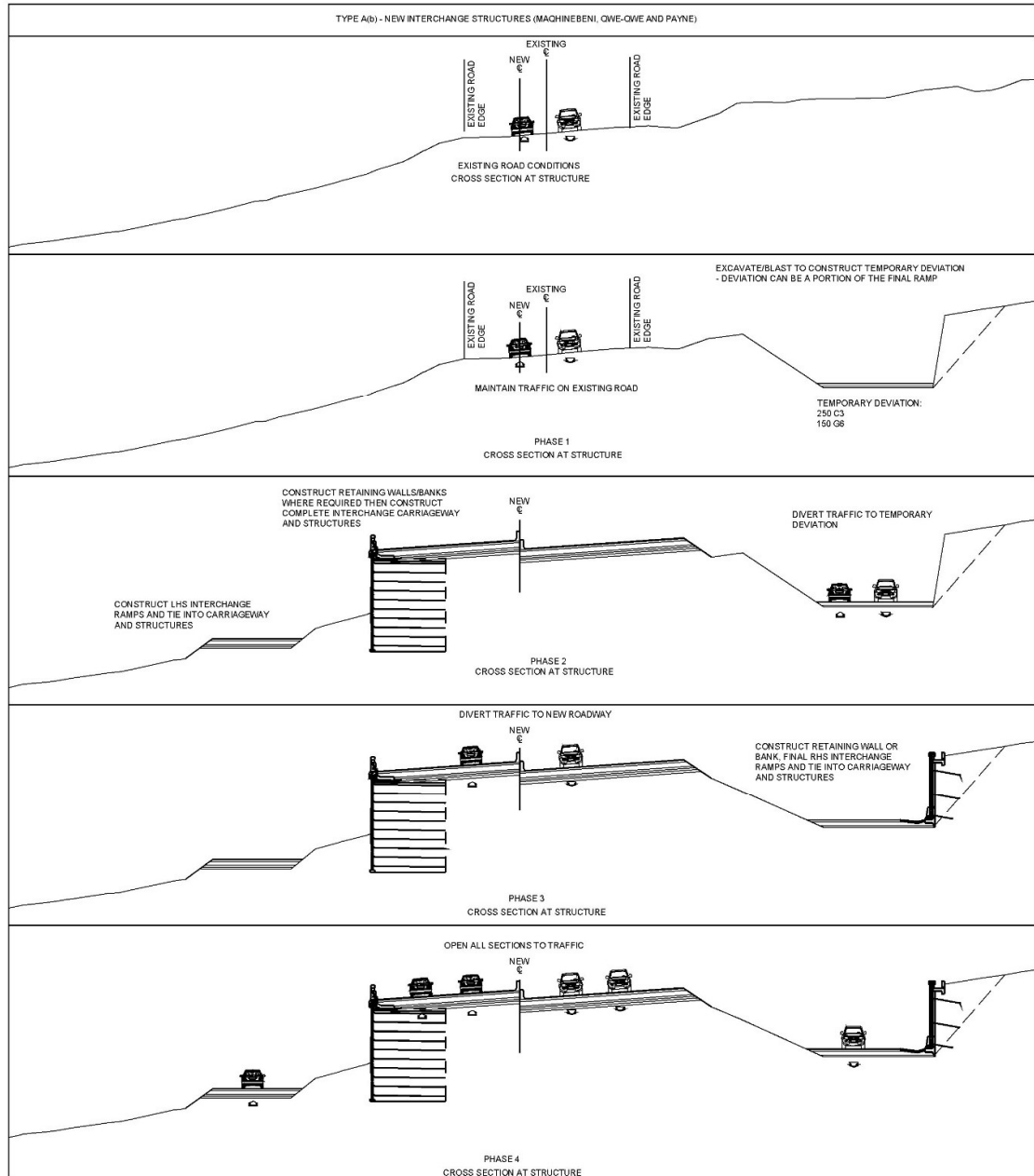
#### C4.1.2 PERI-URBAN TRAFFIC ACCOMMODATION

(i) **Type A(a)** – Existing Viedgesville Interchange - The traffic accommodation strategy is as follows:

- Phase 1: Construction of the median barriers, widening of N2 carriageway to accommodate barriers and inside lanes and widening of north bound interchange onramp as required, while traffic is moved to the existing south bound interchange ramps;
- Phase 2: Widening south bound interchange offramp where required and tying into newly upgraded N2 carriageway, while traffic is moved onto newly upgraded N2 carriageway and north bound interchange ramps;
- Phase 3: Open upgraded N2 to traffic.

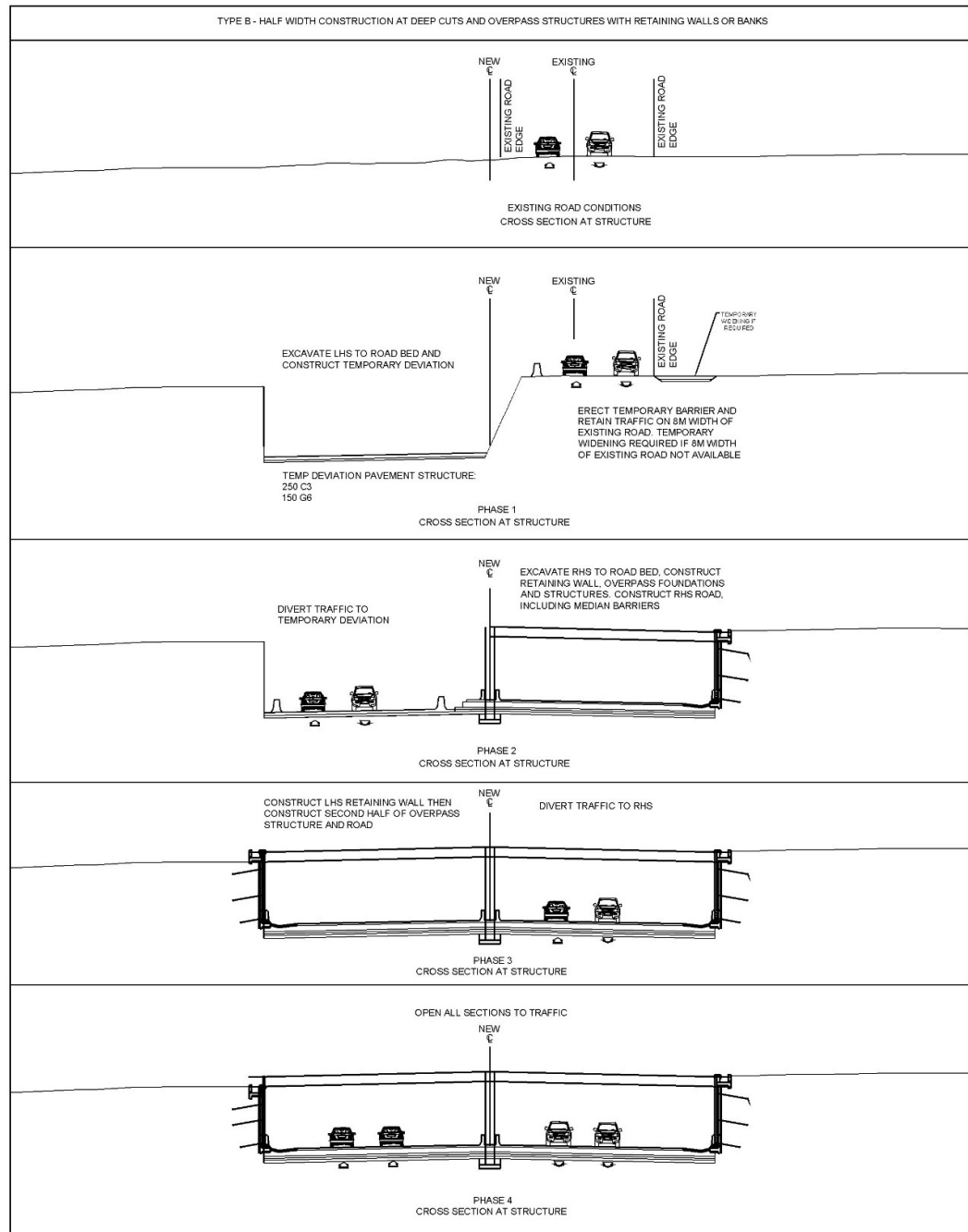


- Phase 1: Construction of temporary deviations on south bound ramps adjacent to interchange structures, which will include hard excavation to roadbed level, roadbed treatment and selected layers for portions of the (permanent) interchange ramps, while traffic maintained on the existing N2;
- Phase 2: Construction of new interchange structures, new N2 dual carriageway to tie into interchange structures and north bound interchange ramps, while traffic is diverted onto the temporary bypasses;
- Phase 3: Final construction of the south bound interchange ramps and tie into interchange structures;
- Phase 4: Open upgraded N2 to traffic.



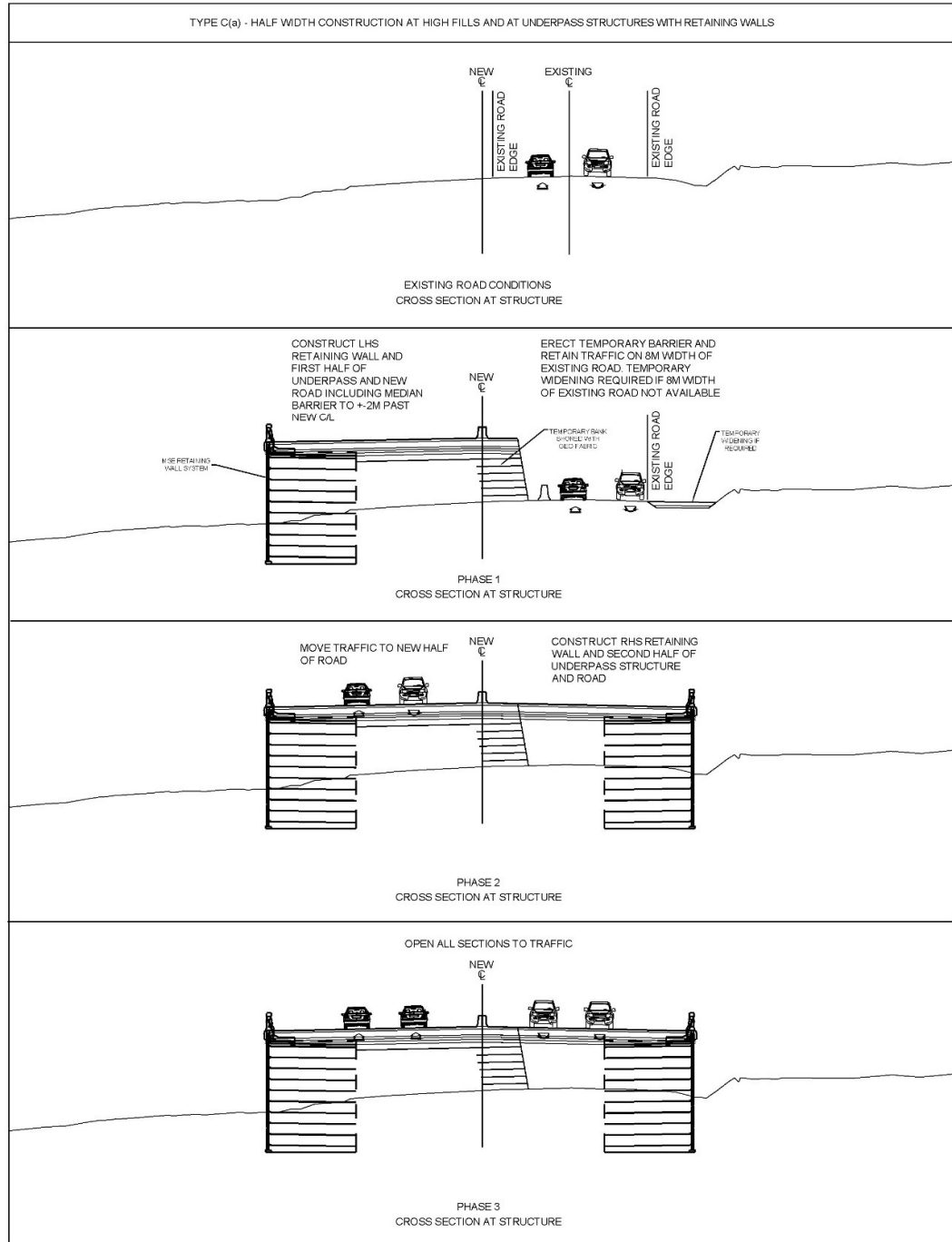
(iii) **Type B** - Half width construction at deep cuts and pedestrian overpasses - The general strategy for traffic accommodation is as follows:

- Phase 1: Excavate LHS carriageway to roadbed and construct as temporary deviation, retain traffic on existing road. Existing road to be widened to accommodate traffic if required;
- Phase 2: Divert traffic onto temporary deviation and excavate RHS to roadbed and excavate for pedestrian bridge foundation. Construct the pedestrian bridge pier and construct RHS carriageway final pavement structure and bridge over RHS carriageway.
- Phase 3: Divert traffic onto the RHS carriageway and construct LHS carriageway to its final pavement structure and the remaining LHS overhead pedestrian bridge.
- Phase 4: Open upgraded N2 to traffic.



