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JOHANNESBURG ROADS AGENCY (SOC) LTD

(Company Registration No: 2000/028993/07)

TENDER DOCUMENTS – GOODS AND SERVICES

JRA/25/26

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS **(CIDB GRADING REQUIRED: 6 EP or HIGHER)**

LOCAL PRODUCTION AND CONTENT:	FOR NONE-DESIGNATED SECTORS	
NAME OF BIDDING ENTITY		
ADDRESS		
TELEPHONE NUMBER:		FAX:
EMAIL ADDRESS		
CLOSING DATE	28 th January 2026 @ 11:00 am	
COMPULSORY BRIEFING SESSION	JRA Head Office building at 75 Helen Joseph Street, Johannesburg CBD, 4th Floor. Date: Tuesday 09 th of December 2025 Time: 10am Non-Compliance to this requirement will lead to an immediate disqualification	



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SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

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CHAPTER 1 - TENDER DATA

JRA/25/26

FOR

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS **(CIDB GRADING REQUIRED: 6 EP or HIGHER)**





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TENDER DATA

Clause number	Tender Data
1.1.1	The employer is the Johannesburg Roads Agency
1.1.2	The Employer will not compensate the tenderer for any costs incurred in attending interviews or making any submissions in the office of the Employer
1.1.3	While JRA will make reasonable efforts to communicate any changes to this procurement, Amendments and Clarifications to this procurement will be communicated to bidders. Any queries must be submitted to tenderenquiries@jra.org.za .
1.1.4	One-envelope procedure will be followed. This is a ONE Envelope submission system. The Bidder shall submit a signed and complete BID comprising the Returnable documents and forms in accordance with the requirements of submission (Documents Comprising BID). No electronic submission is permitted. An authorized representative of the Bidder shall sign the original submission letters in the required format. The authorization shall be in the form of a written Power of Attorney (Board Resolution). A Bid submitted by a Joint Venture shall be signed by all members so as to be legally binding on all members, or by an authorized representative who has a written Power of Attorney signed by each member's authorized representative. Any modifications, revisions, interlineations, erasures, or overwriting shall be valid only if they are signed or initialled by the person signing the Bid. The signed Bid shall be marked "Original", and its copies marked "Copy" as appropriate. The number of copies shall be One (1) Original and One (1) Copy or memory stick. All copies shall be made from the signed original. If there are discrepancies between the original and the copies, the original shall prevail.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

Clause number	Tender Data
	The original and all the copies of the BID / memory stick shall be placed inside of a sealed single envelope clearly marked "Name of the Tender", reference number, name and address of the Bidder, and with a warning "Do Not Open until [insert the date and the time of the BID submission deadline]." If the envelopes and packages with the BID are not sealed and marked as required, the Client will assume no responsibility for the misplacement, loss, or premature opening of the Bid.
1.1.5	Parts of each tender offer communicated on paper shall be submitted as an original, plus one copy.
1.1.6	Bidders are requested to deliver the submission in one envelope. The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are: Physical address: 75 Helen Joseph (Previously President Street), Johannesburg Location of tender box: - Ground Floor of the Johannesburg Roads Agency - Identification details: TENDER BOX Title to appear on envelope: JRA/25/26 - SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER) This envelope must contain the Bid Documentation and returnable documents. For identification purposes, bidders are requested to ensure that the envelopes containing the company's bids are clearly marked, and are easily identifiable by the company's logo or name. BIDDERS ARE REQUESTED TO DO COMBO (SPIRAL/ GLUED) BINDING IN THE BID DOCUMENTS



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Clause number	Tender Data
	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
1.1.7	The closing time for submission of tender offers is 11h00 on The Johannesburg Roads Agency is not obliged to accept the lowest or any tender and reserves the right to accept any tender in whole or in part.
1.1.8	The tender offer validity period is 120 days.
1.1.9	Prohibitions on awards to persons in service of the state The Employer is prohibited to award a tender to a person - a) who is in the service of the state; or b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or c) A person who is an advisor or consultant contracted with the municipality or municipal entity. In the service of the state means to be – a) a member of: - i. any municipal council; ii. any provincial legislature; or iii. the National Assembly or the National Council of Provinces; b) a member of the board of directors of any municipal entity; c) an official of any municipality or municipal entity; d) an employee of any national or provincial department; e) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999); f) a member of the accounting authority of any national or provincial public entity; or g) An employee of Parliament or a provincial legislature.
1.1.10	Arithmetical errors, omissions and discrepancies Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers. a) the gross misplacement of the decimal point in any unit rate; b) omissions made in completing the pricing schedule or bills of quantities; or c) arithmetic errors in:



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

Clause number	Tender Data
	i. line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or ii. the summation of the prices. The arithmetical errors shall be corrected in the following manner: a) Where there is a discrepancy between the amounts in words and amounts in Figures, the amount in words shall govern. b) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected. c) Where there is an error in the total of the prices either as a result of other d) Corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices. The Tender Offer will be rejected if the tenderer does not correct or accept the Correction of the arithmetical error in the manner described above.
1.1.11	This bid is subject to a compulsory briefing attendance and failure to comply will lead to an automatic disqualification: Venue: JRA Head Office building at 75 Helen Joseph Street, Johannesburg CBD, 4th Floor. Date: Tuesday 09th of December 2025 Time:10am

CHAPTER 2 : MBD FORMS, RETURNABLE DOCUMENTS AND SCHEDULES

JRA/25/26

FOR

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)





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MBD 1: INVITATION TO BID

PART A INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF MUNICIPALITY/ MUNICIPAL ENTITY)					
BID NUMBER:	JRA/25/26	CLOSING DATE:	28 th January 2026	CLOSING TIME:	11:00am
DESCRIPTION	SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED
IN THE BID BOX SITUATED AT (STREET ADDRESS)

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

TAX COMPLIANCE STATUS	TCS PIN:		OR	CSD No:	
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES OFFERED?		☐ Yes ☐ No [IF YES, ANSWER PART B:3]	
TOTAL NUMBER OF ITEMS OFFERED			TOTAL BID PRICE		R
SIGNATURE OF BIDDER			DATE		
CAPACITY UNDER WHICH THIS BID IS SIGNED					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:			TECHNICAL INFORMATION MAY BE DIRECTED TO:		
DEPARTMENT			CONTACT PERSON		
CONTACT PERSON			TELEPHONE NUMBER		
TELEPHONE NUMBER			FACSIMILE NUMBER		
FACSIMILE NUMBER			E-MAIL ADDRESS	tenderenquiries@jra.org.za	
E-MAIL ADDRESS	tenderenquiries@jra.org.za				



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PART B TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION. 1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED) OR ONLINE 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS. 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS. 2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA. 2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3. 2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID. 2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER. 2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS
3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO 3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO 3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO 3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO 3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO



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IF THE ANSWER IS “NO” TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

SIGNATURE OF BIDDER:.....

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:.....



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MBD 2: TAX CLEARANCE COMPLIANCE REQUIREMENTS

CONDITIONS PERTAINING TO TAX

TAX COMPLIANCE REQUIREMENTS

It is a condition of bid that the taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.

Any person who requires his or her tax compliance status to be disclosed to a Government institution or department, for purposes of submitting a bid or to confirm its good standing after the phasing out of paper based TCCs must request a unique security personal identification number (PIN) from SARS.

Very important to note is that the disclosure of a bidder's tax compliance status is an express condition for all acceptable Government bids. Failure to make the relevant disclosures will invalidate your bid and your response will be null and void.

The Government institution or department must use the PIN referred to above to verify a person's tax compliance status with SARS.

Bidders to complete the table below and provide a unique security personal identification number (PIN) from SARS which will enable the JRA to access online real-time verification of a person's tax compliance status with the electronic Tax Compliance Status (TCS) system.

FULL NAME OF BIDDER:	ELECTRONIC TAX COMPLIANCE STATUS SYSTEM PIN NO:



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MBD 3.1: PRICING SCHEDULE – FIRM PRICES (PURCHASES)

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES SUBJECT TO RATES OF EXCHANGE VARIATION WILL NOT BE CONSIDERED

IN CASES WHERE DIFFERENT DELIVERY POINTS OR QUANTITIES REQUIRE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder.....

Closing Time Date

OFFER TO BE VALID FOR..... CLOSING DATE OF BID.

ITEM NO. INCLUDED)	QUANTITY	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES
--------------------	----------	--

- R	
-	
-	
- and Model	
- Country of Origin	



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- Does the offer comply with the specification(s)? ☐
- If not to specification, indicate deviation(s)
- Period required for delivery /Not firm
- Delivery basis

Note: All delivery costs must be included in the delivery at the prescribed destination.

** "all applicable taxes" includes value-added tax, you earn, income tax, unemployment insurance fund contribution and development levies.

*Delete if not applicable

Not Applicable



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MBD 3.2: PRICING SCHEDULE – NON-FIRM PRICES (PURCHASES)

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder.....	Bid number.....
Closing Time ...11:00.....	Closing Date

OFFER TO BE VALID FOR **120** DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
-	Required by:		
-	At:		
-	Brand and model		
-	Country of origin		
-	Does the offer comply with the specification(s)? *YES/NO		
-	If not to specification, indicate deviation(s)		
	Period required for delivery		
-	Delivery:		*Firm/Not firm

**" all applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.



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MBD 3.2: PRICE ADJUSTMENTS

A NON-FIRM PRICES SUBJECT TO ESCALATION (DATE OF THE TENDER CLOSURE)

1. IN CASES OF PERIOD CONTRACTS, NON FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES
2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$Pa = (1 - V)Pt \left(D1 \frac{R1t}{R1o} + D2 \frac{R2t}{R2o} + D3 \frac{R3t}{R3o} + D4 \frac{R4t}{R4o} \right) + VPt$$

Where:

- Pa = The new escalated price to be calculated.
 (1-V) Pt = 85% of the original bid price. **Note that Pt must always be the original bid price and not an escalated price.**
 D1, D2.. = Each factor of the bid price eg. labour, transport, clothing, footwear, etc. The total of the various factors D1, D2...etc. must add up to 100%.
 R1t, R2t..... = Index figure obtained from new index (depends on the number of factors used).
 R1o, R2o = Index figure at time of bidding.
 VPt = 15% of the original bid price. This portion of the bid price remains firm i.e. it is not subject to any price escalations.

3. The following index/indices must be used to calculate your bid price:

Index..... Dated..... Index..... Dated..... Index..... Dated.....

Index..... Dated..... Index..... Dated..... Index..... Dated.....

4. FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

FACTOR (D1, D2 etc. eg. Labour, transport etc.)	P PERCENTAGE OF BID PRICE



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

B PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

1. Please furnish full particulars of your financial institution, state the conversion of the prices of the items to South African currency, which is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD

2. Adjustments for rate of exchange variations over the contract period will be calculated by using the average monthly exchange rate for the period indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATE FOR THE PERIOD	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 4: DECLARATION OF INTEREST

(Note that in this document, the words bid and tender, bidder and tenderer; bidders and tenderers should be used interchangeably)

1. No bid will be accepted from persons in the service of the state*

Any legal person, including persons employed by the state*, or persons having a kinship with persons employed by the state*, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes a price quotation, advertised competitive bid, limited bid or proposal). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state*, or to persons connected with or related to them, it is required that the bidder or his/her authorized representative declare his/her position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest, where,

- the bidder is employed by the state*, and/or
- the legal person on whose behalf the bidding documents is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved and or adjudication of the bid.

*MSCM Regulations: "in the service of the state" means to be –

- a) a member of –
 - i) any municipal council;
 - ii) any provincial legislature; or
 - iii) the national Assembly or the national Council of provinces;
- b) a member of the board of directors of any municipal entity;
- c) an official of any municipality or municipal entity;
- d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
- e) a member of the accounting authority of any national or provincial public entity; or an employee of Parliament or a provincial legislature.

2. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

3. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid:



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3.1	Full name of bidder or his or her representative													
3.2	Identity number													
3.3	Position occupied in the company (director, shareholder ² etc.)													
3.4	Company registration number													
3.5	Tax reference number													
3.6	VAT registration number													
3.7	Are you presently in the service of the state?	YES		NO										
3.7.1	If so, furnish particulars:													
3.8.	Have you been in the service of the state for the past twelve months?	YES		NO										
3.8.1	If so, furnish particulars:													
3.9	Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?	YES		NO										
3.9.1	If so, furnish particulars:													
3.10	Are you aware of any relationship (family, friend, other) between a bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid?	YES		NO										
3.10.1	If so, furnish particulars:													
3.11	Are any of the company's directors, managers, principal shareholders or stakeholders in the service of the state?	YES		NO										
3.11.1	If so, furnish particulars:													
3.12	Is any spouse, child or parent of the company's directors, managers, principal shareholders or stakeholders in the service of the state?	YES		NO										
3.12.1	If so, furnish particulars:													



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3.13	Do you or any of the directors, trustees, managers, principal shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract? (Attach the list if the space provided is insufficient)			YES		NO	
3.13.1	If so, furnish particulars:						
3.14	Please provide the following information on ALL directors / shareholders / trustees /members below: (Attach the list if the space provided is insufficient)						
Full Name and Surname		Identity Number	Personal Income Tax Number	Provide State ³ employee number (Only to be completed if in the service of the State)			

NB:

- BIDDER MUST ADD ADDITIONAL COPIES OR TABLE IF THEY HAVE MORE DIRECTORS
- PLEASE ATTACH CERTIFIED COPY(IES) OF ID DOCUMENT(S)
- PLEASE PROVIDE PERSONAL INCOME TAX NUMBERS FOR ALL DIRECTORS / SHAREHOLDERS / TRUSTEES / MEMBERS, ETC.

DECLARATION

I, the undersigned (name) _____, certify that the information furnished in paragraph 3 above is correct.

I accept that the state may act against me should this declaration prove to be false.

SIGNATURE		DATE	
NAME OF SIGNATORY			
POSITION			
NAME OF COMPANY			



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 5: DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire:

1. Are you by law required to prepare annual financial statements for auditing?

*YES / NO

- 1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....
.....

2. Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?

*YES / NO

- 2.1 If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days.

*YES / NO

- 2.2 If yes, provide particulars.

.....
.....
.....

3. Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?

*YES / NO



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

3.1 If yes, furnish particulars

.....
.....

*YES / NO

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?

*YES / NO

4.1 If yes, furnish particulars

.....
.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
SIGNATURE

.....
DATE

.....
POSITION

.....
NAME OF BIDDER



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 **To be completed by the organ of state**

(delete whichever is not applicable for this tender).

- a) The applicable preference point system for this tender is the 80/20 or 90/10 preference point system based on value of the bid submission.
- b) The 80/20 or 90/10 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- a) Price; and
- b) Specific Goals.

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	POINTS	POINTS
PRICE	80	90
SPECIFIC GOALS	20	10
Total points for Price and SPECIFIC GOALS	100	100



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- 1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender will be interpreted to mean that preference points for specific goals are not claimed.
- 1.6 The organ of state reserves the right to require either of a tenderer, before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price depending on total bid value on the following basis: The financial offer will be scored using appropriate formula, depending on whether Contract amount is Less than OR More than R50 000 000 as follows:

80/20

OR

90/10

$$P_s = 80 \left(1 + \frac{P_t - P_{max}}{P_{max}} \right)$$

$$P_s = 90 \left(1 + \frac{P_t - P_{max}}{P_{max}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration



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P_{min} = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20

OR

90/10

$$P_s = 80 \left(1 + \frac{P_t - P_{max}}{P_{max}} \right)$$

$$P_s = 90 \left(1 + \frac{P_t - P_{max}}{P_{max}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{max} = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.) Points will be allocated in line with the equity shareholding percentage of the respective directors.

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Means of Verification
TOTAL PREFERENTIAL POINTS	20	10			
SUB-TOTAL POINTS FOR SPECIFIC GOAL 1: HDI	10	5			
Business owned by 51% or more – Black People	6	3			CSD report, Valid BBBEE Certificate / Sworn Affidavit, Certified Copy of Identity Documentation (ID) and Shareholder's certificate.
Business owned by 51% or more - Women	4	2			CSD report, Certified Copy of ID and Shareholder's certificate.
Business owned by 51% or more – Black Youth					CSD report, Valid BBBEE Certificate / Sworn Affidavit, Certified Copy of ID and Shareholder's certificate.
Business owned by 51% or more – Black People with Disability					CSD report, Certified Copy of ID, Certified copy of disability certificate and Shareholder's certificate.
SPECIFIC GOAL 2: PROMOTION OF LOCAL ECONOMY	10	5			



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The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Means of Verification
SMMEs (An EME or QSE)	8	4			CSD report, Valid BBBEE Certificate / Sworn Affidavit, Certified Copy of Identity Documentation (ID) and Shareholder's certificate.
Enterprises located within the City of Johannesburg Metropolitan Municipality	2	1			CSD report, Certified Copy of ID and Shareholder's certificate.

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
- (e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE

.....
DATE

.....
POSITION

.....
NAME OF BIDDER



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 6.2: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT

FOR NONE-DESIGNATED SECTORS

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

- 1.1. The DTI makes provision for the promotion of local production and content.
- 1.2. Where necessary, for bids referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and points allocation.
- 1.3. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.4. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

x is the imported content in Rand

y is the bid price in Rand excluding value added tax (VAT)



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Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as required in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on <http://www.thedtic.gov.za/sectors-and-services-2/industrial-development/industrial-procurement/> at no cost.

1.5. A bid may be disqualified if –

- (a) this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation; and
- (b) the bidder fails to declare that the Local Content Declaration Templates (Annex C, D and E) have been audited and certified as correct.

2. Definitions

- 2.1. **“bid”** includes written price quotations, advertised competitive bids or proposals;
- 2.2. **“bid price”** price offered by the bidder, excluding value added tax (VAT);
- 2.3. **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4. **“designated sector”** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5. **“duly sign”** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).
- 2.6. **“imported content”** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour and intellectual property costs), plus freight and other direct



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importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;

2.7. **“local content”** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;

2.8. **“stipulated minimum threshold”** means that portion of local production and content as determined by the Department of Trade and Industry; and

2.9. **“sub-contract”** means the primary contractor’s assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

Description of services, works or goods Stipulated minimum threshold

Cement	100%
Steel	100%

List of related Steel Products

Steel Products and Component for Construction	Stipulated minimum threshold
Steel Value-added Products	
• Fabricated Structural Steel	• 100%
• Joining/Connecting Components	• 100%
• Frames	• 100%
• Roof and Cladding	• 100%
• Fasteners	• 100%
• Wire Products	• 100%
• Ducting and Structural pipework	• 100%
• Gutters, downpipes & lauders	• 100%
•	• 100%
Steel Value-added Products	• 100%



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Steel Products and Component for Construction	Stipulated minimum threshold
• Plates	• 100%
• Sheets	• 100%
• Galvanised and Colour Coated Coils	• 100%
• Wire Rod and Drawn Wire	• 100%
• Sections	• 100%
• Reinforcing bars	• 100%
	• 100%
	• 100%

4. Does any portion of the services, works or goods offered have any imported content?

(Tick applicable box)

YES		NO	
-----	--	----	--

4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by the SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on **www.reservebank.co.za**.

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	



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Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

5. Were the Local Content Declaration Templates (Annex C, D and E) audited and certified as correct?

(Tick applicable box)

YES		NO	
-----	--	----	--

- 5.1. If yes, provide the following particulars:

- (a) Full name of auditor:
- (b) Practice number:
- (c) Telephone and cell number:
- (d) Email address:

(Documentary proof regarding the declaration will, when required, be submitted to the satisfaction of the Accounting Officer / Accounting Authority)

Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the DTI must be informed accordingly in order for the DTI to verify and in consultation with the Accounting Officer / Accounting Authority provide directives in this regard.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

LOCAL CONTENT DECLARATION

(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO.

ISSUED BY: (Procurement Authority / Name of Municipality / Municipal Entity):
.....

NB

1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thedtic.gov.za/sectors-and-services-2/industrial-development/industrial-procurement/>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),

do hereby declare, in my capacity as

of(name of bidder entity),
the following:

(a) The facts contained herein are within my own personal knowledge.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

(b) I have satisfied myself that

- (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (ii) the declaration templates have been audited and certified to be correct.

(c) The local content percentages (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C;

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above. The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

- (d) I accept that the Procurement Authority / Municipality /Municipal Entity has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.
- (e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Municipal / Municipal Entity imposing any or all of the remedies as provided for under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____

DATE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

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Local Content Declaration - Summary Schedule																																																																																																																																																																																					
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<table border="1"> <thead> <tr> <th colspan="4">Calculation of local content</th> <th colspan="3">Tender summary</th> </tr> <tr> <th>Tender item no's</th> <th>List of items</th> <th>Tender price - each (excl VAT)</th> <th>Exempted imported value</th> <th>Tender value net of exempted imported content</th> <th>Imported value</th> <th>Local content % (per item)</th> <th>Tender Qty</th> <th>Total tender value</th> <th>Total exempted imported content</th> <th>Total Imported content</th> </tr> <tr> <th>(C8)</th> <th>(C9)</th> <th>(C10)</th> <th>(C11)</th> <th>(C12)</th> <th>(C13)</th> <th>(C14)</th> <th>(C15)</th> <th>(C16)</th> <th>(C17)</th> <th>(C18)</th> <th>(C19)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr> <td colspan="7"> Signature of tenderer from Annex B Date: </td> <td colspan="4"> Total tender value (C20) Total Exempt imported content (C21) Total Exempt imported content (C22) Total Tender value net of exempt imported content (C23) Total Imported content (C24) Total local content (C25) Average local content % of tender </td> </tr> <tr> <td colspan="7"> </td> <td colspan="4"> R 0 R 0 R 0 R 0 R 0 R 0 </td> </tr> </tbody> </table>										Calculation of local content				Tender summary			Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content	(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)																																																																																																																									Signature of tenderer from Annex B Date:							Total tender value (C20) Total Exempt imported content (C21) Total Exempt imported content (C22) Total Tender value net of exempt imported content (C23) Total Imported content (C24) Total local content (C25) Average local content % of tender											R 0 R 0 R 0 R 0 R 0 R 0			
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SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

[illegible]



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 7.1: CONTRACT FORM - PURCHASE OF GOODS/SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or services described in the attached bidding documents to (name of institution)..... in accordance with the requirements and specifications stipulated in bid number..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Bidding documents, viz
 - Invitation to bid;
 - Proof of Tax Compliance Status;
 - Pricing schedule(s);
 - Technical Specification(s);
 - Preference claim form for Preferential Procurement in terms of the Preferential Procurement Regulations;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.
6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1

2.

DATE:



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 7.1: CONTRACT FORM - PURCHASE OF GOODS/SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I..... in my capacity as.....

accept your bid under reference numberdated.....for the supply of goods/services indicated hereunder and/or further specified in the annexure(s).
2. An official order indicating delivery instructions is forthcoming.
3. I undertake to make payment for the goods/services delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	PRICE (ALL APPLICABLE TAXES INCLUDED)	RAND	DELIVERY PERIOD	TOTAL PREFERENCE POINTS CLAIMED	POINTS CLAIMED FOR EACH SPECIFIC GOAL

4. I confirm that I am duly authorized to sign this contract.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP



WITNESSES

1.

2.