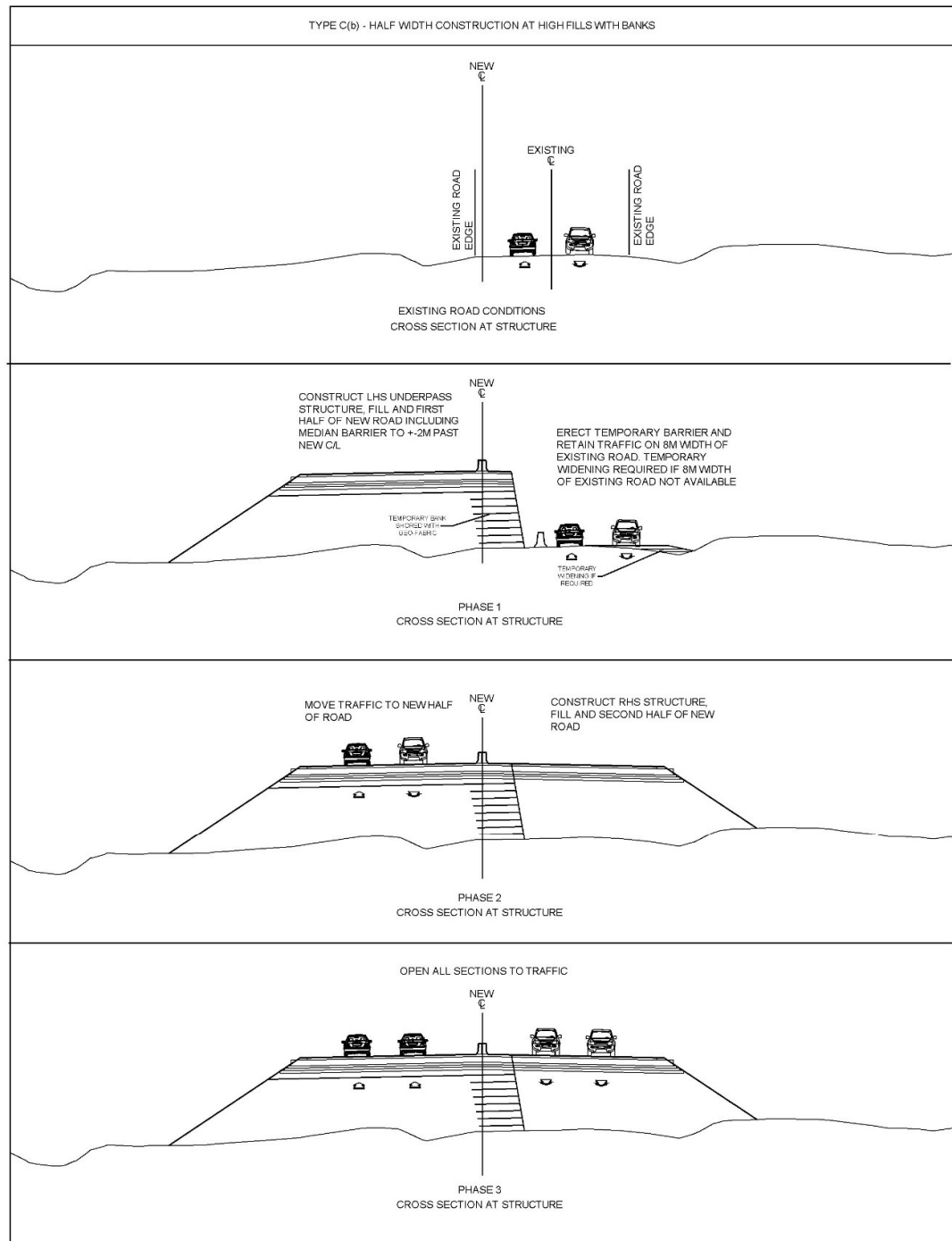


- (iv) **Type C(a)** – Half width construction at high fills and underpass structures with retaining walls – The general strategy for traffic accommodation is as follows:
- Phase 1: Construct LHS retaining walls, half of underpass structure, layerworks (steep bank adjacent to road centreline to be secured using geofabric shoring system) and final pavement structure, including median barriers, while maintaining traffic on existing roadway. Existing road to be widened if required;
  - Phase 2: Divert traffic to upgraded LHS, while tying into temporary steep bank with RHS layerworks and constructing RHS retaining walls, underpass structure and final pavement structure;
  - Phase 3: Open upgraded N2 to traffic.

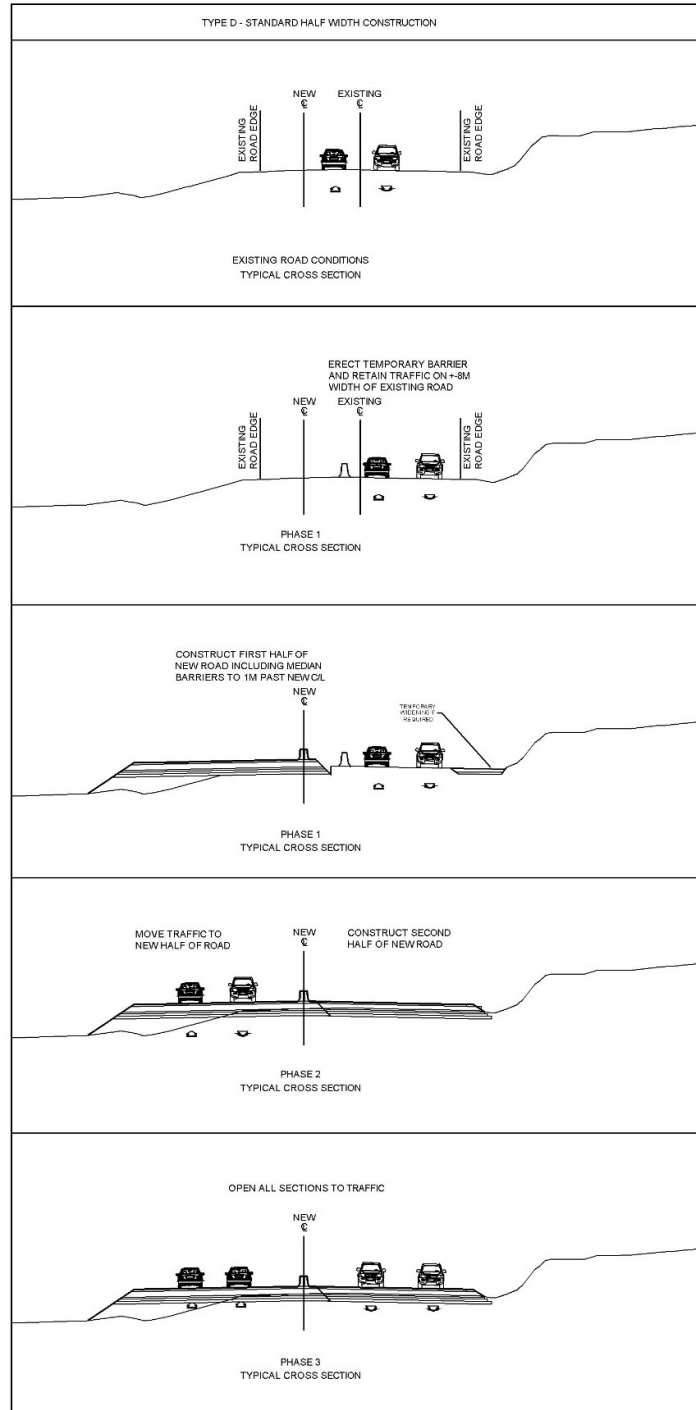


(iv) **Type C(b)** – Half width construction at high fills with banks – The general strategy for traffic accommodation is as follows:

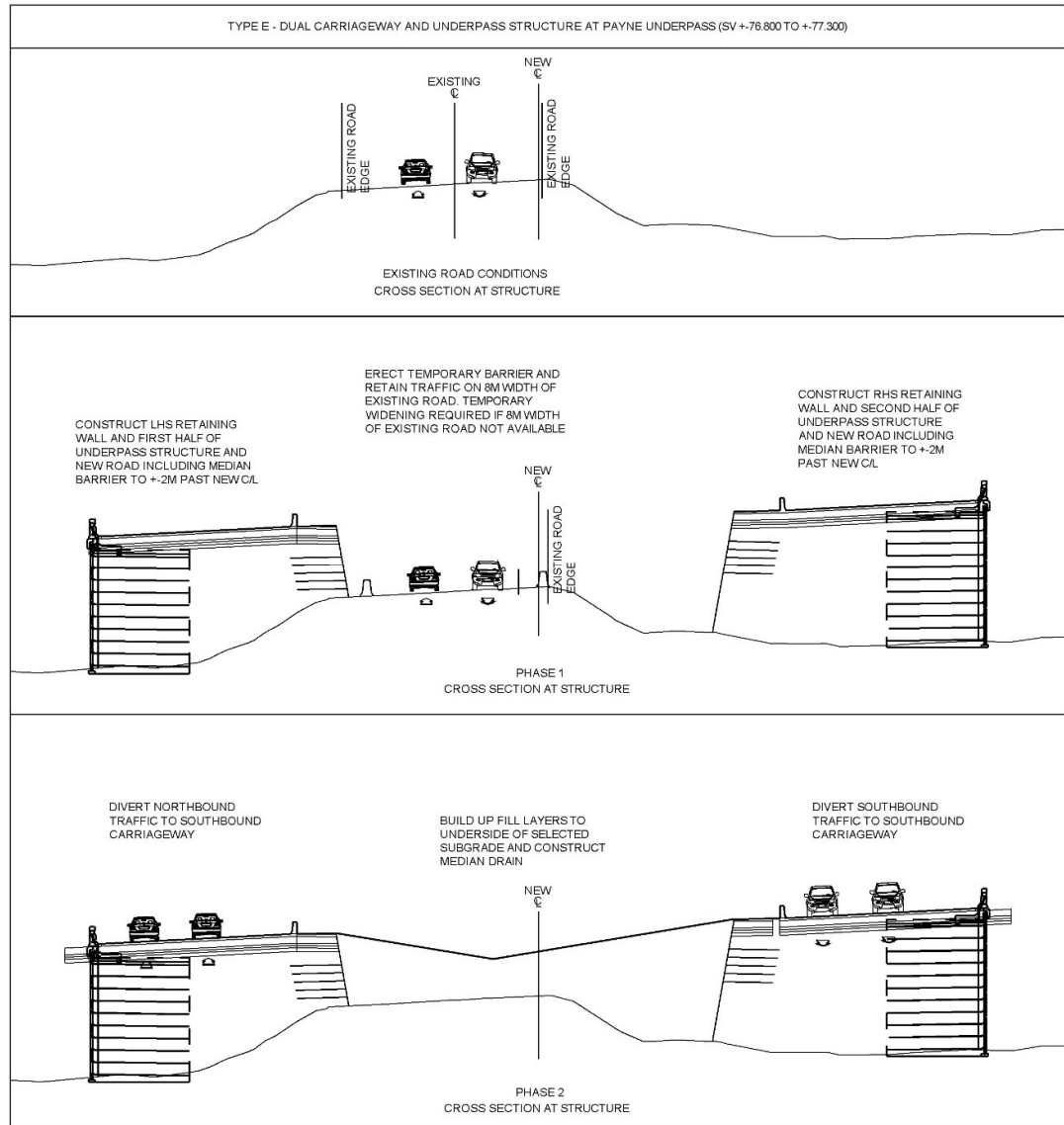
- Phase 1: Construct LHS layerworks (steep bank adjacent to road centreline to be secured using geofabric shoring system) and final pavement structure, including median barriers, while maintaining traffic on existing roadway. Existing road to be widened if required;
- Phase 2: Divert traffic to upgraded LHS, while tying into temporary steep bank with RHS layerworks and construct final pavement structure;
- Phase 3: Open upgraded N2 to traffic.



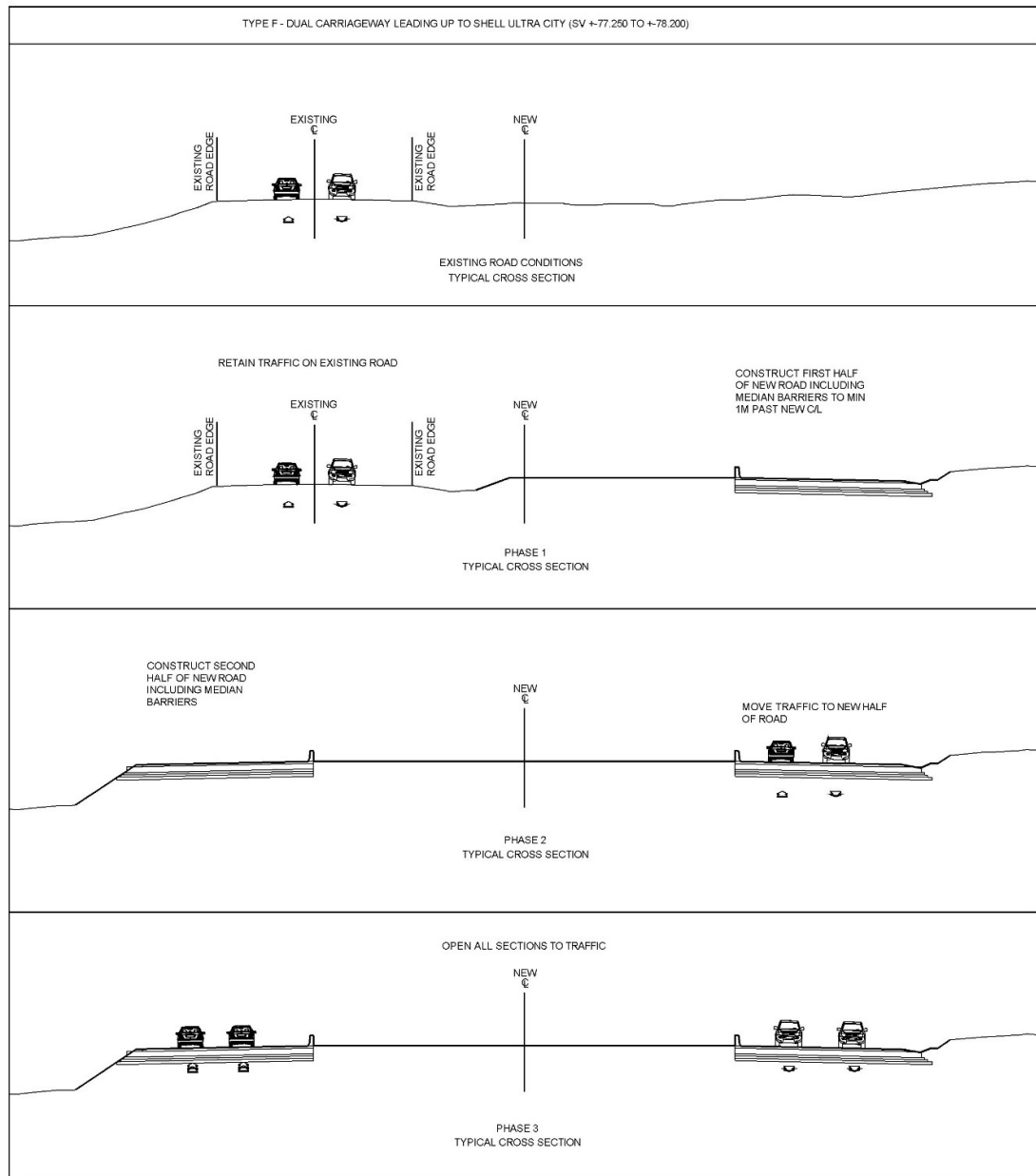
- (v) **Type D** – Standard half width construction – The general strategy for traffic accommodation is as follows:
- Phase 1: Retain traffic on RHS of existing roadway (existing road to be widened if required), while constructing LHS pavement structure.
  - Phase 2: Divert traffic onto upgraded RHS road, while constructing LHS pavement structure.
  - Phase 3: Open upgraded N2 to traffic.



- (vi) **Type E** - Dual carriageway and underpass structure at Payne underpass (+/- Km 76.80 to +/- Km 77.30) – The general strategy for traffic accommodation is as follows:
- Phase 1: Construct LHS and RHS layerworks (steep banks either side of road centreline) to be secured using geofabric shoring system), underpass structures and final pavement structures, including median barriers, while maintaining traffic on existing N2 carriageway. Existing road to be widened if required;
  - Phase 2: Divert traffic to upgraded LHS and RHS carriageways, while tying into temporary steep banks with median fill layers and structures;
  - Phase 3: Open upgraded N2to traffic.



- (vii) **Type F** – Dual carriageway leading up to Shell Ultra City (SV +77.25Km to +- 78.20Km)  
 – The general strategy for traffic accommodation is as follows:
- Phase 1: Retain traffic on existing LHS carriageway while constructing RHS carriageway pavement structure;
  - Phase 2: Divert traffic to new RHS carriageway, while constructing LHS carriageway and pavement structure.
  - Phase 3: Open upgraded N2 to traffic.



#### C4.1.3 URBAN TRAFFIC ACCOMMODATION

The Urban Section has been split into two sub-sections. Urban Section 1 is from the DR 08269 intersection at km 78.26 to the intersection with Eli Spilken Street (km 82,48) and Urban Section 2 is from Eli Spilken Street (km 82,48) to Madeira Street (SV 85.0).

**Urban Section 1** upgrade requires the existing N2 to be upgraded to a dual carriageway by means of creating a paved median island and a new north bound (NB) carriageway on the left-hand side of the existing N2. For the existing south bound (SB) carriageway, which is only scheduled

for rehabilitation, adjustments to the vertical alignment are limited by existing access constraints, therefore any vertical adjustment required during the strengthening of the existing pavement will be limited to 80mm.

#### Urban Section 1 Traffic Accommodation

- Retain (two-way) traffic on the existing N2 single carriageway.
- Construct the new, NB carriageway and kerbing for the new median island.
- Construct kerbing and the new sidewalk on the NB carriageway.
- Divert the N2 traffic to the newly constructed carriageway in a contraflow condition.
- Upgrade the pavement of the existing N2 to form the new SB carriageway and complete the construction of the median island.

**Urban Section 2** consists of rehabilitation and strengthening of the existing pavement, as well as the addition of dedicated turning lanes.

#### Urban Section 2 Traffic Accommodation

- Traffic Accommodation along Urban Section 2 will be implemented by means of contraflow whereby two-way traffic is diverted to the SB carriageway, with a single lane in each direction.
- Upgrade the pavement of the existing NB carriageway.
- Divert the N2 traffic to the rehabilitated NB carriageway in a contraflow condition and upgrade the pavement of the existing NB carriageway.

#### (viii) Ancillary Roadworks

The following ancillary works will be implemented:

- Gabions;
- Stone pitching;
- Guardrails;
- Fencing;
- Road Marking;
- Road Signage;
- Trimming, cleaning, top soiling and grassing the road reserve borrowpits.

Refer to section D, whereby certain works have been identified for sub-contracts using SMME subcontractors in order to achieve the Contract Participation Goal.

### C4.1.4 PAVEMENT DESIGN FOR ALL PARTS OF THE VARIOUS ROADS

There is a difference in anticipated traffic and remedial actions between the Peri-Urban and Urban sections. The Peri-Urban section requires a new pavement design due to geometric realignment, while the Urban section requires rehabilitation/strengthening with limited geometric upgrading due to physical constraints in the design of the section.

#### **Peri-Urban Section** (Viedgesville km65.3 to the DR 08269 intersection at km 78.26:

- Surfacing (45mm medium continuously graded asphalt using A-P1 binder)
- Base (150mm G1)
- Subbase (300mm C3 using G5A material)
- Upper Selected (150mm G6)
- Lower Selected (150mm G7)
- Subgrade treatment per engineers' instruction

Ramps and underpass roads at interchanges will receive the same pavement structure, with the exception that the C3 layer will be reduced to 200mm thickness.

In terms of pavement design, the Urban section has been split into two sections due to differing existing pavement layers and construction requirements which will aid in adjusting the vertical alignment and repairing the structural defects on the pavement.

#### **Urban Section 1** (Ian Woods Drive km78.3 to Blakeway Road km82.92)

- Mill off the existing AC and 40mm of existing G4 basecourse to stockpile (Total Milling Depth 100mm).
- Insitu recycle the remaining base, including a portion of the existing subbase to form a 200mm thick, C3 subbase.
- Pave a 140mm EME base (in two layers) and a 45mm A-P1 AC wearing course, thereby raising the surface by 85mm)

For the road widening (to create a new northbound carriageway) in Urban Section 1, the pavement design the table below is proposed, whereby the AC, EME and C3 layers match the rehabilitation design of the existing road, by means of a 300mm selected subgrade (G6 minimum quality) below the subbase.

- Surfacing (45mm medium continuously graded asphalt using A-P1 binder)
- Base (150mm G1)
- Subbase (300mm C3 using G5A material)
- Upper Selected (150mm G6)
- Lower Selected (150mm G7)
- Subgrade treatment per engineers' instruction

**Urban Section 2** (Blakeway Road km82.92 to Madeira Street Mthatha km 85.0) includes:

- Mill off the existing AC and 40mm of existing G4 basecourse to stockpile (Total Milling Depth 80mm).
- Insitu recycle the remaining base, including a portion of the existing subbase to form a 200mm thick, C3 subbase.
- Pave a 100mm EME base (in two layers) and a 45mm A-P1 AC wearing course, thereby raising the surface by 65mm.

#### **C4.1.5 STRUCTURAL WORKS**

##### **(i) EXISTING CULVERTS**

There are 3 existing drainage culverts in the “major” and “lessor” SANRAL culvert structure categories on the N2-18 covered by this project, these consist of Armco pipes with variable fill height cover, which requires replacement under this contract with in-situ reinforced concrete cellular box construction, as follows:

##### **(C738) Stormwater Culvert at Km 73.97**

Existing 2.45m diameter Armco pipe (C738) at 90° skew is to be demolished and replaced at the same position, skew and basic invert alignment with a new single cell 1.5m (W) x 1.5m (H) x ±40.0m (L) precast culvert with ±4.0m fill height cover and guardrails on steel posts on concrete plinths, to suit hydraulic and roadworks upgrading, with new inlet/outlet splayed cantilever wing wall and concrete apron slab structures. Energy dissipaters will be provided on the outlet apron slab with erosion protection comprising gabion boxes and mattresses installed to both the inlet and outlet structures.

##### **(IDC0287) Stormwater Culvert at Km 74.60 – Upgraded To C0943 - Agricultural Underpass Culvert at km 74.598:**

Existing 2.10m diameter Armco pipe (IDC0287) at 90° skew is to be demolished and replaced at the same position, skew and basic invert alignment with a new single cell 4.5m (W) x 5.2 m (H) x 24.83m (L) ±4.0 fill height. A 900mm diameter pipe will be laid alongside it to accommodate minor stormwater flows up to 1:5 year storms, thereafter the water will flow through the underpass structure. Energy dissipaters will be provided on the outlet apron slab with erosion protection comprising gabion boxes and mattresses installed to the outlet structure.

**(C771) Stormwater Culvert at Km 77.30**

Existing 3.10m diameter Armco pipe (C771) at 0° skew is to be demolished and replaced at the same position, skew and basic invert alignment with a new cast in-situ single cell 1.5m (W) x 1.5m (H) x 55.0m (L) precast culvert adjacent to **B0677** - new underpass bridge (to carry 1:5 year stormwater flow), with ±3.6m fill height cover and guardrails on steel posts on concrete plinths, to suit hydraulic and roadworks upgrading, with new inlet/outlet splayed cantilever wing wall and concrete apron slab structures. Energy dissipaters will be provided on the outlet apron slab with erosion protection comprising gabion boxes and mattresses installed to both the inlet and outlet structures.

All Culvert replacements are to be done using half width type construction maintaining single lane 2 way traffic which is facilitated by the new road widening being offset, providing temporary lateral support along the roadway as necessary for the culvert excavation, demolition and construction works.

**(ii) NEW MAJOR CULVERTS AND AGRICULTURAL UNDERPASSES**

**C0936 – Pedestrian Underpass Culvert at Km 66.402**

C0936 is a single cell 2.5m x 2.5m cast in-situ box culvert with a total length of 30.179 m from cut-off wall to cut-off wall at an angle of 0° skew.

**C0941 – Cattle Creep Culvert at Km 69.618**

C0941 is a single cell 3m x 3m cast in-situ box culvert with a total length of 30.770 m from cut-off wall to cut-off wall at an angle of 0° skew. The culvert is a cattle creep underpass.

**C0937 – Agricultural Underpass Culvert at Km 70.773**

C0937 is a single cell 4.5m x 5.2m cast in-situ box culvert with a total length of 32.870 m from cut-off wall to cut-off wall at an angle of 106.270° skew. The culvert is an agricultural underpass.

**(iii) BRIDGES**

There are 5 new bridges covered by this project to eliminate the existing at grade intersections with the N2 that are to be constructed under this contract, as follows:

**B0674 Maqhinebeni Payne Portal Underpass at Km 68.193:**

B0674 is a road underpass bridge that is a cast in-situ, solid slab, reinforced concrete, portal type frame with an opening span of 20.2m long at a skew angle of 1°. The overall bridge length is 25.734m. The bridge is 24.280m wide between parapets to provide for a dual carriageway divided by a 0.8m median.

The deck soffit is parabolic in shape, varying in thickness from 1.2m at the portal legs to 0.9m at the centre of the deck. The walls taper from 1.2m thick at the start of the parabola to 0.9m at the base. The road embankment is retained by mass stabilised earth retaining walls founded on spread footings.



**B0675 Qwe-Qwe Payne Portal Underpass at Km 72.504:**

B0675 is a road underpass bridge that is a cast in-situ, solid slab, reinforced concrete, portal type frame with an opening span of 20.2m at a skew angle of 1°. The overall bridge length is 25.735m. The bridge is 27.735m wide between parapets to provide for a dual carriageway divided by a 0.8 wide median.

The deck soffit is parabolic in shape, varying in thickness from 1.2m at the portal legs to 0.9m at the centre of the deck. The walls taper from 1.2m thick at the start of the parabola to 0.6m at the base. The road embankment is retained by mass stabilised earth retaining walls founded on spread footings.

**B0676 Payne Portal Underpass at Km 75.875:**

B0676 is a road underpass bridge that is a cast in-situ, solid slab, reinforced concrete, portal type frame with an opening span of 20.2m long at a skew angle of 1°. The overall bridge length is 25.255m. The width of the bridge is 22.600m. The bridge is supported on spread footings, founded on sandstone.

The deck soffit is parabolic in shape, varying in thickness from 1.2m at the portal legs to 0.9m at the centre of the deck. The walls taper from 1.2m thick at the start of the parabola to 0.9m at the base. The road embankment is retained by mass stabilised earth retaining walls founded on spread footings.

**B0677 Payne Farm Portal Underpass at Km 77.153**

B0677 at KM 77.154 is a road underpass bridge that is a cast in-situ, solid slab, reinforced concrete, portal type frame with an opening span of 13.100m at a skew angle of 0°. The overall bridge length is 15.100m and the width of the bridge is 52.038m. The bridge is supported on spread footings, founded on sandstone.

The deck soffit is parabolic in shape, varying in thickness from 1.0m at the portal legs to 0.9m at the centre of the deck. The walls taper from 1.0m thick at the start of the parabola to 0.7m at the base. The road embankment is retained by mass stabilised earth retaining walls founded on spread footings.

**B0678 Road Over Rail Bridge at Km 78.450**

B0678 is a rail over road bridge that has a simply supported span of 25.900m which is supported by two perched type abutments. The bridge has an overall length of 27.005m. The width of the bridge is 12.650m, at a skew angle of 15.43°. The bridge deck comprises of pre-tensioned, precast, M10 concrete beams with in-situ concrete. All foundations consist of reinforced concrete piles.

(iv) **PEDESTRIAN BRIDGES**

Five new overpass bridges are to be constructed to provide safe pedestrian passage across the new freeway:

**B0669 Pedestrian Overpass at Km 67.221:**

B0669 is a pedestrian bridge that is a simply supported, two span multi-beam with connecting slab and quarter spaced diaphragms. The spans are 17.445m long and the overall bridge length is 41.140m. The width of the bridge is 3.100m, at a skew angle of 0°. The pedestrian bridge has a median pier with spread footings and abutments with ramps on spread footings. All spread footings are founded on soft to medium to hard mudstone. 1.1m high precast concrete hand rails and bolted-on circular shaped steel tube and wire mesh protection cage are to be constructed over the full deck length.

**B0670 Pedestrian Overpass at Km 68.883:**

B0670 is a pedestrian bridge that is a simply supported, two span multi-beam with connecting slab and quarter spaced diaphragms. The spans are 17.655m and 16.755m long respectively and the overall bridge length is 35.800m. The width of the bridge is 3.100m, at a skew angle of 0°. The pedestrian bridge has a median pier with spread footings and abutments with ramps on spread footings. All spread footings are founded on soft to medium to hard mudstone. 1.1m high precast concrete hand rails and bolted-on circular shaped steel tube and wire mesh protection cage are to be constructed over the full deck length.

**B0671 Pedestrian Overpass at Km 71.642:**

B0671 is a pedestrian bridge that is a simply supported, two span multi-beam with connecting slab and quarter spaced diaphragms. The spans are 17.655m long and the overall bridge length is 36.700m. The width of the bridge is 3.100m, at a skew angle of 0°. The pedestrian bridge has a median pier with spread footings and abutments with ramps on spread footings. All spread footings are founded on soft to medium to hard mudstone. 1.1m high precast concrete hand rails and bolted-on circular shaped steel tube and wire mesh protection cage are to be constructed over the full deck length.