DATE



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD AND STRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (STEP OR HIGHER)

MBD 7.2: CONTRACT FORM - RENDERING OF SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SERVICE PROVIDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN DUPLICATE BY BOTH THE SERVICE PROVIDER AND THE PURCHASER WOULD BE IN DUPLICATE OF THE ORIGINAL CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SEF)

1. I hereby undertake to render services described in the bidding documents to (name of the institution)..... in accordance with the requirements and task directives / proposals specifications stipulated therein..... at the price/s quoted. My offer/s remain binding upon me..... acceptance by the Purchaser during the validity period indicated and calculate..... rate of the bid.
2. The following documents shall be deemed to be read and construed as part of this agreement:
- (iv) Bidding documents, viz
- Invitation to bid;
 - Proof of tax;
 - Pricing schedule;
 - Filled in bid;
 - Preferential Procurement Declaration; Preferential Procurement in terms of the Preferential Procurement Regulations;
 - Declaration of no conflict of interest;
 - Declaration of bidder's past SCM practices;
 - Declaration of Independent Bid Determination;
 - Declaration of Bidder's Compliance with the Terms of Contract;
- (v) General Conditions of Contract; and
- (vi) Special Conditions of Contract.
3. I confirm that I have read and understood the bidding documents and I accept that any mistakes regarding price(s) and rate(s) shall be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions under this agreement as the principal liable for the due fulfillment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.
6. I confirm that I am duly authorised to sign this contract.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL
TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRIC ROAD MARKING
AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS REPAIRS, REVISIONS,
MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS, INCLUDING THE
SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD NETWORK, AS AND
WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (OR MORE OR LESS OR
HIGHER)

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1

2

DATE:

Not Applicable



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA PROJECTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY OF ALL MATERIALS AND LABOUR REQUIRED FOR THE PERIOD OF 36 MONTHS OR HIGHER)

MBD 7.2: CONTRACT FORM - RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I, in my capacity accept your bid under reference number for the rendering of services indicated hereunder and/or of the annexure(s).
2. An official order indicating service delivery is hereby issued.
3. I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days of receipt of an invoice.

DESCRIPTION OF SERVICE	COMPLETION DATE	TOTAL PREFERENCE POINTS CLAIMED	POINTS CLAIMED FOR EACH SPECIFIC GOAL

4. I, am duly authorised to sign this contract.

SIG. ON

SIG.

OFFICIAL STAMP

WITNESSES

1

2

DATE:



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 7.3: CONTRACT FORM - TENDER FOR INCOME-GENERATING

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE LESSOR/ SELLER (PART 2). BOTH FORMS MUST BE KEPT IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE LESSOR/ SELLER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED COPIES OF THE FORMS IN THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SUCCESSFUL BIDDER)

7. I hereby undertake to lease property/ purchase all the goods and/or services described in the attached bidding documents from (name of institution)..... with the requirements stipulated in (bid number)..... My offer/s remain binding upon me and open for acceptance during the validity period indicated and calculated from the closing date of the bidding documents.
8. The following documents shall be deemed to be read and construed as part of this agreement:
 - (vii) Bidding documents, viz:
 - Invitation to bid;
 - Proof of tax compliance;
 - Pricing schedule;
 - Preferential Procurement in terms of the Preferential Procurement Regulations;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Declaration of bidder's compliance with the Code of Conduct of Contract;
 - (viii) General Conditions of Contract; and
 - (ix) Other documents as may be specified in the bidding documents.
9. I confirm that I have verified myself as to the correctness and validity of my bid; that the price(s) cover all my obligations and I accept that the price(s) and calculations will be at my own risk.
10. I accept full responsibility for the proper execution and fulfilment of all obligations and liabilities involving on me under this agreement as the principal liable for the due performance of this contract.
11. I undertake to make payment for the leased property/ goods/services as specified in the bidding documents.
12. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD NETWORK (STRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS OR MORE (36 MONTHS OR HIGHER))

13. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1.

3.

DATE:

Not Applicable



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELEVATION, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS REPAIRS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS, INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD NETWORK AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS OR MORE (6EP OR HIGHER)

MBD 7.3: CONTRACT FORM - TENDER FOR INFRASTRUCTURE CONTRACTS

PART 2 (TO BE FILLED IN BY THE LEASER)

4. I, in my capacity as
accept your bid under reference number for the leasing of property/ purchase of goods/services and/or further specified in the annexure(s).
5. I undertake to make the leased property available in accordance with the terms and conditions of the contract.

ITEM NO.	DESCRIPTION	TOTAL PREFERENCE POINTS CLAIMED	POINTS CLAIMED FOR EACH SPECIFIC GOAL

4. duly authorized to sign this contract.

..... ON

NAME (.....)

SIGNATURE

OFFICIAL STAMP

WITNESSES

1.

2.

DATE



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 8: DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Municipal Bidding Document must form part of all bids invited.
2. It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
3. The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - 3.1. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - 3.2. been convicted for fraud or corruption during the past five years;
 - 3.3. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - 3.4. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
4. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes ☐	No ☐



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

Item	Question	Yes	No
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.5.1	If so, furnish particulars:		

CERTIFICATION

I THE UNDERSIGNED

(NAME).....CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT. I ACCEPT THAT THE JRA MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE

SIGNATURE DATE

NAME OF BIDDER POSITION



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MBD 9: CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - a) has been requested to submit a bid in response to this bid invitation
 - b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

³ Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....
SIGNATURE

.....
DATE

.....
POSITION

.....
NAME OF BIDDER



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM A: CERTIFICATE OF AUTHORITY OF SIGNATORY

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for the relevant category.

A Company	B Partnership	C Joint Venture	D Sole Proprietor	E Close Corporation

RESOLUTION of a meeting of the Board of *Directors / Members / Partners:

(Name of Firm)

held on that:

FULL NAMES

SIGNATURE

In his/her/their capacity as
is/are hereby authorised to enter into, sign and execute and complete any documents relating to
Bid and/or Contracts for the supply of goods and services.

NAME	CAPACITY	SIGNATURE

NOTE:

1. *Delete which is not applicable
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise
3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM B: VENDOR NUMBER REGISTRATION WITH CENTRAL SUPPLIER DATABASE (CSD)

Bidders must submit Vendor Number Registration with Central Supplier Database.

CENTRAL SUPPLIER DATABASE DETAILS	
ENTITY NAME	
CSD VENDOR REGISTRATION NUMBER	
NAME ENTITY REPRESENTATIVE	
POSITION	
SIGNATURE	
DATE	



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM C: CURRENT MUNICIPAL CHARGES

COMPANY MUNICIPAL CHARGES

BIDDERS PLEASE NOTE:

Bidders must complete this form and/or to attach the required invoices/statement of account to the bid submission.

DESCRIPTION	BIDDERS MUNICIPAL ACCOUNT DETAILS
Municipality where business is situated:	
Registered Account No for Entity:	
Stand No:	

Please attach the following documents to the bid:

- a) Most recent municipal Invoice / statement / account of Business Entity. Accounts outstanding for 90 days and more will not be accepted.
- b) In cases where the business has signed a lease agreement, proof must be provided from the Landlord or owner indicating that the business's Rates and Taxes is not outstanding.
- a) Bidders operating from home must submit affidavit to that effect.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

MUNICIPAL RATES AND TAXES – DIRECTORS’ PRIVATE PROPERTIES

BIDDERS PLEASE NOTE:

Bidders must complete this form and/or to attach the required invoices/statement of account to the bid submission.

DIRECTOR 1 - MUNICIPAL RATES AND TAXES DETAILS	
Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	
Signature:	

DIRECTOR 2 - MUNICIPAL RATES AND TAXES DETAILS	
Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	
Signature:	

DIRECTOR 3 - MUNICIPAL RATES AND TAXES DETAILS	
Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	
Signature:	



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

DIRECTOR 4 - MUNICIPAL RATES AND TAXES DETAILS

Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	
Signature:	

DIRECTOR 5 - MUNICIPAL RATES AND TAXES DETAILS

Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	
Signature:	

DIRECTOR 6 - MUNICIPAL RATES AND TAXES DETAILS

Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	
Signature:	

DIRECTOR 7 - MUNICIPAL RATES AND TAXES DETAILS

Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

Signature:	
------------	--

DIRECTOR 8 - MUNICIPAL RATES AND TAXES DETAILS	
Name and Surname:	
Municipality where property is situated:	
Registered Account No for Property:	
Stand No/Address:	
Signature:	

Bidders can include more tables if they have more directors, all directors must provide municipal rates and taxes information. Please attach the following documents to the bid:

- b) Most recent municipal Invoice / statement / account of Business Entity. Accounts outstanding for 90 days and more will not be accepted.
- c) In cases where the business has signed a lease agreement, proof must be provided from the Landlord or owner indicating that the business's Rates and Taxes is not outstanding.
- d) Bidders operating from home must submit affidavit to that effect.



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM D: COMPANY FINANCIAL REFERENCE AND RATINGS

FINANCIAL REFERENCES

a) BANK RATING

It is requisite that a bank rating be obtained, bearing an original stamp and the manager's signature by the relevant bank.

Failure to complete the bank rating form overleaf may invalidate the pre-qualification application.

b) COMPANY BANK DETAILS

I/We hereby authorise the Employer/Employers Representative to approach all or any of the following banks for a reference:

Description of Bank Detail	Bank Detail applicable to Company Head Office	Bank Detail applicable to the Site of the Works
Name of Bank		
Account Number		
Branch Name		
Branch Code		
Street Address		
Bank Rating		

Signed at On this Day of 20.....

Name of signatory :

Name of company :



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM E: CLAUSE ON INVALID AND IRREGULAR BID APPLICATIONS AND BREACHES OF BID AGREEMENTS

Bidders will be disqualified / rejected and the and the JRA reserves the right to inform National Treasury of any and such lay criminal charges against the bidder / supplier where:

- a. False information in any bid application is provided.
- b. Exerted undue influence on any person involved in considering a bid
- c. Provided a financial or other reward
- d. Where the supplier fails to comply with the required specifications of services and goods

IN ADDITION:

1. I have read and I understand the contents of all disclosures;
2. I understand that the accompanying bid will be disqualified if any disclosure is found not to be true and complete in every respect;
3. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium will not be construed as collusive bidding.
4. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
5. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
6. There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
7. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....
SIGNATURE OF BIDDER

.....
DATE



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM F: ALTERATIONS OF BID DOCUMENT

Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or alterations or additions necessary to correct errors made by the tenderer.

Alternative tender offers

Submit alternative tender offers only if main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

NB ANY AMENDMENTS TO THE BID DOCUMENTS MUST BE SIGNED IN FULL BY THE BIDDER'S AUTHORISED SIGNATORY AND AN ACCOMPANYING LETTER FROM THE BIDDER ON THEIR OFFICIAL LETTERHEAD WILL INDICATE SUCH ALTERATIONS. FAILURE TO OBSERVE WILL LEAD TO THE BID BEING DISQUALIFIED.

ANY COMPLETION OF THE BID DOCUMENT IN PENCIL OR ERASABLE INK WILL NOT BE ACCEPTED AND MIGHT DISQUALIFY THE BID.