**B0672 Pedestrian Overpass at Km 74.236**

B0672 is a pedestrian bridge that is a simply supported, two span multi-beam with connecting slab and quarter spaced diaphragms. The spans are 17.655m and 16.755m long respectively and the overall bridge length is 35.800m. The width of the bridge is 3.100m, at a skew angle of 0°. The pedestrian bridge has a median pier with spread footings and abutments with ramps on spread footings. All spread footings are founded on soft to medium to hard mudstone. 1.1m high precast concrete hand rails and bolted-on circular shaped steel tube and wire mesh protection cage are to be constructed over the full deck length.

**B0673 Pedestrian Overpass at Km 75.103**

B0673 is a pedestrian bridge that is a simply supported, two span multi-beam with connecting slab and quarter spaced diaphragms. The spans are 16.755m long and the overall bridge length is 34.900m. The width of the bridge is 3.100m, at a skew angle of 0°. The pedestrian bridge has a median pier with spread footings and abutments with ramps on spread footings. All spread footings are founded on soft to medium to hard mudstone. 1.1m high precast concrete hand rails and bolted-on circular shaped steel tube and wire mesh protection cage are to be constructed over the full deck length.



Figure C4.1.10: Proposed pedestrian bridge profile

(v) **RETAINING WALLS**

There are 16 new fill retaining (MSE) walls on the project route, the details of each wall are shown in the table below.

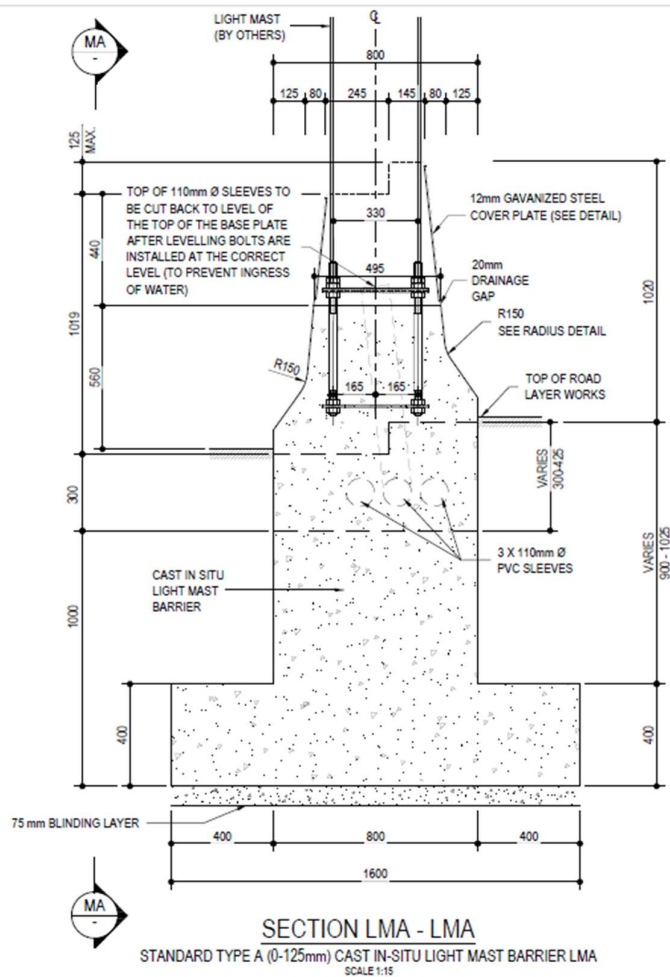
Walls in Fill								
Wall number NWTN:	Location: LHS/RHS	Chainage on N2 - 18 (km)		Length Fill	Height		Average Height (m)	Estimated Area (m²)
		From	To		Max	Min		
1	LHS	65.4	65.76	360	3.6	0.43	2.19	788
2	LHS	66.22	66.66	440	5.59	0.15	3.19	1405
4	LHS	67.96	68.22	260	6.53	1	4.14	1076
6	LHS	70.72	71.06	340	11.85	5.51	8.25	2803
8	LHS	72.4	72.56	160	7.76	4	5.87	940
9	LHS	72.62	72.9	280	6.92	3.52	5.57	1559
11	LHS	74.46	74.84	380	12.29	0.1	6.62	2515
13	LHS	75.44	76.04	600	10	0.59	5.45	3269
14	LHS	76.06	76.16	100	5.5	3	4.42	442
15	LHS	77.26	77.36	100	8.14	2.56	5.9	590
16	RHS	66.36	66.52	160	4.57	3.16	3.86	617
18	RHS	68.18	68.22	40	2.76	1.58	2.11	84
20	RHS	70.42	70.96	540	8.05	5.77	7.2	3889
22	RHS	72.4	72.62	220	5.02	1	3.84	845
25	RHS	74.46	74.78	320	3.85	0.84	2.73	875
27	RHS	75.54	75.62	80	5.53	4.05	4.82	385
28	RHS	75.44	76.04	600	7.5		5.15	3088
32	RHS	75.96	76.16	200	3	1	2.41	482
29	RHS	77.1	77.32	220	8.93	4.92	6.96	1531
<b>TOTAL</b>				<b>5400</b>				<b>27183</b>

There are 13 new cut “retaining” walls on the project route, the dimensions of each cut face are shown in the table below. Controlled blasting and pre-splitting will be implemented to shape the cut faces, which will be paid under C12.10, followed by shotcrete lining of the rock faces, which will be paid under C12.5.

Walls in Cut								
Wall number NWTN:	Location: LHS/RHS	Chainage on N2 - 18 (km)		Length Cut	Height		Average Height (m)	Estimated Area (m²)
		From	To		Max	Min		
3	LHS	66.68	67.24	560	4.71	0.22	2.7	1510
5	LHS	68.82	68.92	100	4.81	2.02	3.73	373
7	LHS	71.58	71.66	80	3.4	2	2.37	189
10	LHS	74.08	74.36	280	6.06	2.71	4.8	1344
12	LHS	74.84	75.42	580	6.12	0.05	3.82	2217
17	RHS	67.2	67.96	760	7.74	3.77	5.06	3849
30	RHS	67.975	68.19	215	6.19	3.14	4.17	897
31	RHS	68.2	68.32	120	6.87	5.04	5.81	697
19	RHS	68.34	69.04	700	7.47	1.41	5.88	4117
21	RHS	71.16	71.7	540	7.89	1.59	6.03	3258
23	RHS	72.98	73.68	700	7.6	2.13	5.52	3866
24	RHS	74.08	74.4	320	9.08	1.33	6.24	1998
26	RHS	74.8	75.34	540	7.82	0.1	4.47	2412
<b>TOTAL</b>				<b>5495</b>				<b>26727</b>

(vi) **MEDIAN BARRIERS**

Median barriers to be constructed from km 65.300 to km 77.5 with standard median barrier type MA, MB, MC and MD and standard light mast barrier type LMA, LMB, LMC and LMD as per the detailed drawings included in Volume 5.



(d) *Rehabilitation of structures*

*None*

**C4.1.6 MAINTENANCE WORKS**

*Maintenance of the works during construction and defects notification periods shall rest with the appointed contractor.*

**C4.2 DRAWINGS**

The drawings that form part of the tender document are issued for tender purposes only.

The contractor will be supplied with one set of paper prints plus a CD containing all the construction documentation.

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

The levels given on bridge drawings are subject to confirmation on site, and the contractor shall submit all levels to the engineer for confirmation before he commences any structural

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construction work. It is the contractor's responsibility to check all clearances given on the drawings and to inform the engineer of any discrepancies.

#### **C4.3 CAMP ESTABLISHMENT, POWER SUPPLY AND OTHER SERVICES**

The contractor is to make his own arrangements concerning the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost thereof is deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

#### **C4.4 CONSTRUCTION IN CONFINED AREAS**

It will be necessary for the contractor to work within confined areas. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined areas largely depends on the contractor's constructional plant.

Regardless, measurement and payment will be in accordance with the specified cross-sections and dimensions only, irrespective of the method used for achieving these cross-sections and dimensions. It is deemed that the rates tendered in the Pricing Schedule include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions. No extra payment will be made nor will any claim for additional payment be considered in such cases. (Refer to standard specification sub-clause C1.1.3.2(b)).

#### **C4.5 MANAGEMENT OF THE ENVIRONMENT**

The contractor will be responsible for construction according to an environmental management plan in terms of Section C1000 Scope of Works.

The contractor must take the utmost care to minimise the impact of his establishment and other construction activities on the environment and must adhere to the requirements as set out in Section C of the Scope of Works. Where the contractor fails to adhere to these requirements the specifications in Section C of the Scope of Works provide the methodology and cost liability of remedy.

#### **C4.6 TRAFFIC**

Traffic data in the table below was sourced from SANRAL's permanent counting station (CTO 1419) which is located at km78.0. Refer to **Appendix 4** for 2014 to 2024 Data.

Requested Data Period	01 Aug 2014 - 01 Aug 2024		
First and Last Data Dates	01 Aug 2014 - 30 Jul 2024		
Data Available for Requested Period as Percentage	74%		
Last Full Day Count for ADT and ADTT	29 Jul 2024		
Number of Full Days in Requested Period	2671		
	To Mthata	To East London	Total
Total Number of Vehicles	19 222 110	19 275 127	38 497 237
Average Daily Traffic (ADT)	7 005	7 024	14 029
Average Daily Truck Traffic (ADTT)	493	476	968
Percentage of Trucks	7.0 %	6.8 %	6.9%

#### **C4.7 SMALL CONTRACTOR DEVELOPMENT, TRAINING AND COMMUNITY LIAISON**

The South African National Roads Agency SOC Limited is committed to the implementation of Government's policies and in turn expects the same from its contractors. Accordingly, it

is a requirement of this project that tenderers are familiar with the specifications that relate to the transformation of the construction industry through the following:

- (i) adherence to the policies of the Reconstruction and Development Programme and other similar Government initiatives,
- (ii) employment and/or creation of Targeted Enterprises,
- (iii) arrangement of generic skills, engineering skills and entrepreneurial skills training programmes for which provision has been made in the Pricing Schedule,
- (iv) construction using labour maximisation principles and,
- (v) active participation with community-based structures.

Tenderers should note that liaison with Community Stakeholders via active participation with the Project Liaison Committee, as well as employment of people from within the community, are essential parts of the project. A provisional sum to cover costs incurred by members of the community in the liaison process has also been included in the Pricing Schedule.

Section D of the Scope of Works covers the contractor's requirements in detail, as well as defining the targets that comprise the Contract Participation Goal (CPG).

## C4.8 CLIMATE

The monthly distribution of the average daily minimum, average and maximum temperatures for Mthatha is shown in **Appendix 2**. The average maximum temperature varies between 27°C in January and 21°C in July and the average minimum temperature varies from 4°C in July and 16°C in January.

Temperatures drop to below 10°C during the period from May to September and could therefore affect surfacing operations during this period. Temperatures below zero also occur during the winter months.

The project area normally receives the most rainfall during the summer months i.e., October to March as can be seen in **Appendix 2**. The lowest average monthly rainfall is in June (11 mm) and the maximum in February (89 mm). The Mean Annual Precipitation is 650 mm.

Historical wind statistics are shown in Figures C4.8.1 and C4.8.2 below.

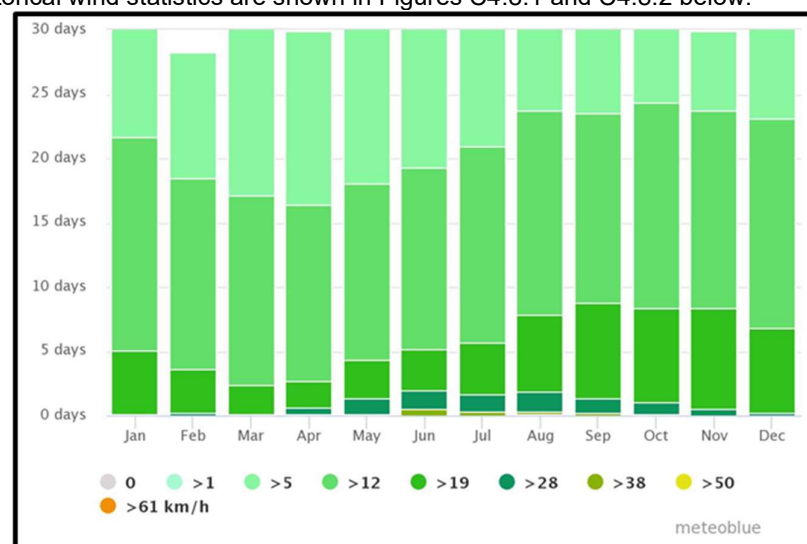


Figure C4.8.1 Wind Statistics for Mthatha

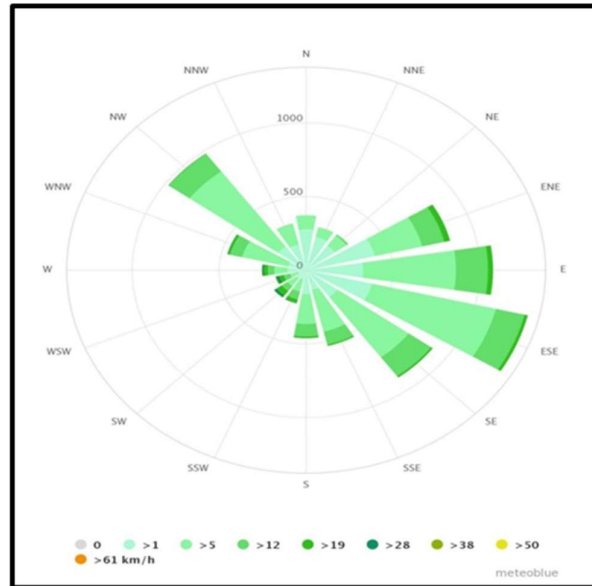


Figure C4.8.2 Wind directions for Mthatha

#### C4.9 REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS 2014

Refer to Section E of the Scope of Works for general requirements in terms of the OH&S requirements.

#### C4.10 SAFETY PROCEDURES

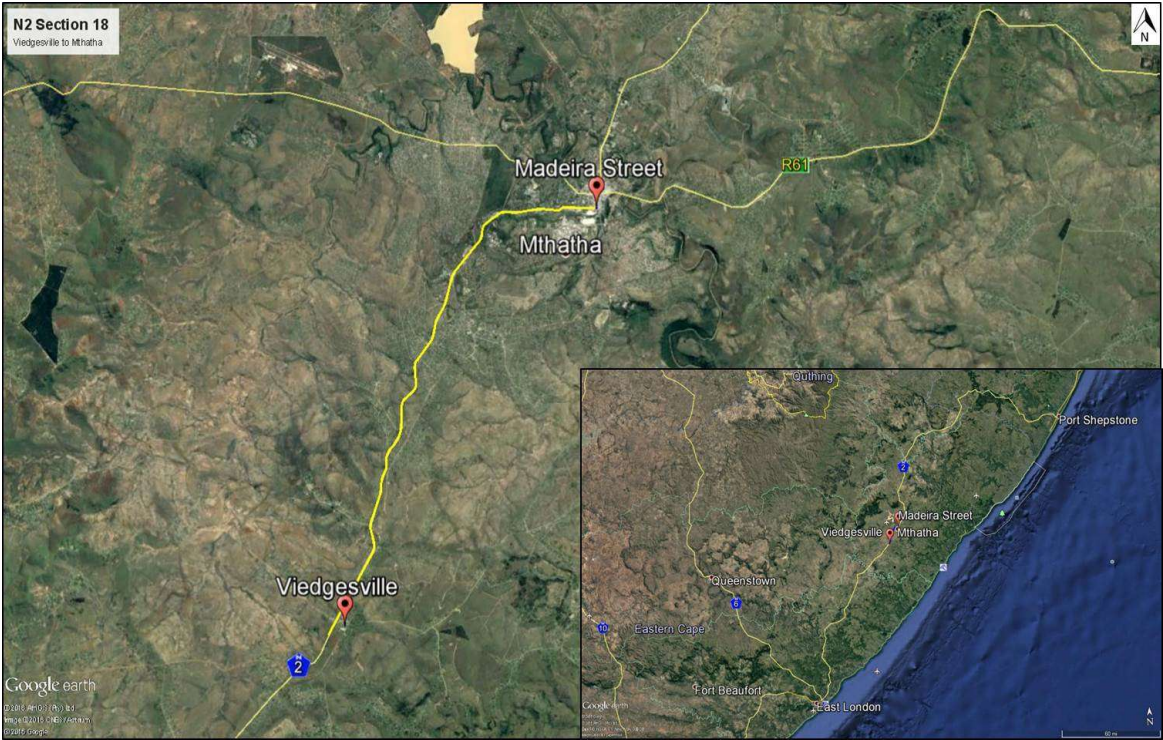
Due to the location of the contract in Mthatha, which has an increased risk of criminal activities, as well as high volumes of vehicular traffic, livestock and pedestrians the tenderer is reminded of his responsibility to provide guards, fencing and barricades for excavations to ensure the protection of the public i.t.o. clause 4.8 of the conditions of contract.

#### C4.13 Appendices

Appendix 1:	Locality Plan
Appendix 2:	Weather Data
Appendix 3:	Traffic Data
Appendix 4:	Existing Pavement Data
Appendix 5:	Dispute Adjudication Agreement
Appendix 6:	Imported Content Declaration
Appendix 8.1:	Contract Participation Goal (CPG) Plan format
Appendix 8.2:	Project Liaison Committee and Project Liaison Officer Forms
Appendix 8.3:	Proforma Sub-contract document for Targeted Enterprises
Appendix 8.4:	Acceptance to Advertise Sub-contract Tenders
Appendix 8.5:	Training and Skills Development Programme (TSDP)
Appendix 9:	Illustrative Programme
Appendix 10:	Community Access Roads Bill of Quantities
Appendix 11:	Detailed List of Services in Urban Section



APPENDIX 1 LOCALITY PLAN





## APPENDIX 2 WEATHER DATA

Mthatha Weather Office (1990 to 2020)							
MONTH	Temperature ( C )				Precipitation		
	Highest Recorded	Average Daily Max	Average Daily Min	Lowest Recorded	Average Monthly	Average Number of days with $\geq 10$ mm	Highest 24 hour Rainfall (mm)
January	42.0	27.6	16.6	8.6	99.6	3.0	89.1
February	40.8	27.9	17.1	9.4	88.3	3.0	56.4
March	40.4	26.9	15.7	6.4	91.0	3.2	54.2
April	37.6	25.0	12.4	0.0	54.3	1.7	88.5
May	38.1	23.7	9.2	0.5	18.2	0.6	31.5
June	31.9	21.5	5.4	-1.4	12.2	0.3	76.6
July	32.9	21.5	5.1	-2.3	15.4	0.5	37.0
August	36.0	22.7	7.2	-0.6	20.5	0.5	48.1
September	39.9	24.4	9.8	1.8	31.7	0.8	88.6
October	39.7	24.6	11.9	2.4	61.3	1.7	63.4
November	41.2	25.5	13.5	2.7	83.4	2.8	76.5
December	40.7	26.4	15.3	7.5	95.6	3.2	49.1
YR	42.0	24.8	11.6	-2.3	671.5	21.3	89.1

## APPENDIX 3 TRAFFIC DATA

**SANRAL**  
SOUTH AFRICAN NATIONAL ROADS AGENCY SOC. LTD



BUILDING SOUTH AFRICA  
THROUGH BETTER ROADS

Physical Address:  
48 Tambotie Avenue,  
Val de Grace Pretoria

Po Box 415,  
Pretoria, 0001

Tel: +27(0)12 844 8000  
Fax: +27(0)12 844 820

Reg No: 1998/009584/30


### Station Traffic Highlights

Report	01 Aug 2014 - 01 Aug 2024
Region	
Route	N002
Section	N00218

Traffic Highlights of Site: Mthatha South (1419)				
1.1	Site No	1419		
1.2	Site Name	Mthatha South		
1.3	Site Description	500m South of Mthatha Shell Ultra		
1.4	Road Description	Route : N002 Section : 18E Distance : 77.8 km		
1.5	GPS Position	Latitude : -31.61714 Longitude : 28.733555		
1.6	Number of Lanes	3		
1.7	Station Type	Permanent		
1.8	Requested Data Period	01 Aug 2014 - 01 Aug 2024		
1.9	First and Last Data Dates	01 Aug 2014 - 30 Jul 2024		
1.10	Data Available for Requested Period as Percentage	74%		
1.11	Last Full Day Count for ADT and ADTT	29 Jul 2024		
1.12	Number of Full Days in Requested Period	2671		
2.1	Total Number of Vehicles	To Mthata	To East London	Total
2.2	Average Daily Traffic (ADT)	19 222 110	19 275 127	38 497 237
2.3	Average Daily Truck Traffic (ADTT)	7 005	7 024	14 029
2.4	Percentage of Trucks	493	476	968
2.5	Truck Split % (short:medium:long)	7.0 %	6.8 %	6.9%
2.6	Percentage of Night Traffic (20h00 - 6h00)	49 : 13 : 38	52 : 13 : 35	50 : 13 : 36
3.1	Speed Limit (km/hr)	11.5 %	11.2 %	11.3 %
3.2	Average Speed (km/hr)	100		
3.3	Average Speed - Light Vehicles (km/hr)	69.3		
3.4	Average Speed - Heavy Vehicles (km/hr)	77.7		
3.5	Average Night Speed (km/hr)	70.4		
3.6	15th Centile Speed (km/hr)	78.4		
3.7	85th Centile Speed (km/hr)	72.0		
3.8	Percentage of Vehicles in Excess of Speed Limit	73.2		
4.1	Percentage Vehicles in Flows Over 600 (vehs/hr)	59.0		
4.2	Highest Volume on the Road (vehs/hr)	90.1		
4.3	Highest Volume in the North (vehs/hr)	41.0%		
4.4	Highest Volume in the South (vehs/hr)	45.6%		
4.5	Highest Volume in a Lane (vehs/hr)	8.1%		
4.6	15th Highest Volume on the Road (vehs/hr)	01 Apr 2021 (17:00 - 18:00)		
4.7	15th Highest Volume in the North Direction (vehs/hr)	09 Mar 2020 (07:00 - 08:00)		
4.8	15th Highest Volume in the South Direction (vehs/hr)	24 Dec 2020 (18:00 - 19:00)		
4.9	30th Highest Volume on the Road (vehs/hr)	09 Mar 2020 (07:00 - 08:00)		
4.10	30th Highest Volume in the North Direction (vehs/hr)	18 Dec 2020 (17:00 - 18:00)		
4.11	30th Highest Volume in the South Direction (vehs/hr)	23 Nov 2020 (07:00 - 08:00)		
5.1	Percentage of Vehicles less than 2s behind vehicle ahead	18 Apr 2019 (15:00 - 16:00)		
6.1	Total Number of Heavy Vehicles	14 Jun 2019 (16:00 - 17:00)		
6.2	Estimated Average Number of axles per Truck	04 May 2015 (07:00 - 08:00)		
6.3	Estimated Truck Mass (Ton/Truck)	24 Dec 2015 (15:00 - 16:00)		
6.4	Estimated Average E80 / Truck	4.9%		
6.5	Estimated Daily E80 on the Road	2.3%		
6.6	Estimated Daily E80 in the North Direction	1 352 421		
6.7	Estimated Daily E80 in the South Direction	1 304 602		
6.8	Estimated Daily E80 in the Worst North Lane	2 657 023		
6.9	Estimated Daily E80 in the Worst South Lane	4		
6.10	ASSUMPTION on Axles/Truck (Short:Medium:Long)	24.6		
6.11	ASSUMPTION on Mass/Truck (Short:Medium:Long)	1.5		
6.12	ASSUMPTION on E80s/Truck (Short:Medium:Long)	(2.0 : 5.0 : 7.0)		



## APPENDIX 4 EXISTING PAVEMENT DATA

		Prepared by : G Weber Date : Dec-11	Approved by : P Pretorius Date : Dec-11	<b>LAYER WORKS COMPLETION SCHEDULE</b>		Contract : Route : Section : Carriageway : From :	NRA N.002-180-2008/2 National Route 2 18 Mithatha CBD (PHASE 1) Nelson Mandela Drive Single Double 4 to 6	Form <b>AB 1</b> ( 01 / 2001 ) Sheet no. 2 of 4
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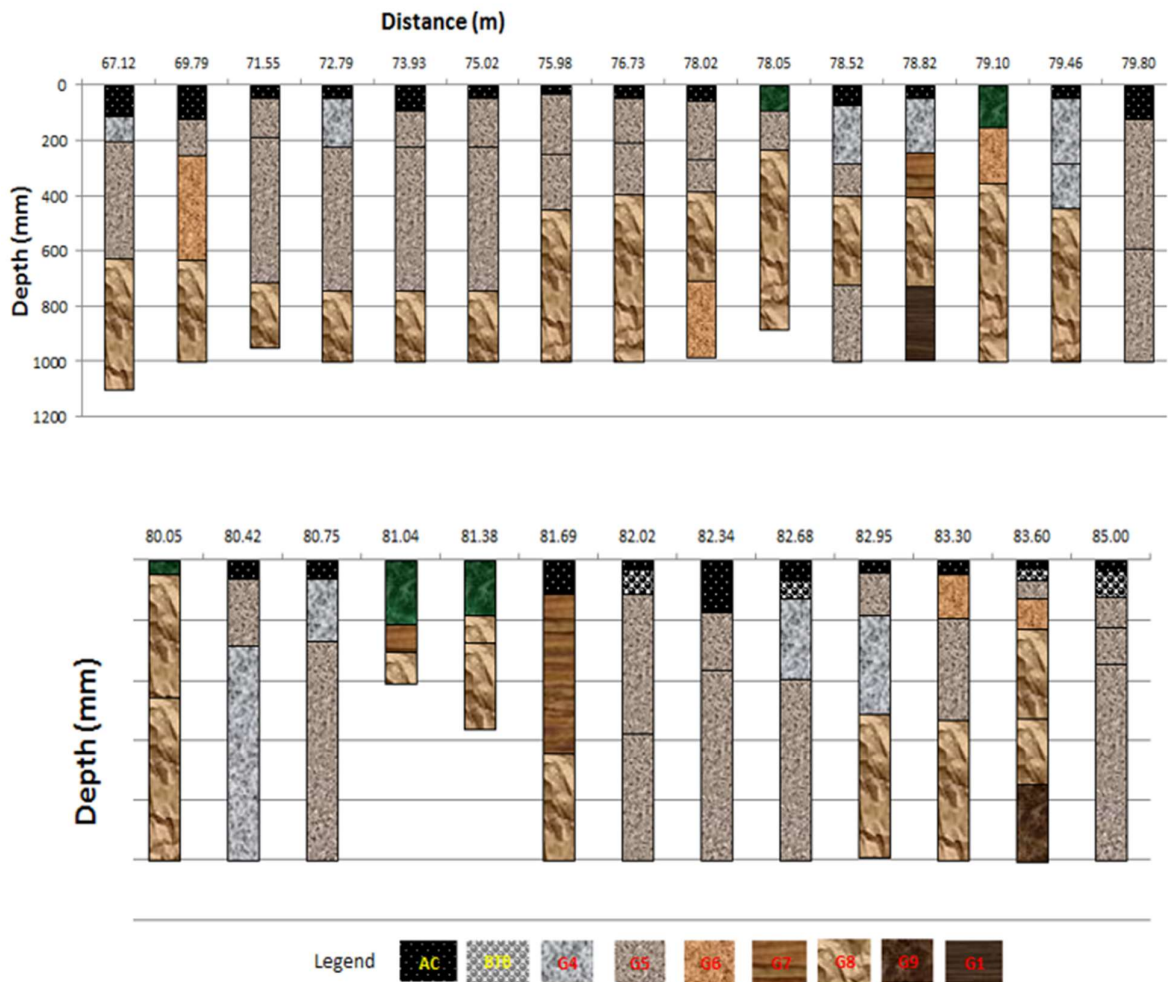
Kilometer		km	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90
Bitumen rubber mix	LBS (OUTER) 1											
	LBS (INNER) 2											
	PBS (INNER) 3											
	PBS (OUTER) 4											
Wearing course	LBS (OUTER) 1	↑										
	LBS (INNER) 2	↓ 4metres	24/03/2010		23/03/2010		23/03/2010		10/04/2010		10/04/2010	
	PBS (INNER) 3											
	PBS (OUTER) 4	↑ 4metres	25/03/2010		09/04/2010				09/04/2010			
GTB	LBS (OUTER) 1											
	LBS (INNER) 2											
	PBS (INNER) 3											
	PBS (OUTER) 4											
Side Walk	Existing											
	Gravel											
	Stone											
	Asphalt Surfacing											
Guardrails	Dismantling Damaged G/Tails											
	Reinforcing Guard Rails											
	Steel Treatments											