I/We, the undersigned, hereby acknowledge myself/ourselves fully conversant with the details and conditions set out in the Special / Technical Information and Specifications and with the General Conditions of Contract and General Conditions to Bidders included in the bid document and hereby agree to:-

Indicate if there would be a price increase applicable and attach proof thereof

SIGNED ON BEHALF OF THE BIDDER: (Signature)

NAME OF SIGNATORY (in capital letters)



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM G: RECORD OF ADDENDA TO BID DOCUMENTS

We confirm that the following communications received from the Johannesburg Roads Agency or their Agent before the submission of this Bid offer, amending the Bid documents, have been taken into account in this Bid offer:

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

.....
SIGNATURE OF BIDDER

.....
DATE

CHAPTER 3 : GENERAL CONDITIONS OF A CONTRACT (GCC) 2010



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

JRA/25/26

FOR

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING REQUIRED: 6 EP or HIGHER)





SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

GENERAL CONDITIONS OF CONTRACT

1. Definition

The following terms shall be interpreted as indicated:

- 1.1.** "Closing time" means the date and hour specified in the bidding documents for the receipt of bids
- 1.2.** "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
- 1.3.** "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
- 1.4.** "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.
- 1.5.** "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
- 1.6.** "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 1.7.** "Day" means calendar day.
- 1.8.** "Delivery" means delivery in compliance of the conditions of the contract or order.
- 1.9.** "Delivery ex stock" means immediate delivery directly from stock actually on hand.
- 1.10.** "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.
- 1.11.** "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.
- 1.12.** "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 1.13.** "Fraudulent practice" means a misrepresentation of facts in order to



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

- 1.14.** “GCC” means the General Conditions of Contract.
- 1.15.** “Goods” means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.

- 1.16.** “Imported content” means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.

- 1.17.** “Local content” means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.

- 1.18.** “Manufacture” means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.

- 1.19.** “Order” means an official written order issued for the supply of goods or works or the rendering of a service.

- 1.20.** “Project site,” where applicable, means the place indicated in bidding documents.

- 1.21.** “Purchaser” means the organization purchasing the goods.

- 1.22.** “Republic” means the Republic of South Africa.

- 1.23.** “SCC” means the Special Conditions of Contract.

- 1.24.** “Services” means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.

- 1.25.** “Written” or “in writing” means handwritten in ink or any form of electronic or mechanical writing.

- 1.26.** NEMA is an abbreviation for National Environmental Management Act

- 1.27.** ASTM is an abbreviation for American Society for Testing and Materials

2. Application

- 2.1.** These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.

- 2.2.** Where applicable, special conditions of contract are also laid down to



SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

cover specific supplies, services or works.

- 2.3.** Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

- 3.1.** Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.
- 3.2.** With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from www.treasury.gov.za

4. Standards

- 4.1.** The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information; inspection. Obligations of the supplier covered under the contract.

- 5.1.** The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.
- 5.2.** The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.
- 5.3.** Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser. The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent rights

- 6.1.** The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

7. Performance security

- 7.1.** Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security



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- of the amount specified in SCC.
- 7.2.** The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.
- 7.3.** The performance security shall be denominated in the currency of the contract or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:
- 7.3.1.** a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or
- 7.3.2.** a cashier's or certified cheque
- 7.4.** The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.
- 8. Inspections, tests and analyses**
- 8.1.** All pre-bidding testing will be for the account of the bidder.
- 8.2.** If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or an organization acting on behalf of the Department.
- 8.3.** If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.
- 8.4.** If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.
- 8.5.** Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.
- 8.6.** Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.
- 8.7.** Any contract supplies may on or after delivery be inspected, tested or analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal, the rejected
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supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier. The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

9. Packing

9.1. The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2. The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery

10.1. Delivery of the goods shall be made by the supplier in accordance with and documents the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.

10.2. Documents to be submitted by the supplier are specified in SCC.

11. Insurance

11.1. The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.

12. Transportation

12.1. Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.

13. Incidental

13.1. The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

13.1.1. Performance or supervision of on-site assembly and/or commissioning of the supplied goods;

13.1.2. furnishing of tools required for assembly and/or maintenance of the supplied goods;



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- 13.1.3.** furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
 - 13.1.4.** performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
 - 13.1.5.** Training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.
 - 13.2.** Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.
 - 14. Spare parts**
 - 14.1.** As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts
 - 14.2.** Manufactured or distributed by the supplier:
 - 14.2.1.** such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and
 - 14.2.2.** in the event of termination of production of the spare parts:
 - 14.2.2.1.** Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
 - 14.2.2.2.** Following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.
- 15. Warranty**
 - 15.1.** The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.
 - 15.2.** This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.
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- 15.3. The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.
 - 15.4. Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.
 - 15.5. If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.
 16. **Payment**
 - 16.1. The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.
 - 16.2. The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.
 - 16.3. Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.
 - 16.4. Payment will be made in Rand unless otherwise stipulated in SCC.
 17. **Prices**
 - 17.1. Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be.
 18. **Contract amendments**
 - 18.1. No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.
 19. **Assignment**
 - 19.1. The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.
 20. **Subcontracts**
 - 20.1. The supplier shall notify the purchaser in writing of all subcontracts awarded under this contract if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.
 21. **Delays in the supplier's performance**
 - 21.1. Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the
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purchaser in the contract.

- 21.2.** If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.
- 21.3.** No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.
- 21.4.** The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.
- 21.5.** Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause without the application of penalties.
- 21.6.** Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

- 22.1.** Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance or specified within the SCC. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination

- 23.1.** The purchaser, without prejudice to any other remedy for breach of for default contract, by written notice of default sent to the supplier, may



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terminate this contract in whole or in part:

- 23.1.1.** if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
 - 23.1.2.** if the Supplier fails to perform any other obligation(s) under the contract; or
 - 23.1.3.** if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- 23.2.** In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.
- 23.3.** Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.
- 23.4.** If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.
- 23.5.** Any restriction imposed on any person by the Accounting Officer / Authority will, at the discretion of the Accounting Officer / Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the Accounting Officer / Authority actively associated.
- 23.6.** If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:
- 23.6.1.** the name and address of the supplier and / or person restricted by the purchaser;
 - 23.6.2.** the date of commencement of the restriction
 - 23.6.3.** the period of restriction; and
 - 23.6.4.** the reasons for the restrictions.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.



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23.7. If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

When, after the date of bid, provisional payments are required, or antidumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.

25. Force Majeure

25.1. Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

25.2. If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

26.1. The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.



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27. Settlement of Disputes

- 27.1.** If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 27.2.** If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.
- 27.3.** Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.
- 27.4.** Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.
- 27.5.** Notwithstanding any reference to mediation and/or court proceedings herein,
- 27.5.1.** the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
- 27.5.2.** the purchaser shall pay the supplier any monies due the supplier.

28. Limitation of liability

- 28.1.** Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6;
- 28.1.1.** the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and
- 28.1.2.** the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

- 29.1.** The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.

31. Notices



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- 31.1. Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice
- 31.2. The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

- 32.1. A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.
- 32.2. A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.
- 32.3. No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.

33. National Industrial Participation (NIP) Programme

- 33.1. The NIP Programme administered by the Department of Trade and Industry shall be applicable to all contracts that are subject to the NIP obligation.

34. Prohibition of Restrictive practices

- 34.1. In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder(s) is / are or a contractor(s) was / were involved in collusive bidding (or bid rigging).
- 34.2. If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act No. 89 of 1998.
- 34.3. If a bidder(s) or contractor(s), has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

General Conditions of Contract (revised July 2010)

CHAPTER 4 : PROJECT DESCRIPTION SPECIAL CONDITIONS OF A CONTRACT

JRA/25/26

FOR

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING REQUIRED: 6 EP or HIGHER)



a world class African city



PART 1 SPECIAL CONDITIONS

PROJECT DESCRIPTION

- 1.1 The purpose of this Bid is to enable the Johannesburg Roads Agency to integrate aspects of the implementation of new traffic signals upgrade of traffic signals as well as the repair, replacement and maintenance of traffic signal equipment as required for SARTSM compliance.
- 1.2 The advantage of one integrated contract would be that the coordination of tasks and project management as well as the communication between sub-contractor(s) would become the responsibility of the Contractor(s) and not the JRA. It will also increase available resources to meet a variable demand in workflow and improve service delivery.
- 1.3 Contractor(s) may form consortia to ensure that they have the capabilities required for this contract, however only the prime contractor(s) may be in direct contact with the JRA.
- 1.4 This contract includes the supply of all required material that is required to execute the works.
- 1.5 This is an "as and when" contract for a period of 3 years from the date of award of this Bid.
- 1.6 Activities listed under this bid are ring-fenced for traffic signal related work only and will apply upon appointment. The project manager, Manager TS/ITS Design, Projects can however provide approval to the appointed service provider/s to undertake work on behalf of other department/s within the JRA in accordance with this bid's pricing schedule. A copy of this approval must be attached to the official order before the contractor can undertake any such work. In the event where the contractor undertakes such work without approval, then the contractor will be in breach of contract.

PROJECT SCOPE

The project entails the execution of work connected with the supply and installation of traffic light equipment in accordance with SARTSM, including but not limited to, road crossings (the excavation of trenches), laying of cables, casting of concrete footings, installation of traffic light poles, threading of cables and installation of traffic signal heads, controllers, UPS and Solar equipment. The work also includes cutting and installation of loops or core drilling and installation magnetometer for traffic signal equipment and all electrical work related to connecting the signal heads with the controller, connection of the traffic signal controller to the main electrical power supply and related electrical and maintenance work. Furthermore, all related road markings including sand blasting as well as road signs related to traffic signals will form part of the works.

Horizontal under road drilling where required also forms part of the scope of works.

All electrical work will require a certificate of compliance (CoC) upon completion.

Servers and software related to traffic signal monitoring will be required if ordered upon.

- 1.7 All labour, supervision, transport, specialized plant, equipment and facilities as well as all material and consumables necessary to execute the Works must be supplied by the Contractor(s).
- 1.8 The Work has a civil, electrical as well as electronic engineering component. Bidder(s) must ensure that all these competencies are within their company's capacity. The Bidder(s) may choose to subcontract other competencies that are not within their company's capacity. Should the Bidder(s) subcontract other competencies, the name and particulars of the specific subcontractor(s) must be provided in the necessary form attached. An agreement between the Bidder(s) and subcontractor(s) should be attached to the bid document before submission.

- 1.9 The location and the detail drawings for the traffic signal installations will be supplied to the Contractor(s) in the form of a works order by the JRA Project Representative for each installation.
- 1.10 All material and equipment to be installed, must be approved by the JRA before installation commences.
- 1.11 The Contractor(s)'s insurance should cover any damage caused by the Contractor(s) or his staff to electrical, water, sewer, gas, communication or any other services or to private or JRA property.
- 1.12 The description of the work is merely a broad exposition of the work, and will not limit the work carried out by the Contractor(s) under this contract.
- 1.13 The work connected with traffic signals entail different aspects of work, with the following making up the most important elements of the contract:
 - a) Crossing of existing streets for the laying of ducts where ducts are not available. This includes cutting of the asphalt, excavation, laying of ducts, backfilling and compaction of material and repairing of asphalt.
 - b) Obtaining information on the locality of services as well as the way leave from JRA offices.
 - c) Installation of traffic signal poles, which includes the excavation for and casting of footings and the mounting of the traffic signal poles onto the footings.
 - d) Assembling and mounting of traffic signal heads.
 - e) Installation of the traffic signal controller.
 - f) Installation of underground chambers for controllers and stubbies.
 - g) Hardware and software for remote monitoring.
 - h) Installation of UPS and or Solar
 - i) Excavation of trenches for the laying of cables to the nearest electricity point.
 - j) Laying of ducts in trenches and threading of cables through ducts.
 - k) Connection of the signal to the controller.
 - l) Cutting in asphalt or concrete and installation of inductor loop detectors for vehicle-actuated signals and traffic responsive control systems, eg Split Cycle Offset Optimisation Technique (SCOOT).
 - m) Installation of magnetometer detection devices (core drilling required)
 - n) Installation of Video-based detection devices
 - o) Installation of any type of pushbutton
 - p) Supply and installation of PVC conduits as alternative to cutting in concrete slabs or roads with block paved surfacing.
 - q) Reconstruction of existing traffic light controlled intersections, including the removal of signal heads, poles, controller, tracing of existing cables and conduits, etc.