Kilometer		km	5.00	5.10	5.20	5.30	5.40	5.50	5.60	5.70	5.80	5.90
Bitumen rubber mix	LBS (OUTER) 1											
	LBS (INNER) 2											
	PBS (INNER) 3											
	PBS (OUTER) 4											
Wearing course	LBS (OUTER) 1	↑ 8.6-10m	10/04		04/02/2010		17/04		04/02/2010		05/02/2010	
	LBS (INNER) 2	↓ 8.6-10m			19/03/2010				19/03/2010			
	PBS (INNER) 3		09/04		18/03/2010		17/04		18/03/2010		16/03/2010	
	PBS (OUTER) 4				06/02/2010		14/04		06/02/2010		06/02/2010	
GTB	LBS (OUTER) 1		07/04		18/03/2010							
	LBS (INNER) 2											
	PBS (INNER) 3											
	PBS (OUTER) 4						12/04					
Side Walk	LBS											
	PBS											
Guardrails	Dismantling Damaged G/Tails											
	Reinforcing Guard Rails											



28 test pits were excavated between the Peri Urban and Urban sections of the N2. Twenty (20) of these were excavated within the urban section i.e. km 78.0 to km 85.0







## APPENDIX 5 DISPUTE ADJUDICATION AGREEMENT

### Notes to compiler:

1. This document (EDMS #2749551) to be completed utilising track changes to clearly indicate all of the compiler's changes in the draft document (i.e. highlighted for inclusions and crossed out for deletions).
2. The document is not to be altered except where explicitly allowed for. Any other requested/proposed/required changes must be clarified with the Employer.
3. The completed track changed document to be submitted to the Employer for review and finalisation for signing by the parties.

## DISPUTE ADJUDICATION AGREEMENT

between

**THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED**

(Reg No. 1998/009584/06)

(**"Employer"**)

and

---

(Reg No. \_\_\_\_\_)

(**"Contractor"**)

and

---

(**"Member"**)

## 1. DEFINITIONS AND INTERPRETATIONS

1.1 In this Dispute Adjudication Agreement, unless the context otherwise indicates :

- 1.1.1 “**Contract**” means Contract SANRAL N.002-180-2018/1R for the PROVISION OF WORK CONSTRUCTION SERVICES FOR THE UPGRADE ON NATIONAL ROUTE N2 SECTION 18 BETWEEN VIEDGESVILLE (KM 65.6) AND MTHATHA (KM 85.0) FOR A PERIOD OF FIFTY-THREE (53) MONTHS INCLUDING FIVE (5) MONTHS MOBILISATION entered into between the Employer and the Contractor.
- 1.1.2 “**Contractor**” means ... *[insert contractor's details]* appointed by the Employer under the Contract.
- 1.1.3 “**DAB**” means the *three person/* Dispute Adjudication Board as contemplated in clause 20 of the Conditions of Contract for Construction for Building and Engineering Works designed by the Employer, published by the Fédération Internationale des Ingénieurs-Conseils (hereinafter referred to as “GCC”), in accordance with the terms and conditions as set out in this Dispute Adjudication Agreement.
- 1.1.4 “**Dispute Adjudication Agreement**” means the tripartite agreement between the Employer, Contractor and Member.
- 1.1.5 “**Effective Date**” means the date that this Dispute Adjudication Agreement shall take effect, and unless otherwise stated, it shall be the latest date when the Employer, the Contractor, Member and each of the Other Members have respectively signed a Dispute Adjudication Agreement.
- 1.1.6 “**Employer**” means the South African National Roads Agency SOC Limited, Registration No. 1998/009584/06
- 1.1.7 “**Engineer**” means ... *[insert engineer's details]*.
- 1.1.8 “**Member**” means Mr \_\_\_\_\_, *who will act as chairperson of the DAB and who is one of the three persons who are jointly called the DAB.*
- 1.1.9 “**Other Members**” means the persons other than the Member, forming part of the DAB, if/where applicable
- 1.1.10 “**Parties**” means the Employer, Contractor and Member

1.2 In the Dispute Adjudication Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract

## 2. GENERAL PROVISIONS

- 2.1 Following the Effective Date, the Employer and the Contractor shall each give notice to the Member accordingly. If the Member does not receive either notice within six months after entering into the Dispute Adjudication Agreement, it shall be void and ineffective.
- 2.2 This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days' notice of resignation to the Employer and to the Contractor, and the Dispute Adjudication Agreement shall terminate upon the expiry of this period.
- 2.3 No assignment or subcontracting of the Dispute Adjudication Agreement is permitted without the prior written agreement of all the Parties to it and of the Other Members.
- 2.4 The Dispute Adjudication Agreement shall be governed by the law of the Republic of South Africa.
- 2.5 All disputes will be heard in \_\_\_\_\_, Republic of South Africa, unless otherwise agreed by the Parties.

### 3. WARRANTIES

- 3.1 The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members, any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.
- 3.2 When appointing the Member, the Employer and the Contractor relies upon the Members' representations that he/she is:
- a) experienced in the work which the Contractor is to carry out under the Contract,
  - b) experienced in the interpretation of contract documentation, and
  - c) fluent in the language for communications defined in the Contract.

### 4. APPOINTMENT

- 4.1 The Employer and the Contractor hereby jointly appoint the Member as a Member of a three-person DAB on the terms and conditions as set out in the Dispute Adjudication Agreement, which appointment the Member by his/her signature hereto accepts.
- 4.2 The conditions of the Dispute Adjudication Agreement comprise the following:
- a) The Dispute Adjudication Agreement together with any addenda or schedules hereto; including the procedural rules;
  - b) The GCC, as amended by any particular conditions, to the extent that it is applicable to the DAB and the Member.

### 5. GENERAL OBLIGATIONS OF THE MEMBER

*Note to compiler: Delete this clause for members other than the Chairperson's agreement*

- 5.1 The Member shall act as chairperson of the DAB and shall; ensure smooth administration; keep all records; ensure compliance to procedural rules; ensure the ethics of the DAB remain unchallenged; coordinate between the Parties and the DAB; chair meetings and site visits; ensure procedural correctness of all recommendations and decisions of the DAB.
- 5.2 The Member shall have no interest financial or otherwise in the Employer, the Contractor or the Engineer, nor any financial interest in the Contract except for payment under the Dispute Adjudication Agreement.
- 5.3 The Member shall not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Adjudication Agreement.
- 5.4 The Member shall have disclosed in writing to the Employer, the Contractor and the Other Members, before entering into the Dispute Adjudication Agreement and to his/her best knowledge and re-collection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part.
- 5.5 The Member shall not, for the duration of the Dispute Adjudication Agreement, be employed as a consultant or otherwise by the Employer, the Contractor, any member/partner of the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members. Notwithstanding this restriction, the Member shall not be restricted to be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer on another contract or matter, but shall disclose to the Employer, the Contractor, and the Other Members, before he/she consult, advises or accepts any instructions from either the Employer, the Contractor, any member/partner of the Contractor, or the Engineer and confirming that such advice, consultation or other instruction taken from such person shall not affect the Member's ability to be unbiased in relation to his/her duties under the Dispute Adjudication Agreement.
- 5.6 The Member shall comply with the annexed procedural rules and Sub-Clause 20.4 of the conditions of Contract.

- 5.7 The Member shall not give advice to the Employer, the Contractor, the Employer's personnel or the Contractor's personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules.
- 5.8 The Member shall not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under this Dispute Adjudication Agreement.
- 5.9 The Member shall ensure his/her availability for all site visits and hearings as are necessary.
- 5.10 The Member shall become conversant with the Contract and with the progress of the Works (and of any parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file.
- 5.11 The Member shall treat the details of the Contract and all the DAB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members.
- 5.12 The Member shall be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members.

## **6. GENERAL OBLIGATIONS OF THE EMPLOYER AND THE CONTRACTOR**

- 6.1 The Employer, the Contractor, the Employer's personnel and the Contractor's personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DAB's activities under the Contract and the Dispute Adjudication Agreement, and except to the extent that prior agreement is given by the Employer, the Contractor and the Other Members. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's personnel and the Contractor's personnel respectively.
- 6.2 The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members:
  - a) be appointed as an arbitrator in any arbitration under the Contract;
  - b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract;
  - c) be called as a witness or act on behalf of the Employer or Contractor, concerning any dispute that became the subject of litigation under the Contract; or
  - d) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Members functions unless the act or omission is shown to have been in bad faith.
- 6.3 The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he/she is relieved from liability under the preceding paragraph.

## **7. PAYMENT**

*Note to compiler: Complete the values below utilising the accepted DAB quotation. Where an item is not applicable delete the clause or enter N/A in the amount value.*

- 7.1 The Member shall be paid a retainer fee of R... (excluding VAT) per calendar month, which shall be considered as payment in full for:
  - i) being available on 28 days' notice for all site visits and hearings;
  - ii) becoming and remaining conversant with all project developments and maintaining relevant files;
  - iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his/her duties; and
  - iv) all services performed hereunder except those referred to in sub-paragraphs 7.4, 7.5, 7.6 and 7.7 of this Clause.

- 7.2 The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Adjudication Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.
- 7.3 With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by 50%. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Adjudication Agreement is otherwise terminated.
- 7.4 The Member shall be paid a site visit daily fee of R... (excluding VAT), (reduced to an hourly fee of one eighth the daily fee, for part of a day), which shall be considered as payment in full for:
- i) each day or part of a day up to a maximum of one day's travel time in each direction for the journey between the Member's home and the site or another location of a meeting with the Other Members, as agreed by the Parties.
  - ii) each working day or part of a day on site visits.
- 7.5 The Member shall be paid a dispute analysis daily fee of R... (excluding VAT), (reduced to an hourly fee of one eighth the daily fee, for part of a day), which shall be considered as payment in full for:
- i) each day or part of a day spent on dispute analysis, hearings or preparing decisions; and
  - ii) each day or part of a day spent reading submissions in preparation for a hearing.
- 7.6 The Member shall be paid a pupillage daily fee of R... (excluding VAT), (reduced to an hourly fee of one eighth the daily fee, for part of a day), which shall be considered as payment in full for:
- i) each day or part of a day spent on preparation for pupillage.
  - ii) each day or part of a day spent on offering practical experience and mentoring to assigned pupil.
- 7.7 The Member shall be paid all reasonable expenses incurred in connection with the Member's duties, including the cost of the following:
- i) Travel expenses :-
    - Own car - motor vehicle travel expenses will be recovered at the relevant South African Automobile Association rates,
    - Car hire – group B or similar,
    - Flights – economy class.
  - ii) Accommodation – any type of accommodation up to R1,300.00 per day all inclusive,
  - iii) Subsistence costs.
- 7.8 The Member shall be paid all Value Added Taxes as per the law.
- 7.9 The retainer fee and daily fees shall remain fixed for the 1<sup>st</sup> 24 calendar months and shall thereafter be adjusted by the twelve-month year on year CPI index (as published in the monthly bulletin P0141 of Statistics South Africa under table B) at each anniversary of the Effective Date. The base month shall be the 12<sup>th</sup> month following the Effective Date.
- 7.10 The Member shall be paid in South African Rands.
- 7.11 The member shall submit invoices for payment of the monthly retainer and may include an estimate of the next month's airfares which will be incurred (and which will be reconciled and adjusted in the subsequent invoice). Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a DAB fee claim containing records of previous fee claims and a breakdown of activities performed during the relevant period and shall be addressed to the Contractor.
- 7.12 Notwithstanding the fact that the appointment is of the Member in his/her personal capacity the Member may invoice and receive payment to a legal entity of which he/she is a member, shareholder or partner.
- 7.13 The Contractor shall pay the Member's invoices in full within 30 calendar days after receiving each valid invoice, half of which shall be recovered by the Contractor from the Employer.
- 7.14 If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received and/or (ii) resign his/her appointment by giving notice under Clause 8.

## 8. TERMINATION

- 8.1 At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Adjudication Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for under Clause 2.
- 8.2 If the member fails to comply with the Dispute Adjudication Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.
- 8.3 If the Employer or the Contractor fails to comply with the Dispute Adjudication Agreement, the Member may, without prejudice to his/her other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.
- 8.4 Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

## 9. DEFAULT OF THE MEMBER

- 9.1 If the Member fails to comply with any obligation under Clause 5, he/she shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members, for proceedings or decisions (if any) of the DAB which are rendered void or ineffective.

## 10. DISPUTES

- 10.1 Any dispute or claim arising out of or in connection with the Dispute Adjudication Agreement, or the breach, termination or invalidity thereof, shall be finally settled by arbitration under the Rules of Arbitration of the Association of Arbitrators of Southern Africa by one Arbitrator appointed by agreement of the Member, the Employer and the Contractor or, failing such agreement, by the Chairman for the time being of the Association of Arbitrators.

## 11. DOMICILIA AND NOTICES

- 11.1 The Parties choose as their *domicilia citandi et executandi* for all purposes under the Dispute Adjudication Agreement, whether in respect of notices or other documents or communications of whatsoever nature (including the exercise of any option), the following addresses:

### 11.1.1 Employer (*domicilia citandi et executandi*):

Address: South African National Roads Agency SOC Limited  
48 Tamboe Avenue, Val de Grace, Pretoria, 0184

Reference: ... CEO

### Employer (*General Communication*)

Address: South African National Roads Agency SOC Limited  
... Region, ..., ..., ...

Fax Number: ...

Tel. Number: ...

Reference: ... Regional Manager, ... Region

### 11.1.2 Contractor:

Address: ...

Fax Number: ...

Tel. Number: .....  
Reference: ....., Contract Director

11.1.3 Member:

Address: .....  
Fax Number: .....  
Tel. Number: .....  
Reference: .....,

11.2 Any notice or communication required or permitted to be given in terms of the Dispute Adjudication Agreement shall be valid and effective only if in writing, but it shall be competent to give notice by telefax or registered mail.