- r) Supply and installation of road signs.
- s) Where faults occur within the controller as a result of poor workmanship by the Contractor(s), the Contractor(s) will be notified to repair such faults under supervision of the JRA Project Representative.
- t) Installation of equipment into the controller,
- u) Maintenance on traffic signals
- v) Call outs
- w) Permanent marking of the road surface with white, yellow or road painted lines or symbols using thermo-plastic, cold-plastic or water based paint supplied by the Contractors.
- x) Installation of Thermo-Plastic, Cold-Plastic or Water Based Road markings The road markings may comprise any of the following types, either separately or in combination:
 - a. Transverse marking
 - b. Longitudinal markings
 - c. Arrows
 - d. Painted islands
 - e. Symbols
 - f. Words, letters and/or numerals
 - g. Road studs
- y) Contractors will be required to supply and apply thermo plastic road marking products.
- z) The fixing of retro-reflective road studs supplied by the Contractors.
 - aa) Removal of existing, temporary or permanent road markings
 - bb) Supply of plant, labour, supervision, transport, specialized plant, equipment and facilities as well as consumables (such as nozzles, brushes, measuring tape, chalk, stencils, paint cleaning products, etc) necessary to execute the work.
 - cc) Excavation of pits for under road drilling
 - dd) Underground horizontal drilling and installation of sleeves (sleeves for this operation to be provided by contractors).
 - ee) Drawings indicating location of sleeves.
 - ff) Site meetings to obtain approval for proposed location and layout as well as final sign-off.
 - gg) Photos before, during and after activities.

- hh) Supply measurements / quantities
- ii) Supply of material and consumables for all activities
- jj) Traffic engineering related functions

1.14 The JRA reserves the right to order any quantities in accordance with the rates supplied in the Schedule of Quantities.

1.15 Routine maintenance will be carried out by the JRA, but the Contractor(s) will be required to provide hourly rates for work related routine maintenance if required by the JRA.

APPOINTMENT AND WORK ALLOCATION

1.16 Bidders should take note that the JRA may appoint one or more bidders.

1.17 Bidders that passes the functional evaluation will be evaluated on price.

1.18 JRA reserves the right to benchmark and negotiate rates. A benchmarking exercise will be done by the JRA, which will be used as a point of reference to measure submitted total cost of bidders against.

Only bidders that are within 30% of this benchmark, above or below, will be further considered for bid award.

Bidders that are above benchmarked total cost but not exceeding 30%, will be approached to negotiate rates that are within 5% of the benchmark.

Bidders that are within the 30% benchmark but exceeding 5% of benchmark, and that are not willing to negotiate to be within 5% will not be considered for appointment.

In the event that no bidder is within the 30% benchmark then the JRA will consider appointing the Bidder(s) with the highest points or cancel and re-advertise the bid.

1.19 Work allocation may be based on the performance of the contractor. Therefore, as the contractor finalises the allocated work, will they be given additional work as and when required.

1.20 Bidders to note that JRA reserves the right to visit the premises of the bidders for due diligence before appointment is made.

EXTENT OF WORK

1.21 The Bidder(s) shall take cognizance of the fact that this is an "As and When" contract and the JRA cannot guarantee the extent of work to be carried out nor the amount of money to be used.

1.22 The successful Bidder(s) will be required to undertake this work, as and when required, anywhere within the areas of supply covered by the Joburg Roads Agency in the Johannesburg Metropolitan Municipality area.

1.23 The Contract will be awarded to the Bidder(s) who attains the highest points in terms of the evaluation system as explained in Evaluation Process as well as Appointment and Work Allocation.

QUANTITIES

- 1.24 This is an "As and When" contract and quantities provided in the contract document are only for evaluation purposes. The quantities that will be ordered will be dependent on the projects and budget that the JRA has available for this type of work at the time. Quantities for each installation will be measured and agreed between the JRA and the Contractor(s).

RATES

- 1.25 The rates submitted must **Exclude VAT**.
- 1.26 The Contractor(s) will be required to complete the Schedule of Rates in the Form of Bid section of this document.
- 1.27 The section regarding the use of SMME's and EPWP (Expanded Public Works Programme) individual learners must be read and applied accordingly.
- 1.28 The increase after one (1) year shall not exceed CPIX, where after the prices will remain firm again for a year before a further price increase will be allowed and again it shall not exceed CPIX. Furthermore, to the annual increase the "rise and fall" as per the SEIFSA index will be applicable to the relevant items and contractors will be allowed to submit claims with the relevant proof.
- 1.29 Claims for Rise & Fall should be submitted within 30 days of related invoice, failure will result in forfeiting the right to claim for Rise & Fall for specific related invoices.
- 1.30 All items in the pricing schedule should be priced otherwise bid will be considered to be non-responsive.

EMPLOYER

- 1.31 The Employer of this contract is the Johannesburg Roads Agency (SOC) Ltd, which may alter during the contract period to its successor in title. The Joburg Roads Agency's representative will be the JRA Project Representative and the Contractor(s) will be advised of whom will fulfil that role on each project.

ACCEPTANCE OF BID

- 1.32 A valid and binding contract will be concluded at the time that the JRA send a letter of acceptance of this Bid to the Bidder(s).

TIME FOR PLACING OF ORDERS AND RATE OF DELIVERY

- 1.33 Orders will be issued during the period of 36 months commencing on the date of award, stating details of order or project. Delivery of service must generally be made within three days if the works is required in order for the JRA to meet the set KPI (Key Performance Indicator).
- 1.34 The rate of delivery and date of completion of work for each order or project will be agreed between the Contractor(s) and the JRA Project Representative.
- 1.35 Orders will be issued during the period of 36 months, works should be conducted as per official order even if the works completion date is after the contract expiry date, but it must be within the same financial year.

CONTRACTOR(S) GENERAL RESPONSIBILITIES

- 1.36 The Contractor(s) shall with due care and diligence execute and complete the works and remedy any defects therein in accordance with the provisions of the Contract.
- 1.37 A Copy of all traffic signal controller configs that has been adjusted must be send to JRA.
- 1.38 Unless otherwise stated, the Contractor(s) shall at his own expense supply and provide all the supervision, constructional tools, plant, machinery, labour, consumables, specialized equipment and facilities required, transport to and from the sites and anything else required for the completion and maintenance of the works.
- 1.39 The Contractor(s) shall include in the rate all materials and equipment required including transport to site in the pricing schedule to carry out the work as specified.
- 1.40 The Contractor(s) shall return all recovered materials or equipment to the JRA Traffic Signals stores within 1 week after completion of each project. The Contractor(s) shall keep proof of returning the materials or equipment to the JRA.
- 1.41 It will be the Contractor(s)'s responsibility to liaise with the relevant departments of the JRA to ascertain the correct positions of stop lines, pedestrian crossings, property boundaries, kerbs and any other future services, in order that signal poles, cables and other equipment can be properly located.
- 1.42 The contractor(s) must obtain his own information on the locality of services from service providers and apply for the wayleave.
- 1.43 The Contractor(s) must engage and give preference to local labour from the region in which the works is to be performed in the provision of services and engineering works required for the fulfilment of the Contract.
- 1.44 Ensure that all of the contractor(s)'s staff maintains cordial approaches, attitude and behaviour to all members of the public.
- 1.45 Notwithstanding anything previously stated, all works, repairs, connections, etc shall comply with the appropriate Standard Regulations current in the Republic, the local By-Laws at the time of installation and the Traffic Ordinance.

CONTRACTOR(S) RESPONSIBILITIES RELATED TO COMMUNICATION WITH JRA

- 1.46 The Contractor(s) shall supply the JRA Project Representative with daily jobcards of work completed. Jobcards will be supplied by the JRA and, if required by the Bidder(s), an example can be obtained from the JRA.
- 1.47 The jobcard should be submitted within 24 hours after completion of the works; failing this the contractor(s) could be at risk not being paid for the works completed on the jobcard.
- 1.48 The rates on the jobcard received from JRA shall not be changed by the contractor(s); the contractor(s) stand a chance of the contract being cancelled if these rates are changed by the contractor(s).
- 1.49 A layout indicating cable locations as well as measurements should accompany jobcards in cases where cables were installed.
- 1.50 Photographs of the site should be taken before and after construction. An electronic copy of photos should also be made available to the JRA.
- 1.51 The Contractor(s) shall update the Smart Traffic software with all required information.

- 1.52 The Contractor(s) shall maintain a registered and permanent based office during normal working hours, suitably staffed so that messages and instructions may be relayed through it to his field staff.
- 1.53 The following procedures should take place before any project site is handed over to the Contractor(s):
- JRA Project Representative to issue site plan / detail design to Contractor(s).
 - Contractor(s) should identify the appropriate materials or equipment to be supplied and must have it approved by the JRA Project Representative.
 - Way leave applications and utility applications should be completed.
 - Photographs should be taken of the site in at least two directions to confirm the condition of the site prior to site hand-over.
 - Work order placed with Contractor(s) to be confirmed by the JRA and scope of work agreed.
 - Contractor(s) and JRA Project Representative to agree time scales for each project / installation.
 - Contractor(s) and JRA Project Representative to agree action-dated deadlines for each project or installation.
- 1.54 The JRA Project Representative will provide milestones for each project to the Contractor(s) before commencement of the work. This would for example be the requirement to inspect and sign off all sleeve installations before re-instatement of excavations or trenches can proceed, etc.
- 1.55 Once the Contractor(s) is on site, he shall make allowance for the JRA's Project Manager and/or Quality Assurer to inspect any part of the work when certain project milestones have been reached.
- 1.56 After completion of the work the following procedures / inspections should take place:
- Once the JRA Quality Assurer is satisfied that the work has been completed in accordance with the JRA requirements and specifications, the Quality Assurer will issue a final acceptance and approve the handover of the installation to the JRA
 - The Contractor(s) shall supply a breakdown of materials used including serial number where required;
 - The Contractor(s) shall submit a timesheet listing all material and labour quantities to be signed off with the JRA project representative on site.
 - Sign off has to be reached between contractor and JRA Project Representative before payment is made for the specific project. Furthermore, the JRA Project Representative will not sign off the final electrical work without a valid COC
 - The Contractor(s) shall issue an invoice for the project within one week of project sign off;
 - No contractor's invoice will be submitted for payment by JRA without a COC validity declaration or a project completion certificate, to be issued by JRA's responsible employee, for the respective installation.
 - Where no COC gets filled and signed at a respective signalised intersection, an installation test card will be filled and signed at such intersection by the contractor's responsible registered electrician and JRA's responsible employee, after which it will accompany the COC and its test report.
- 1.57 Where these communication procedures are not being adhered to or if the Contractor(s) fails to meet the agreed deadlines on any project, without due notice and reasonable cause for the delay, the JRA Project Representative may order the Contractor(s) to move off site and work will be continued by an alternative contractor(s) or the JRA and no compensation will be made for work to date on that project.



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CONTRACTOR(S) RESPONSIBILITIES RELATED TO SAFETY

1.58 The Contractor(s) shall develop a Safety file, which must be submitted to JRA before commencement of any work. The Safety file or copies thereof must also be kept on site. The Contractor(s) shall ensure at all times the safety of both the public and his personnel during the entire period of the Contract and keep the Site and the Works in an orderly state appropriated to the avoidance of danger to such persons.

1.59 The safety file approval checklist is as per tables below

NO		Findings	Status /Comments
1.	Appointment Letter (Tender award) – JRA		
2.	Contract for the project		
3.	Appointment Letter: CR 5 (1) k		
4.	Scope of Work (in writing) – JRA		
5.	SHE Specifications – JRA (signed by Section 16(1))		
6.	Copy of Baseline Risk Assessment – JRA		
	List of • Mobile Plant and Construction Vehicles • Energy-Powered Portable Tools • Material (including HCS) • Employees on site and identity documents certified • Sub – Contractors • Smme's		
7.	Site Establishment • To be confirmed when on site as is a moving project. • Organogram		
8.	Safety, Health and Environment Plan		
9.	SHE Policy		
10.	Drug, Alcohol and Substance Abuse Policy		
11.	HIV/ AIDS Policy		
12.	Proof of Safety, Health, and Environment Induction: • Emergency Plan • Environmental Management Plan • Traffic Management Plan – include generic road signs placing diagram (drawings) • Risk Assessment (Site specific activities) • Safe Work Procedure/ Safe Operating Procedure • Handling of Hazardous Chemical Substances		
13.	A signed section37 (2) agreement – JRA		



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14.	Letter of good standing with the compensation commissioner		
15.	Notification of construction work (if applicable)		
16.	Application for construction work permit (effective from August 2015)		
17.	Legal appointments as required by construction regulations and OHS act		
	16(2) Project Manager		
	8.1 Construction Manager		
	8.2 Assistant Construction Manager		
	8.5 Construction Safety Officer		
	8.7 Construction supervisor		
	8.8 Assistant Construction Supervisor		
	Health and Safety Representative(s)		
	Health and Safety Committee Members		
	Incident Investigator		
	9.1 Risk Assessor		
	Construction vehicle, mobile Plant and machinery Supervisor		
	First Aider		
	CR29 (i) Fire Fighting Equipment Inspector		
	Excavation supervisor		
	Stacking and Storage Supervisor		
	Hazardous Chemicals Supervisor		
	Portable Electrical Tools Inspector		
	CR 10. 1 Fall protection planner		
	CR 12. 1 Temporary works designer		
	CR 12. 2 Temporary work supervisors		
	CR 16. 1 Scaffolding supervisor		
	CR 24 (c) Electrical inspector		
18.	Equipment and tools registers & checklists		
19.	Medical fitness certificates for ALL workers		
20.	A record of PPE issued to workers		
21.	Records of training/competencies for workers / Technical Qualifications and CV		
22.	Specific safe work procedures for the work that will be carried out		
23.	Hazard/Aspect identification and Risk /Impacts		



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	assessment for the specialised work		
24.	Fall protection plan (if applicable)		
25.	Incident registers and documentation (W.C.L.2 & Incident Investigation procedure.		
26.	Material safety data sheets		
27.	Aspects of toolbox talks Topics / discussion		
28.	A record and register of toolbox talk		
29.	Authorization for dumping building & spoil rubble/material		
30.	Way leaves		
31.	Environmental Management Plan: a) Environmental awareness of all role players b) Planning of work and tasks prior to commencement according to desired outcomes c) Assessment of the workspace environment and compliance to legal and other statutes d) Drawing up site specific awareness campaigns and e) Instruction documents for the diligent execution of impacting activities in an environmentally conscious way. f) Creating a set of auditable documents with line of custody and responsibility outlined and implemented. g) Water Use License (Clearance / diversion of wetland / river); Waste disposal/ storage management; Dust management, EIA, Noise and Hazardous waste.		
32.	Proof of registration with the relevant authorities for Hazardous and general waste.		
33.	Copy of OSH Act including CR 2014		
34.	Sub-contractor's Specifications		
35.	Sub-contractor's safety plan		

36.	Sub-contractor's copy of Letter of good standing		
37.	Sub-contractor's copy of Medical Certificates		
38.	Sub-contractor's machine operators training certificates		
39.	Sub-contractor's copy of H & S File evaluation sheet (Approved)		

- 1.60 At no time must open trenches be left unprotected. The Contractor(s) must erect temporary fences/security barriers around all excavations and piles of soil. These fences must be plainly marked by means of suitable discs hung from the wires and by red reflectors to the JRA Project Representative's approval.
- 1.61 The Contractor(s) must at all times bear in mind the requirements of road and pavement users and must cause as little inconvenience and obstruction as possible. No trench may be left open for more than 24 hours.
- 1.62 The Contractor(s) shall provide and maintain at its own cost all barriers/fencing, lights, warning signs and watching if required for the protection of the project site and for the safety and convenience of the public or others.
- 1.63 The Contractor(s) shall ensure that all relevant duties, obligations and prohibitions imposed in terms of the latest version of the Occupational Health and Safety Act, and Regulations will be fully complied with at all times. A written agreement in accordance with the Occupational Health and Safety Act must be entered into on award of Bid.

- 1.64 The Contractor(s) shall at all times observe proper and adequate safety precautions on the Site. Where adequate safety precautions are not being observed, the JRA Project Representative may order the Contractor(s) to move off-site and work will be continued by another contractor(s) or JRA and no compensation will be made for work to date on that project.
- 1.65 Contractor(s) shall provide the client with a written safety plan which is in accordance with the specification he provided you with as well as legislation Section (5) (1)
- 1.66 Contractor(s) shall monitor all contractors appointed by you and ensure that they comply with the Occupational Health and Safety Specification of the Client as well as legislation. Section (5) (2)
- 1.67 The Occupational Health and Safety Specification, Safety Plan as well as the inspection on the Contractor must be done by a person deemed competent by the Construction Regulations Section (7)

JOBURG ROADS AGENCY'S RESPONSIBILITIES

The following are the main key responsibilities of the JRA:-

- 1.68 Furnish the contractor(s) with written instructions, drawings, documentation etc indicating the project site and the nature and extent of work to be performed as required.
- 1.69 Providing templates to be used as required.

PLANNING AND EXECUTION OF WORK

- 1.70 All work associated with this bid must be executed in such a manner that the installation becomes available for service as soon as possible. This should also include the sign-off of the final certificate.
- 1.71 The Bidder(s) must program his workflow and staffing requirements and make suitable arrangements to meet with Joburg Roads Agency's personnel on site prior to carrying out the work on site, as no payment will be made for standing or waiting time.
- 1.72 The Contractor(s) shall make allowance for the JRA's Project Manager and/or Quality Assurer to inspect any part of the work when certain project milestones, as agreed for each project, have been reached.

WORKMANSHIP

- 1.73 The JRA Project Representative shall have authority to issue instructions for the removal and proper re-execution of any of the contractor's work which, in respect of materials or workmanship is not, in the opinion of the JRA Project Representative or Quality Assurer, in accordance with the required JRA standards.
- 1.74 Should any of the work carried out by the Contractor(s), become defective within a period of three (3) months from the date of final acceptance of the installation as a result of poor workmanship or negligence on the side of the Contractor(s), the Contractor(s) will be ordered to repair and re-execute the work at no cost to the JRA. Should the Contractor(s) fail to comply with this order, the JRA Project Representative

shall have the right to remove and have the work reinstated by another contractor(s) or the JRA and the cost will be recovered from the Contractor(s).

- 1.75 No part of the works shall be covered up or put out of view without approval of the JRA Project Representative or the JRA's Quality Assurer and the Contractor(s) shall afford full opportunity for the JRA to examine and measure any such part of the work which is about to be covered up. The Contractor(s) shall give notice to the JRA whenever any such part is ready for examination and the JRA's Quality Assurer shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor(s) accordingly, attend for the purpose of examining such part of the work.

DEFECTS LIABILITY PERIOD

- 1.76 The Contractor(s) shall be responsible for all defects as a result of poor workmanship or negligence on the side of the Contractor(s), for a period of three (3) months after the issuing of the final acceptance of the installation.
- 1.77 On completion of the installation, the contractor(s) shall test each piece of equipment and each circuit for correct functioning under supervision of the Quality Assurer of the JRA. During the commissioning testing, any necessary adjustments and calibration procedures shall be carried out.
- 1.78 JRA reserves the right to revoke the commissioning certificate if it is found that there were poor workmanship or negligence on the side of the contractor(s).
- 1.79 Should the JRA discover on re-opening of any installation completed by the Contractor(s), even after the three-month liability period has expired, that the installation did not comply with the JRA specifications and design, the JRA may cancel the Contract with the Contractor(s) and appoint another Contractor(s) to fulfil the obligations for the remaining Contract Period.
- 1.80 Should, during the three (3) months defects liability period, controllers / installations not function correctly or becomes damaged as a result of poor workmanship on the side of the Contractor(s) (e.g. due to loose or incorrect connections), the Contractor(s) shall be liable for repairing the damage or replacing the controller at his own cost.

DEFECTIVE MATERIALS

- 1.81 The Contractor(s) shall, at his own cost and within a reasonable time as specified by the JRA, remove any materials which in the opinion of the JRA Project Representative or Quality Assurer are not in accordance with the specification or his instructions and substitute with proper materials and properly re-execute any work with materials and workmanship which, in the opinion of the JRA Project Representative, are in accordance with the JRA specifications. The Contractor(s) shall amend and make good any defects, shrinkage, defaults or other damage which may appear arising from defective or improper materials or workmanship or from any neglect, omission, act or default of the Contractor(s) or from any accident, fire, drought, flood, frost or tempest.

STANDARDS AND CODES

- 1.82 All work carried out must comply with the following: -
- a) Occupational Health and Safety Act [OHS Act];
 - b) South African National Standard specifications SANS 1507: Electric cables with extruded solid dielectric insulation for fixed installations [SANS 1507];

- c) The Wiring Code SANS 10142-1 (Standards relating to electrical installations)
- d) The Greater Johannesburg Metropolitan Council's By-Laws [By-Laws];
- e) The Greater Johannesburg Metropolitan Council's Electricity By-Laws.
- f) South African National Standard specifications SANS 1459: Traffic lights [SANS 1459];
- g) South African National Standard specifications SANS 1547 : Traffic Signal Controllers
- h) SANS 1200 Standardized specification for Civil Engineering Construction: Various applicable Sections [SANS 1200]
- i) The South African Road Traffic Signs Manual Volume 3: Traffic Signal Design, [SARTSM].
- j) The "Codes of Practice for Work in the Road Reserve" as issued by the JRA. A copy of the "Code of Practice for work in the Road Reserve" will be available for viewing at JRA's Traffic Signals Depot, 1 Henry Nxumalo Street, Corner of Main Rd, Newtown.

ELECTRICIANS / ELECTRICAL CONTRACTOR(S)

- 1.83 In some instances, the Contractor(s)'s staff will be required to work on live equipment. The Contractor(s) must therefore provide proof that he has a person(s) in his **permanent** employ with the necessary qualifications to carry out the electrical work.
- 1.84 The Contractor(s)'s electrical/electronic technicians must also be fully conversant with Automotor, Syntell and Siemens (or equivalent) traffic signal systems or any other types of controllers that the JRA may implement in future and should stay abreast of the relevant traffic signal technology.
- 1.85 The contractor shall obtain accreditation certificates for person(s) in the employment of the bidder for the controllers currently in use in the JRA, the successful bidder must note that once tender has been awarded only persons with accreditation will be allowed to work on a controller. The accreditation certificate must be available in the vehicle at all times.
- 1.86 The Contractor(s) shall complete the necessary documentation showing the qualification of the electrical/electronic technician.
- 1.87 A list of qualified electricians should be attached with a copy of their certificate.
- 1.88 Only a qualified electrician will be allowed to perform the connections and terminations of all cables.
- 1.89 The Bidder(s) as well as any subcontractor(s) who will perform electrical work shall be registered as an electrical contractor by the Department of Labour (registration certificate to be attached to the bid).
- 1.90 The Bidder(s) shall have an employee with a valid wireman license.

CIDB REGISTRATION

- 1.91 Bidders must provide proof of registration with the CIDB at a minimum level of 6EP, to be considered in the bid's evaluation process.

STANDARD OF SERVICE

- 1.92 The Contractor(s) must ensure that the JRA Project Representative's and JRA's best interests are served at all times during the contract period. Recommendations and advice must be based on impartial observations, responsible opinions and pertinent facts. Any information gained by the Contractor(s) during the course of the contract must be kept in strict confidence and may not be used without the written permission of the JRA Project Representative.
- 1.93 If a traffic signal is found in a working state then the traffic signal must also be left in a working state, before the site is left for the day.