11.3 Any Party may by notice to the other Party change the physical address chosen as its *domicilium citandi et executandi* vis-à-vis that Party to another physical address in the Republic of South Africa or its telefax number, provided that the change shall become effective vis-à-vis that addressee on the 7<sup>th</sup> business day from the deemed receipt of the notice by the addressee.

11.4 Notwithstanding anything to the contrary herein contained a written notice or communication actually received by a Party shall be an adequate written notice or communication to it notwithstanding that it was not sent to or delivered at its chosen *domicilium citandi et executandi*.

## 12. SIGNATORIES

12.1 Signed for and on behalf of the Employer by:

.....  
Name Signature of duly authorised representative  
.....  
Date

In the presence of Witness:

.....  
Name Signature  
.....  
Date

12.2 Signed for and on behalf of the Contractor by:

.....  
Name Signature of duly authorised representative  
.....  
Date

In the presence of Witness:

.....  
Name Signature  
.....  
Date

12.3 Signed by the Member:

.....  
Name Signature

.....  
Date

In the presence of Witness:

.....  
Name Signature

.....  
Date



## PROCEDURAL RULES

1. Unless otherwise agreed by the Employer and the Contractor, the DAB shall visit the site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DAB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.
2. The timing of and agenda for each site visit shall be as agreed jointly by the DAB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DAB. The purpose of site visits is to enable the DAB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims.
3. Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each site visit and before leaving the site, the DAB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.
4. The Employer and the Contractor shall furnish to each member of the DAB one copy of all documents which the DAB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DAB and the Employer or the Contractor shall be copied to the other Party.
5. If any dispute is referred to the DAB in accordance with Sub-clause 20.4 of the GCC, the DAB shall proceed in accordance with Sub-clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DAB shall:
  - a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
  - b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.
6. The DAB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.
7. Except as otherwise agreed in writing by the Employer and the Contractor, the DAB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party whom the DAB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.
8. The Employer and the Contractor empower the DAB, among other things, to:
  - a) establish the procedure to be applied in deciding a dispute,
  - b) decide upon the DABs' own jurisdiction, and as to the scope of any dispute referred to it,
  - c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
  - d) take the initiative in ascertaining the facts and matters required for a decision,
  - e) make use of its own specialist knowledge, if any,
  - f) decide upon the payment of financing charges in accordance with the Contract,
  - g) decide upon any provisional relief such as interim or conservatory measures, and
  - h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

9. The DAB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties, unless requested by both the Employer and Contractor. Prior to giving notice to its decision:
- a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;
  - b) it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members' who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
  - c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:
    - i) either the Employer or the Contractor does not agree that they do so, or
    - ii) the absent Member is the chairman, and he/she instructs the other Members not to make a decision.

Thereafter, the DAB shall make and give notice to its decision in accordance with Sub-clause 20.4 or as otherwise agreed by the Employer and the Contractor in writing.

## Section 1: Enterprise details

Name of enterprise	
Contact person	
E-mail	
Telephone	
Cell	
Fax	
Physical address	
Postal address	

Company / Close Corporation registration number	
---	--

Tax reference number	
VAT registration number	(state Not Registered if not registered for VAT)

CIDB Registration number	
--------------------------	--

**Principal:** means a natural person who is a partner in a partnership, a sole proprietor, a director of a company established in terms of the Companies Act of 2008 (Act No. 71 of 2008) or a member of a close corporation registered in terms of the Close Corporations Act, 1984, (Act No. 69 of 1984)

[illegible]

C4-44

**Section 6: Record in the service of the state:**

Indicate by marking the relevant boxes with a cross, if any principal is currently or has been within the last 12 months in the service of any of the following:

- |  |  |
|--|--|
| <input type="checkbox"/> a member of any municipal council                                     | <input type="checkbox"/> an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature                                | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity   |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> an employee of Parliament or a provincial legislature   |
| <input type="checkbox"/> a member of the board of directors of any municipal entity            |  |
| <input type="checkbox"/> an official of any municipality or municipal entity                   |  |

**If any of the above boxes are marked, disclose the following:**

Name of principal	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

Insert separate page if necessary.

**Section 7: Record of family member in the service of the state:**

**Family member:** a person's spouse, whether in a marriage or in a customary union according to indigenous law, domestic partner in a civil union, or child, parent, brother, sister, whether such relationship results from birth, marriage or adoption

Indicate by marking the relevant boxes with a cross, if any family member of a principal as defined in section 5 is currently or has within the last 12 months been in the service of any of the following:

- |  |  |
|--|--|
| <input type="checkbox"/> a member of any municipal council                                     | <input type="checkbox"/> an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature                                | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity   |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> an employee of Parliament or a provincial legislature   |
| <input type="checkbox"/> a member of the board of directors of any municipal entity            |  |
| <input type="checkbox"/> an official of any municipality or municipal entity                   |  |

**If any of the above boxes are marked, disclose the following:**

Name of family member	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

Insert separate page if necessary

### Section 8: Record of termination of previous contracts with an organ of state

Was any contract between the tendering entity, including any of its joint venture partners, terminated during the past five years for reasons other than the employer no longer requiring such works or the employer failing to make payment in terms of the contract?

☐ Yes ☐ No (tick appropriate box)

If yes, provide particulars:

----------------------

Insert separate page if necessary

### Section 9: Declaration

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the tendering entity, confirms that the contents of this Declaration are within my personal knowledge, save where stated otherwise in an attachment hereto, and to the best of my belief is both true and correct, and that:

- i) neither the name of the tendering entity, nor any of its principals, appears on:
  - a) the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 (Act No. 12 of 2004); or
  - b) National Treasury's Database of Restricted suppliers ([www.treasury.gov.za](http://www.treasury.gov.za));
- ii) the tendering entity or any of its principals has not been convicted of fraud or corruption by a court of law (including a court outside of the Republic of South Africa) within the last five years;
- iii) any principal who is presently employed by the state has the necessary permission to undertake remunerative work outside such employment (attach permission to this declaration);
- iv) the tendering entity is not associated, linked or involved with any other tendering entities submitting tender offers;
- v) the tendering entity has not engaged in any prohibited restrictive horizontal practices, including consultation, communication, agreement, or arrangement with any competing or potential tendering entity regarding prices, geographical areas in which goods and services will be rendered, approaches to determining prices or pricing parameters, intentions to submit a tender or not, the content of the submission (specification, timing, conditions of contract, etc.) or intention to not win a tender;
- vi) the tendering entity has no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
- vii) neither the tenderer nor any of its principals owes municipal rates and taxes or municipal service charges to any municipality or a municipal entity, and are not in arrears for more than three months;
- viii) SARS may, on an on-going basis during the term of the contract, disclose the tenderer's tax compliance status to the Employer and, when called upon to do so, obtain the written consent of any subcontractors who are subcontracted to execute a portion of the contract that is entered into in excess of the threshold prescribed by National Treasury, for SARS to do likewise.

I, the undersigned .....  
certify that the information furnished in this form above is correct. I accept that the Employer may cancel this agreement should this declaration prove to be false.

.....  
Signature (duly authorised)

.....  
Date

.....  
PositionName of Enterprise

NOTE 1: Section 30(1) of the Public Service Act, 1994, prohibits an employee (person who is employed in posts on the establishment of departments) from performing or engaging remunerative work outside his or her employment in the relevant department, except with the written permission of the executive authority of the department. When in operation, Section 8(2) of the Public Administration Management Act, 2014, will prohibit an employee of the public administration (i.e. municipalities and all national departments, national government components listed in Part A of Schedule 3 to the Public Service Act, provincial departments including the office of the premier listed in Schedule 1 of the Public Service Act and provincial departments listed in schedule 2 of the Public Service Act, and provincial government components listed in Part B of schedule 3 of the Public Service Act) or persons contracted to executive authorities in accordance with the provisions of section 12A of the Public Service Act of 1994 or persons performing similar functions in municipalities, from conducting business with the State or to be a director of a public or private company conducting business with the State. The offence for doing so is a fine or imprisonment for a period not exceeding five years, or both. It is also a serious misconduct which may result in the termination of employment by the employer.

NOTE 2: Regulation 44 of Supply Chain Management regulations issued in terms of the Municipal Finance Management Act of 2003 requires that municipalities and municipal entities should not award a contract to a person who is in the service of the State, a director, manager or principal shareholder in the service of the State or who has been in the service of the State in the previous twelve months.

NOTE 3: Regulation 45 of Supply Chain Management regulations requires a municipality or municipal entity to disclose in the notes to the annual statements particulars of any award made to a close family member in the service of the State.

NOTE 4: Corrupt activities which give rise to an offence in terms of the Prevention and Combating of Corrupt Activities Act of 2004, include improperly influencing in any way the procurement of any contract, the fixing of the price, consideration or other moneys stipulated or otherwise provided for in any contract, and the manipulating by any means of the award of a tender.

NOTE 5: Section 4 of the Competition Act of 1998 prohibits restrictive horizontal practice, including agreements between parties in a horizontal relationship, which have the effect of substantially preventing or lessening competition, directly or indirectly fixing prices or dividing markets or constituting collusive tendering. Section 5 also prohibits restrictive vertical practices. Any restrictive practices that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties.

**TAX COMPLIANCE PERMISSION DECLARATION**

I, ..... (name)  
the undersigned in my capacity as ..... (position)  
on behalf of .....  
..... (name of company)  
herewith grant consent that SARS may disclose to the South African National Roads Agency SOC  
Limited (SANRAL) our tax compliance status on an ongoing basis for the contract term.

For this purpose, our unique security personal identification number (PIN) is .....  
our tax reference number is ..... and our tax clearance certificate number is .....

SIGNATURE: .....

DATE: .....

APPENDIX 6 IMPORTED CONTENT DECLARATION

ANNEX D: IMPORTED CONTENT DECLARATION – SUPPORTING SCHEDULE TO ANNEX C

(D1)	Tender No.:										Note: VAT to be excluded from all calculations
(D2)	Tender Description:										
(D3)	Designated Product(s):										
(D4)	Tender Authority:										
(D5)	Tendering Entity Name:										
(D6)	Tender Exchange Rate:		Pula	P	EU	€	GBP	£			

A. Exempted imported content				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl. VAT	Tender Qty	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)
										(D19) Total exempt imported value	R0
This total must correspond with Annex C - C 21											

B. Imported directly by the Tenderer				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl. VAT	Tender Qty	Exempted imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)
										(D45) Total imported value by 3 <sup>rd</sup> party	R0



C. Imported by a 3 <sup>rd</sup> party and supplied to the Tenderer				Calculation of imported content						Summary	
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl. VAT	Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)
(D45) Total imported value by 3 <sup>rd</sup> party											R 0

D. Other foreign currency payments			Calculation of foreign currency payments		Summary of payments
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	
(D46)	(D47)	(D48)	(D49)	(D50)	
(D52) Total of foreign currency payments declared by tenderer and/or 3 <sup>rd</sup> party					R 0

Signature of tenderer from Annexure B:  
(SATS 1286.2011)

\_\_\_\_\_

(D53) Total of imported content & foreign currency payments -  
(D32), (D45) & (D52) above

R 0

**This total must correspond with Annex C - C 23**

Date:

\_\_\_\_\_

ANNEX E: IMPORTED CONTENT DECLARATION - SUPPORTING SCHEDULE TO ANNEX C

(E1)	Tender No.:		Note: VAT to be excluded from all calculations
(E2)	Tender Description:		
(E3)	Designated Product(s):		
(E4)	Tender Authority:		
(E5)	Tendering Entity Name:		

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
(E9) Total local products (Goods, Services and Works)			R 0
(E10)	Manpower costs	(Tenderer's manpower cost)	R 0
(E11)	Factory overheads	(Rental, depreciation & amortisation, utility costs, consumables etc.)	R 0
(E12)	Administration overheads and mark-up	(Marketing, insurance, financing, interest etc.)	R 0
(E13) Total local content			R 0
This total must correspond with Annex C - C24			

Signature of tenderer from Annexure B:  
(SATS 1286.2011)

Date:

### **Process when requesting exemption letters**

For exemption requests on designated products and the minimum threshold for local content cannot be met for various reasons, bidders must apply for exemption per tender. After checking with the industry, **the dti** will decide whether to grant an exemption or not.

In the official request (signed letter), the following information should be included:

- Procuring entity/government department/state owned company.
- Tender/bid number.
- Closing date.
- Item(s) for which the exemption is being requested for.
- Description of the goods, services or works for which the requested exemption item will be used for and the local content that can be met.
- Reason(s) for the request.
- Supporting letters from local manufacturers and suppliers.

**NB - Exemption letters are tender specific and applications are not transferrable.**

The turnaround time in response to exemption letters for all designated products is five working days with the exception of rail and boats/vessels which is seven working days.

Request for exemption letters are to be directed to:

**Dr Tebogo Makube**

Chief Director: Industrial Procurement

**Tel:** 012 394 3927

**E-mail:** tmakube@thedti.gov.za.

The turnaround time in response to textile, clothing, leather and footwear exemption letters request is two working days and requests are to be directed to:

**Patricia Khumalo**

**Tel:** 012 394 1390

**E-mail:** khumaloP@thedti.gov.za.

## Guidance Document for the Calculation of Local Content

### 1. DEFINITIONS

Unless explicitly provided in this guideline, the definitions given in SATS 1286:2011 apply.

### 2. GENERAL

#### 2.1. Introduction

This guideline provides tenderers with a detailed description of how to calculate local content of products (goods, services and works) by components/material/services and enables them to keep an updated record for verification requirements as per the SATS 1286:2011 Annexure A and B.

The guideline consists of two parts, namely:

- a written guideline; and
- three declarations that must be completed:
  - Declaration C: “Local Content Declaration – Summary Schedule” (see Annexure C);
  - Declaration D: “Imported Content Declaration – Supporting Schedule to Annex C” (see Annexure D); and
  - Declaration E: “Local Content Declaration – Supporting Schedule to Annex C” (see Annexure E).

The guidelines and declarations should be used by tenderers when preparing a tender. A tenderer must complete Declarations D and E, and consolidate the information on Declaration C.

Annexure C must be submitted with the tender by the closing date and time as determined by the Tender Authority. The Tender Authority reserves the right to request that Declarations D and E also be submitted.