CLEANLINESS OF WORK SITE

- 1.94 As the work will be performed mainly in residential areas, the work site must be kept clean at all times and must be cleared of scrap on a daily basis. Failure to comply will result in the contractor being reported to the Contract Management Unit (CMU).

REGISTERED OFFICE

- 1.95 The Contractor(s) must maintain a permanently based office during normal working hours, suitably staffed with required resources, that includes a computer connected to the internet in order to update Smart Traffic.
- 1.96 The Contractor(s) will be required to install the Smart Traffic app on an android based cellular phone in order to update the system when work is performed on site.

WORKING HOURS

- 1.97 Payment for work will be made as per bidded rates; these rates will be used for work performed during normal working hours as well as work performed outside normal working hours, weekends and public holidays.

There will be no additional (higher) rate for work performed outside normal working hours.

STANDING TIME

- 1.98 The JRA can not guarantee continuity of work to the Contractor(s) and no compensation for standing time will be made.

OPERATING CONDITIONS

- 1.99 The Contractor(s) will be required to work under the following operating conditions: Ambient temperatures: typically - 3°C to 35°C, but in line with temperatures in Gauteng
- a) Altitude above sea level: ~1 800 m
 - b) Average humidity: as per averages available
 - c) Lightning: Severe

- d) Dust: Severe
- e) Voltages:

High voltage systems	= 11 000V – 3 phase
Medium voltage system	= 400 / 230V – 3 phase, 4 wire
Low voltage systems	= 230V – single phase

Extra Low voltage systems $\leq 48V$

SECURITY

- 1.100 The Contractor(s) should have adequate insurance cover against theft and damage of the material and equipment. All material and equipment will remain the contractor's property and responsibility, until signed over by the JRA.
- 1.101 The Contractor(s) must familiarize himself with the risks and conditions especially pertaining to the safety of personnel where areas of work occur. The JRA will only provide security for the Contractor(s)'s personnel under exceptional circumstances and only if approved by the JRA Project Representative.
- 1.102 The contractor will also be allowed to quote for site security, which the contractor will source accordingly upon approval by the JRA representative. The security officer shall have the appropriate PSIRA grade accreditation.

REMOVAL OF SURPLUS MATERIAL

- 1.103 The Contractor(s) must remove all soil, tarmac, rocks and other material left over after excavation and backfilling and must dispose of this material. The site must be left clean and level after completion of the contract. All paving blocks removed must be neatly stacked at the rear of the pavement. The cost of this work must be included in the excavation work. No work will be passed for payment before this requirement has been met.

OBSTRUCTION TO TRAFFIC

- 1.104 At no time may pavements be closed to pedestrians, unless approved by the JRA authorised representative.
- 1.105 No methods may be employed which could be a source of danger to the public.
- 1.106 When working in the roadway, danger signs complying with the traffic regulation must be used. The JRA will make no special arrangements for the diversion of traffic.
- 1.107 Proper traffic accommodation must be in place.
- 1.108 The Contractor(s) must notify the JRA Project Representative or senior technician prior to commencing any work that would cause a disruption to traffic.

TREES

- 1.109 Where trees interfere with the work the matter must be reported to City parks for their assistance. It remains the responsibility of the contractor to do required follow ups with City Parks.

SIGN BOARDS / BANNERS

- 1.110 The JRA may require the Contractor(s) to display signboards / banners notifying the public of upgrades to the Traffic Signal Systems. The signs will be ordered by the JRA and if required should be installed by the Contractor(s) in accordance with the JRA requirements.

CONTROL OF LABOUR

- 1.111 The requirements of the Medical Officer of Health, the Johannesburg Metropolitan Police Department (JMPD) and the JRA Project Representative must be strictly adhered to.

DAMAGE AND INSURANCE

- 1.112 The Contractor(s) will be held responsible for all damage to existing services or any damage caused by actions of the Contractor(s) or his staff to electrical, water, sewer, gas, telephone or any other services or to private or JRA property and must be repaired at the Contractor(s)'s expense.
- 1.113 The Contractor(s) has to acquaint himself with the locations of all existing services, such as sewerage pipes, storm water pipes, culverts, water pipes, manholes, valve casings, electric cables, telephone cables or any other services, before any work is commenced that could affect existing services.
- 1.114 Any property found damaged by others, which could implicate the Contractor(s) in any way, must be reported to the JRA Project Representative before any work commences. Any resultant repair costs will be wholly for the Contractor(s)'s account and no claims of prior weakness or defects to the structure will be considered.
- 1.115 The Contractor(s) must have adequate insurance cover against any damage caused by the Contractor(s) or his staff to electrical, water, sewer, gas, telephone or any other services or to private or JRA property.

MATERIAL TO BE SUPPLIED

- 1.116 This tender is a supply and install tender and therefore pricing must be supplied for all required items.
- 1.117 Material and equipment supplied must meet the JRA specifications any item not meeting this requirement will be rejected by the JRA.
- 1.118 Details to be submitted indicating compliance to the JRA specifications.
- 1.119 The supplier where the materials are to be obtained from, should be listed and the JRA should be informed during the contract if the bidder wish to change the supplier, which will result in bidder to submit proof of compliance to the JRA for approval, before bidder can change suppliers.
- 1.120 All warranties as required by the JRA shall be adhered to and shall be transferred to the JRA from the supplier.

INFORMATION REQUIRED

- 1.121 The Bidder(s) must attach to this document a Company Profile which include the company experience. If a sub-contractor is to be used, then the sub-contractor's Company Profile should also be attached.

- 1.122 The Contractor(s) must complete all details required in this document as well as the Technical Data Sheet, Omissions and Variations Sheet and Compliance Sheet included in the Form of Bid, failing which may lead to bid not to be considered.

ENQUIRIES

For any further information an e-mail must be send to tenderenquiries@jra.org.za.

CONTRACTORS RESPONSIBILITIES RELATED TO SAFETY

- 1.123 The Contractor(s) shall develop a Safety file, which must be submitted to JRA before commencement of any work. The Safety file or copies thereof must also be kept on site. The Contractor(s) shall ensure at all times the safety of both the public and his personnel during the entire period of the Contract and keep the Site and the Works in an orderly state appropriated to the avoidance of danger to such persons.

MICRODOT

- 1.124 A microdot is text or an image substantially reduced in size onto a small disc to prevent detection by unintended recipients. Microdots are normally circular and around 500 microns (0.5 mm) in diameter but can be made into different shapes and sizes and made from various materials such as polyester or metal.
- 1.125 Pins can not fade. Must be fire resistant to temperatures up to 1200 C. Readability must be at least 60x magnification under microscope. Security features: highly advanced elements, graphics, micro and nano texts, DNA taggants in adhesive. UV wavelength must be at least 395nm flashlight. Must have asset management systems for audits and keeping record of which assets are marked/damaged/sold/scrapped etc
- 1.126 All equipment supplied are required to be micro-dotted.
- 1.127 JRA will provide the description on the microdot.

PART 2 TECHNICAL INFORMATION AND SPECIFICATIONS

SECTION A: EXCAVATION OF TRENCHES AND INSTALLATION OF SLEEVES

1. SCOPE

This section covers the technical details for the provision of labour, supervision, transport, specialized equipment and facilities for excavation and backfilling of trenches and installation of sleeves.

2. MATERIALS / EQUIPMENT TO BE SUPPLIED BY CONTRACTOR(S)

The Contractor(s) must supply the following materials / equipment included in the price, no separate rate will be accepted:

- All tools, plant or cutting equipment and fuel, if required, for the machinery.
- All transport for his staff, machinery and equipment.
- Consumable items such as cement, cable marker tape, adhesive solvents, soaps, cleaning rags, hand cleaner cotton waste, insulation tape, etc.
- Specialised equipment eg ultrasonic and radio detection equipment for locating other services.
- Material as required.

3. INFORMATION PERTAINING TO OTHER SERVICES

The contractor(s) must obtain the required information from the other service providers (SP) at quoted rates as well as apply at the JRA and pay the required fee.

4. RELOCATION AND PROTECTION OF SERVICES

The item is provided as a provisional sum to be used to the discretion of the JRA Project Representative to protect services or relocate services if required at a specific intersection.

5. TRACING OF EXISTING SLEEVES

The tracing of existing sleeves shall be carried out on instruction of the JRA Project Representative and will consist of hand excavated trenches to determine the position of existing ducts. The trenches shall be backfilled and compacted on completion. The item will be measured in running meter (m), less than 1,5m deep, of material excavated.

6. ACCOMMODATION OF TRAFFIC

The accommodation of traffic will be required and shall include all equipment and manpower, including all road signs, cones, flagman and arrangements with the traffic department as required ensuring the safe accommodation of traffic during installations.

The road signs supplied by the Contractor(s) for the accommodation of traffic, must be in good condition and will be inspected by the JRA Quality Assurer prior to or during the commencement of construction, as instructed in the works order.

7. CROSSING OF ROADWAYS

Where cables cross roadways, the Contractor(s) must ascertain whether sleeves have been installed to pull the cables through. The sleeves will be within 1m on either side of the mark and generally one (1) meter below finished road level.

Roads may only be excavated across where there are no existing sleeves and authority must first be obtained from the JRA Project Representative. It is the responsibility of the contractor(s) to find out what roads are "No Dig" Roads. This information can be obtained the JRA way leave office.

Under no circumstances may the roadway be excavated where sleeves are available.

Open trenches must be covered at night and over weekends by means of suitable covers to allow reasonable access to the properties by both pedestrians and vehicles. No driveway may be excavated unless the occupant of the premises has been given at least 24 hours' notice.

8. CUTTING, LIFTING AND REPLACING OF ROAD SURFACE

The lifting and replacement of the various types of road surfaces, i.e. interlocking blocks, concrete or asphalt will be required when crossing existing roadways. The standard JRA paving blocks are 60mm or 80mm thick grey interlocking concrete blocks. The rate shall include cutting and lifting of the surface, stock piling of re-usable material, removal of spoil material and reinstatement of road surface by reusing existing material or providing new material. Where reinstatement of asphalt surfacing is required, it shall be done to a minimum thickness of 40mm.

If any specialised paving materials are encountered or where existing materials cannot be re-used, instructions and agreed rates in the form of a variation order from the JRA Project Representative must be received by the Contractor(s) before lifting of the materials commences.

9. EXCAVATION FOR ROAD CROSSINGS

Where sleeves are not available, trenching across existing roadways or excavations for crossing of existing streets will be required for the installation of sleeves. This includes the excavation of a 600mm wide trench to a depth of 600 mm, stock piling of re-usable material and removal of spoil material, laying of ducts, backfilling and compaction of material, compaction must be done in Layers and must pass a DCP test. The item will be measured in cubic meters of trench excavated and reinstated and should include all work related to the road crossing (i.e. cutting, lifting, excavating, laying of sleeve, re-instatement, etc.)

10. REMOVAL AND REPLACEMENT OF LAWN GRASS

When trenches are excavated in lawn grass, the Contractor(s) shall carefully lift and preserve the grass and replant after backfilling and compaction of the trenches. The item will be measured in square meters of lawn grass lifted and replaced.

11. CROSSING OF DRIVEWAYS

Where cables are to be installed under paved driveways, it is preferred that such paving is not disturbed.

Where the Contractor(s) must cut through the paving, the paving must be reinstated to the satisfaction of the JRA Project Representative and the property owner within 48 hours.

12. EXCAVATION FOR THE INSTALLATION OF SLEEVES

Excavation for trenches next to the road, for installation of sleeves or traffic signal, loop and electrical cables in all classes of material.

The Contractor(s) will supply 110mm diameter PVC pipes for installation in trenches.

The item shall include the excavation of trenches, stock piling of re-usable material, removal of spoil material installation of sleeves in accordance with the JRA specifications, backfilling by reusing existing material or using suitable fill material and compaction. All excavations for trenches and installations of sleeves shall comply with the relevant clauses of SANS 1200 as specified below.