If the tender is successful, the tenderer must continuously update Declarations C, D and E with actual values for the duration of the contract.

**NOTE:**

Annexure A is a note to the purchaser in SATS 1286:2011; and  
Annexure B is the Local Content Declaration IN SATS 1286:2011.

**2.2. What is local content?**

According to SATS 1286:2011, the local content of a product is the tender price less the value of imported content, expressed as a percentage. It is, therefore, necessary to first compute the imported value of a product to determine the local content of a product.

**2.3. Categories: Imported and Local Content**

The tenderer must differentiate between imported content and local content.

Imported content of a product by components/material/services is separated into two categories, namely:

- products imported directly by the tenderer; and
- products imported by a third party and supplied to the tenderer.

**2.3.1. Imported Content**

Identify the imported content, if any, by value for products by component/material/services. In the case of components/materials/services sourced from a South African manufacturer, agent, supplier or subcontractor (i.e. third party), obtain that information and Declaration D from the third party.

Calculate the imported content of components/materials/services to be used in the manufacture of the total quantity of the products for which the tender is to be submitted.

As stated in clause 3.2.4 of SATS 1286:2011: "If information on the origin of components, parts or materials is not available, it will be deemed to be imported content."

#### 2.3.1.1. Imported directly by the tenderer:

When the tenderer import products directly, the onus is on the tenderer to provide evidence of any components/materials/services that were procured from a non-domestic source. The evidence should be verifiable and pertain to the tender as a whole. Typical evidence will include commercial invoices, bills of entry, etc.

When the tenderer procures imported services such as project management, design, testing, marketing, etc and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

#### 2.3.1.2. Imported by a third party and supplied to the tenderer:

When the tenderer supplies components/material/services that are imported by any third party (for example, a domestic manufacturer, agent, supplier or subcontractor in the supply chain), the onus is on the tenderer to obtain verifiable evidence from the third party.

The tenderer must obtain Declaration D from all third parties for the related tender. The third party must be requested by the tenderer to continuously update Declaration D. Typical evidence of imported content will include commercial invoices, bills of entry etc.

When a third party procures imported services such as project management, design, testing, marketing etc. and makes royalty and lease payments, such payments relating to the tender must be included when calculating imported content.

#### 2.3.1.3. Exempt Imported Content:

Exemptions, if any, are granted by the Department of Trade and Industry (**the dti**). Evidence of the exemptions must be provided and included in Annexure D.

#### **2.3.2. Local Content**

Identify and calculate the local content, by value for products by components/materials/services to be used in the manufacture of the total quantity of the products.



**3. ANNEXURE C**

**3.1. Guidelines for completing Annexure C: Local Content Declaration – Summary Schedule**

*Note: The paragraph numbers correspond to the numbers in Annexure C.*

**C1. Tender Number**

Supply the tender number that is specified on the specific tender documentation.

**C2. Tender description**

Supply the tender description that is specified on the specific tender documentation.

**C3. Designated products**

Supply the details of the products that are designated in terms of this tender (i.e. buses).

**C4. Tender Authority**

Supply the name of the tender authority.

**C5. Tendering Entity name**

Provide the tendering entity name (for example, Unibody Bus Builders (Pty) Ltd).

**C6. Tender Exchange Rate**

Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

**C7. Specified local content %**

Provide the specified minimum local content requirement for the tender (i.e. 80%), as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MDB) 6.2.

**C8. Tender item number**

Provide the tender item number(s) of the products that have a local content requirement as per the tender specification.



**C9. List of items**

Provide a list of the item(s) corresponding with the tender item number.  
This may be a short description or a brand name.

**Calculation of local content**

**C10. Tender price**

Provide the unit tender price of each item excluding VAT.

**C11. Exempted imported content**

Provide the ZAR value of the exempted imported content for each item, if applicable. These value(s) must correspond with the value(s) of column D16 on Annexure D.

**C12. Tender value net of exempted imported content**

Provide the net tender value of the item, if applicable, by deducting the exempted imported content (C11) from the tender price (C10).

**C13. Imported value**

Provide the ZAR value of the items' imported content.

**C14. Local value**

Provide the local value of the item by deducting the Imported value (C13) from the net tender value (C12).

**C15. Local content percentage (per item)**

Provide the local content percentage of the item(s) by dividing the local value (C14) by the net tender value (C12) as per the local content formula in SATS 1286.

**Tender Summary**

**C16. Tender quantity**

Provide the tender quantity for each item number as per the tender specification.

**C17. Total tender value**

Provide the total tender value by multiplying the tender quantity (C16) by the tender price (C10).

**C18. Total exempted imported content**

Provide the total exempted imported content by multiplying the tender quantity (C16) by the exempted imported content (C11). These values must correspond with the values of column D18 on Annexure D.

**C19. Total imported content**

Provide the total imported content of each item by multiplying the tender quantity (C16) by the imported value (C13).

**C20. Total tender value**

Total tender value is the sum of the values in column C17.

**C21. Total exempted imported content**

Total exempted imported content is the sum of the values in column C18. This value must correspond with the value of D19 on Annexure D.

**C22. Total tender value net of exempted imported content**

The total tender value net of exempt imported content is the total tender value (C20) less the total exempted imported content (C21).

**C23. Total imported content**

Total imported content is the sum of the values in column C19. This value must correspond with the value of D53 on Annexure D.

**C24. Total local content**

Total local content is the total tender value net of exempted imported content (C22) less the total imported content (C23). This value must correspond with the value of E13 on Annexure E.

**C25. Average local content percentage of tender**

The average local content percentage of tender is calculated by dividing total local content (C24) by the total tender value net of exempted imported content (C22).

#### **4. ANNEXURE D**

##### **4.1. Guidelines for completing Annexure D: “Imported Content Declaration – Supporting Schedule to Annexure C”**

*Note: The paragraph numbers correspond to the numbers in Annexure D.*

**D1. Tender number**

Supply the tender number that is specified on the specific tender documentation.

**D2. Tender description**

Supply the tender description that is specified on the specific tender documentation.

**D3. Designated products**

Supply the details of the products that are designated in terms of this tender (i.e. buses).

**D4. Tender authority**

Supply the name of the tender authority.

**D5. Tendering entity name**

Provide the tendering entity name (i.e. Unibody Bus Builders (Pty) Ltd).

**D6. Tender exchange rate**

Provide the exchange rate used for this tender, as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

**Table A. Exempted Imported Content**

**D7. Tender item number**

Provide the tender item number(s) of the product(s) that have imported content.

**D8. Description of imported content**

Provide a list of the exempted imported product(s), if any, as specified in the tender.

**D9. Local supplier**

Provide the name of the local supplier(s) supplying the imported product(s).

**D10. Overseas supplier**

Provide the name(s) of the overseas supplier(s) supplying the exempted imported product(s).

**D11. Imported value as per commercial invoice**

Provide the foreign currency value of the exempted imported product(s) disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

**D12. Tender exchange rate**

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

**D13. Local value of imports**

Convert the value of the exempted imported content as per commercial invoice (D11) into the ZAR value by using the tender exchange rate (D12) disclosed in the tender documentation.

**D14. Freight costs to port of entry**

Provide the freight costs to the South African Port of the exempted imported item.

**D15. All locally incurred landing costs and duties**

Provide all landing costs including customs and excise duty for the exempted imported product(s) as stipulated in the SATS 1286:2011.

**D16. Total landed costs excl VAT**

Provide the total landed costs (excluding VAT) for each item imported by adding the corresponding item values in columns D13, D14 and D15. These values must be transferred to column C11 on Annexure C.

**D17. Tender quantity**

Provide the tender quantity of the exempted imported products as per the tender specification.

**D18. Exempted imported value**

Provide the imported value for each of the exempted imported product(s) by multiplying the total landed cost (excl. VAT) (D16) by the



tender quantity (D17). The values in column D18 must correspond with the values of column C18 of Annexure C.

**D19. Total exempted imported value**

The total exempted imported value is the sum of the values in column D18. This total must correspond with the value of C21 on Annexure C.

**Table B. Imported Directly By Tenderer**

**D20. Tender item numbers**

Provide the tender item number(s) of the product(s) that have imported content.

**D21. Description of imported content:**

Provide a list of the product(s) imported directly by tender as specified in the tender documentation.

**D22. Unit of measure**

Provide the unit of measure for the product(s) imported directly by the tenderer.

**D23. Overseas supplier**

Provide the name(s) of the overseas supplier(s) supplying the imported product(s).

**D24. Imported value as per commercial Invoice**

Provide the foreign currency value of the product(s) imported directly by tenderer disclosed in the commercial invoice accepted by the South African Revenue Service (SARS).

**D25. Tender rate of exchange**

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

**D26. Local value of imports**

Convert the value of the product(s) imported directly by the tenderer as per commercial invoice (D24) into the ZAR value by using the tender exchange rate (D25) disclosed in the tender documentation.

**D27. Freight costs to port of entry**

Provide the freight costs to the South African Port of the product(s) imported directly by the tenderer.

**D28. All locally incurred landing costs and duties**

Provide all landing costs including customs and excise duty for the product(s) imported directly by the tenderer as stipulated in the SATS 1286:2011.

**D29. Total landed costs excl VAT**

Provide the total landed costs (excluding VAT) for each item imported directly by the tenderer by adding the corresponding item values in columns D26, D27 and D28.

**D30. Tender quantity**

Provide the tender quantity of the product(s) imported directly by the tenderer as per the tender specification.

**D31. Total imported value**

Provide the total imported value for each of the product(s) imported directly by the tenderer by multiplying the total landed cost (excl. VAT) (D29) by the tender quantity (D30).

**D32. Total imported value by tenderer**

The total value of imports by the tenderer is the sum of the values in column D31.

**Table C. Imported by Third Party and Supplied to the Tenderer**

**D33. Description of imported content**

Provide a list of the product(s) imported by the third party and supplied to the tenderer as specified in the tender documentation.

**D34. Unit of measure**

Provide the unit of measure for the product(s) imported by the third party and supplied to tenderer as disclosed in the commercial invoice.

**D35. Local supplier**

Provide the name of the local supplier(s) supplying the imported product(s).

**D36. Overseas supplier**

Provide the name(s) of the overseas supplier(s) supplying the imported products.

**D37. Imported value as per commercial invoice**

Provide the foreign currency value of the product(s) imported by the third party and supplied to the tenderer disclosed in the commercial invoice accepted by SARS.

**D38. Tender rate of exchange**

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

**D39. Local value of imports**

Convert the value of the product(s) imported by the third party as per commercial invoice (D37) into the ZAR value by using the tender exchange rate (D38) disclosed in the tender documentation.

**D40. Freight costs to port of entry**

Provide the freight costs to the South African Port of the product(s) imported by third party and supplied to the tenderer.

**D41. All locally incurred landing costs and duties**

Provide all landing costs including customs and excise duty for the product(s) imported by third party and supplied to the tenderer as stipulated in the SATS 1286:2011.

**D42. Total landed costs excluding VAT**

Provide the total landed costs (excluding VAT) for each product imported by third party and supplied to the tenderer by adding the corresponding item values in columns D39, D40 and D41.

**D43. Quantity imported**

Provide the quantity of each product(s) imported by third party and supplied to the tenderer for the tender.

**D44. Total imported value**

Provide the total imported value of the product(s) imported by third party and supplied to the tenderer by multiplying the total landed cost (D42) by the quantity imported (D43).

**D45. Total imported value by third party**

The total imported value from the third party is the sum of the values in column D44.

**Table D. Other Foreign Currency Payments**

**D46. Type of payment**

Provide the type of foreign currency payment. (i.e. royalty payment for use of patent, annual licence fee, etc).

**D47. Local supplier making the payment**

Provide the name of the local supplier making the payment.

**D48. Overseas beneficiary**

Provide the name of the overseas beneficiary.

**D49. Foreign currency value paid**

Provide the value of the listed payment(s) in their foreign currency.

**D50. Tender rate of exchange**

Provide the exchange rate used for this tender as per the Standard Bidding Document (SBD) and Municipal Bidding Document (MBD) 6.2.

**D51. Local value of payments**

Provide the local value of each payment by multiplying the foreign currency value paid (D49) by the tender rate of exchange (D50).

**D52. Total of foreign currency payments declared by tenderer and/or third party**

The total of foreign currency payments declared by tenderer and/or a third party is the sum of the values in column D51.

**D53. Total of imported content and foreign currency payment**

The total imported content and foreign currency payment is the sum of the values in column D32, D45 and D52. This value must correspond with the value of C23 on Annexure C.



## 5. ANNEXURE E

### 5.1. Guidelines to completing Annexure E: “Local Content Declaration-Supporting Schedule to Annexure C”

*The paragraph numbers correspond to the numbers in Annexure E*

**E1. Tender number**

Supply the tender number that is specified on the specific tender documentation.

**E2. Tender description**

Supply the tender description that is specified on the specific tender documentation.

**E3. Designated products**

Supply the details of the products that are designated in terms of this tender (for example, buses/canned vegetables).

**E4. Tender authority**

Supply the name of the tender authority.

**E5. Tendering entity name**

Provide the tendering entity name (for example, Unibody Bus Builders (Pty) Ltd) Ltd).

**Local Goods, Services and Works**

**E6. Description of items purchased**

Provide a description of the items purchased locally in the space provided.

**E7. Local supplier**

Provide the name of the local supplier that corresponds to the item listed in column E6.

**E8. Value**

Provide the total value of the item purchased in column E6.

**E9. Total local products (Goods, Services and Works)**

Total local products (goods, services and works) is the sum of the values in E8.

**E10. Manpower costs:**

Provide the total of all the labour costs accruing only to the tenderer (i.e. not the suppliers to tenderer).

**E11. Factory overheads:**

Provide the total of all the factory overheads including rental, depreciation and amortisation for local and imported capital goods, utility costs and consumables. (Consumables are goods used by individuals and businesses that must be replaced regularly because they wear out or are used up. Consumables can also be defined as the components of an end product that are used up or permanently altered in the process of manufacturing, such as basic chemicals.)

**E12. Administration overheads and mark-up:**

Provide the total of all the administration overheads, including marketing, insurance, financing, interest and mark-up costs.

**E13. Total local content:**

The total local content is the sum of the values of E9, E10, E11 and E12. This total must correspond with C24 of Annexure C.