13. BACKFILLING OF TRENCHES

All trenches must be inspected and approved by the JRA's Quality Assurer before cables are laid. Backfilling of trenches must be done in accordance with the "Code of Practice for Work" in the road reserve.

14. EXCAVATIONS IN MAJOR BUSINESS DISTRICTS

All excavations in the Major business centres should be carried out in such a way to cause the least disruption to traffic.

15. EXCAVATED MATERIAL

All excavated material must be piled in positions where it will offer the least obstruction to traffic. Under no circumstances may drainage systems be obstructed. Excavated material not required for backfilling must be removed within 24 hours.

16. PROTECTION OF EXCAVATION SITES

At no time must open trenches be left unprotected. The Contractor(s) must at all times bear in mind the requirements of road and pavement users and must cause as little inconvenience and obstruction as possible. No trench may be left open for more than 48 hours.

17. INSTALLATION OF SLEEVES / PIPES

All sleeves / pipes shall be installed as follows:-

- All holes / sleeves and pipes must be installed at a minimum depth of 500 mm from the top of the hole / sleeve or pipe to the road surface.
- The sleeves must extend at least 500 mm beyond the kerbs into the pavement area.
- The sleeves must be installed complete with 1,5 mm galvanised steel draw wire. The bidded rate should include the supply of this steel wire.
- The ends of all sleeves / pipes must be blanked or sealed off by means of end caps to suit the sleeves / pipes.
- Plastic bags or sheeting placed over the end or other materials pushed into the pipes will not be accepted.

18. EARTHING

Proper earthing shall be installed at all sites, this will include earth cable, spikes and conductive earthing compound as required.

19. RELEVANT STANDARDS

All excavations of trenches and installation of sleeves shall comply with the relevant clauses of SANS 1200.

- Selected granular material and selected fill material: The requirements for selected granular materials or selected fill material given in SANS 1200LB, if relevant, shall apply.
- Bedding: Bedding materials for ducts shall comply with Clause 3.2.1 of SANS 1200LC.
- Backfill materials and materials for the reinstatement of roads and paved areas: The requirements of SANS 1200 DB Clauses 3.5 and 3.6 shall apply.
- Selection of materials: Clause 3.7 of SANS 1200 DB shall apply, where relevant.
- Excavation equipment: The Contractor(s) shall use plant in good order that can excavate trenches to widths that will assure proper backfilling.
- Control of water: Clause 4.2 of SANS 1200 DB and Clause 4.2 of SANS 1200 LC, shall apply.
- Compaction equipment: Clause 4.3 of SANS 1200 DB and Clause 4.2 of SANS 1200 LC, shall apply.
- Construction precautions: The Contractor(s)'s attention is drawn to the provisions of Sections D16 of Chapter V of the Regulations gazetted under the Factories, Machinery and Building Works Act 1941 (Act 22 of 1941), as amended, which lays down the statutory precautions to be taken in all trench excavations.
- Storm water, seepage and dewatering of excavations: The Contractor(s) shall properly and adequately protect the works from flooding, damage by storm water, flow from springs and seepage and he shall comply with the conditions of SANS 1200 A sub clause 5.5.
- Accommodation of traffic and access to properties: Clause 5.1.3 of SANS 1200 CB shall apply.
- Existing services that intersect or adjoin trenches: The requirements of Sub-Clause 5.4 of SANS 1200 A shall apply.
- Trench widths and depths: The minimum trench dimensions for ducts shall be as specified in Clause 5.1.1 of SANS 1200 LC.
- Cables that are not laid in ducts shall have a minimum of 500mm cover for 500V cables or less, and 900 mm cover for cables more than 500V. Minimum trench width shall be 250mm or the total width of the group of cables plus 100mm on each side.
- The use of narrow trenching plant, moles or such other equipment shall be subject to the approval of the JRA Project Representative and shall be conditional upon the specified degree of compaction of backfill being achieved.
- Bedding and compaction of bedding: SANS 1200 LB-1983 shall apply.

- Ducts: Clause 5.2 of SANS 1200 LC shall apply.
- Cables without ducts: A layer of bedding material 100 mm thick shall be placed at the bottom of the trench, and well compacted before the cables are laid. At least 150 mm of bedding material shall be placed over the cable and compacted carefully with a tamping tool as specified in SANS 1200 LC Clause 4.2 before normal backfilling can commence.
- Backfilling and compaction: The relevant requirements of Clause 5.6 and 5.7 of SANS 1200 CB shall apply.
- Concrete encasement: Where so required, ducts shall be encased in concrete with minimum curb strength of 15 MPa after 28 days.
- Minimum distances between electricity cables and detector lead-in cables or telecommunication cables: Trenches shall be excavated in such positions that detector lead-in cables or existing telecommunication cables and electrical power cables are separated by at least 300 mm of soil. Where this is not possible, the Contractor(s) shall seek the JRA Project Representative's instructions before laying the cables.
- Marking cables and ducts: Cable marking tape shall be placed in the backfill, 300 mm above the cable or duct. The relevant requirements of Sub-Clauses 5.9 and 5.10 of SANS 1200 LC shall apply.
- Reinstatement of surfaces: Existing paved surfaces shall be repaired and reinstated as required in terms of Sub-Clauses 5.9 and 5.10 of SANS 1200 DB.
- Tolerances: The requirements of Clause 6 of SANS 1200 LC shall apply for cable and duct trenches.
- Testing: The requirements of Clause 6 of SANS 1200 LC shall apply.
- Rates: The relevant requirements of Clause 8 of SANS 1200 CB shall apply, but the Contractor(s) shall include the cost of supplying and laying marking tape in his rates for trenching.

SECTION B: INSTALLATION OF CABLES CUTTING OF LOOPS AND INSTALLATION OF MAGNETOMETER BASED DETECTORS

1. SCOPE

This section covers the installation of traffic signal cables and the cutting and installation of inductor loop or magnetometer detectors for vehicle-actuated signals and traffic responsive control systems such as Urban Traffic Control (UTC). The traffic signal cables, joints and magnetometer related material will be supplied by the contractor. The work shall include the provision of labour, supervision, transport, material, specialized plant and facilities as well as consumables.

2. MATERIALS TO BE SUPPLIED

All materials to be used shall be supplied by the contractor(s), the Contractor(s) must also supply the following materials / equipment:

- a) All cutting equipment and fuel, if required, for the machinery.
- b) All transport for his staff, machinery and equipment.
- c) Silicone sand for bedding and bitumen/epoxy compound for sealing of the cuts.
- d) 20mm PVC conduit, where required
- e) Consumable items such ferrules, lugs, insulation tape, adhesive solvents, soaps, cleaning rags, hand cleaner cotton waste etc.

3. PROCEDURE FOR INSTALLATION OF CABLES

For road crossings the cables must be installed in cable sleeves, which must be laid at a minimum depth of 500mm from the top of the sleeve to the road surface. The sleeves shall protrude by at least 500mm from the kerb or road edge into the footway on both sides of the road.

Cables must only be laid in trenches having smooth flat bottom surfaces. Where these surfaces are irregular they must be smoothed off before installing the cables. Where cables are installed in trenches cut in rock, a 75 mm layer of fine riddled earth must be placed on the bottom of the trench to serve as bedding for the cable.

Rock encountered in trenches is to be removed with the use of mechanical rock breakers such as a pneumatic hammer and wedge. The use of explosives will only be considered under special circumstances and blasting may only be undertaken with the written permission of the JRA Project Representative.

All cables shall operate within their current ratings and shall be protected by appropriately rated circuit breakers or fuses.

Cables between the controller and signals shall have the number of cores as specified by the JRA Project Representative. Care shall be taken to ensure that armour wires are correctly seated and that all parts are properly tightened.

Cores shall be designed to firmly clamp the conductor by means of a pressure plate such that the clamping pressure is not generated by direct contact between the terminal clamping screw and the conductor. There shall be no appreciable mechanical strain on the core at the termination.

Cores shall normally be terminated directly into circuit breakers or onto terminal strips fixed to suitable mounting rails such that modules of equipment can be removed without disconnecting incoming or outgoing cables. Adequate space shall be allowed to facilitate access for installation and maintenance.

The cables between the point of connection to the electricity supply and the controller shall also be installed by the Contractor(s).

Joints in the cables will only be permitted at full drum lengths or at termination points. At all terminations, cable armouring shall be bonded to earth. Joints, if required, shall be of the cast resin type using joint kits from reputable suppliers approved by the cable manufacturer.

Two (2) metres of slack is to be looped at the base of each signal pole and at the controller to reduce the risk of breakage in the event of a vehicle colliding with the pole.

4. PROCEDURE FOR CUTTING AND INSTALLING LOOPS

On roads with asphalt surfacing, slots should be cut sufficiently deep to accommodate the wire, filling material and the slot sealant. On roads with block paving surface, loop wires must be installed in a 20mm PVC conduit or pipe. Either method may be applied to loops that are to be installed in concrete slabs and will be specified by the JRA Project Representative.

Loops must be properly and carefully installed to ensure that breakage of the wire or breakdown of the insulation, causing ingress of water and variations in resistance to earth and induction do not occur.

Cutting of the slot must be done at an even depth, particularly at corners where the cut must continue slightly beyond the end of the loop to accommodate the circular shape of the saw. The slots should be free from any sharp edges that could damage the loop wire insulation and should be clean and dry before laying the loop. The wire should be laid in the slot without the application of undue pressure or force. Wire should not be pushed into the slot with a screwdriver or any other sharp instrument.

The loop wires and wire tails from the loop should be one continuous length of wire and joints are not permitted. The wire tails are joined to the detector lead-in cable (DLC) and the joint should be encapsulated in a waterproof resin compound.

If there is a kerb, a hole must be drilled through or below the kerb and a conduit provided for the wire tails.

Detail drawings for each installation will be supplied by the JRA Project Representative.

5. INSTALLATION OF MAGNETOMETER AND VIDEO BASED DETECTORS

The installation of the equipment shall comply fully with the installation instructions by the manufacturer.

6. MEASUREMENT AND PAYMENT

Installation of Electrical Cables

This item will include draw of cable through ducts, laying in trenches and connection at end points including material required. The item will be measured per meter and type of cable installed.

Cable Joints and Terminations

This item is for the joining and termination of traffic signal cables and will be measured per cable joint including termination with or without glands including material required.

Cut in asphalt for inductive loops

The item will include a cut in existing asphalt and kerbs to the dimensions as specified in the detail drawings. The type of loop to be cut will be specified per intersection. The item will be measured per meter cut in asphalt including material required.

Cut in concrete for inductive loops

The item will include a cut in the concrete slab to the dimensions as specified in the detail drawings. The type of loop to be cut will be specified per intersection. The item will be measured per meter cut in concrete including material required.

Placing of loop wire

The item will include the collection and placing of all loop wire necessary for the construction of a loop in the road surface, namely 1,5 mm silicone wire, minimum 3 turns in the loop. Silicone sand and epoxy compound, which will be supplied by the contractor(s), shall be placed as shown in the detail drawings. The item will be measured per meter of loop wire installed as described including material required.

Supply and placing of 20mm PVC conduit

As alternative to cutting in the concrete slab or on roads with block paved surfacing, PVC conduits shall be placed in the concrete slab or below the block paving with the loop wire placed inside, within a minimum of 3 turns. The conduit shall be placed at the depth as specified in the detail drawing including material required.

The loop wire shall be placed in the conduit before placing the conduit in the concrete / under the paving. The 1,5mm silicone wire to be installed inside the conduit will be supplied by the contractor.

The item makes provision for the supply and installation of the PVC conduit and will be measured per meter of conduit.

Installation of low tension splicing kit

The loop wire shall be connected to the feeder cable (2 core 1,5mm² cable) via a low voltage splicing kit, voltage rating 1,1 kV.

The item shall include the installation of the splicing kit and will be paid per number installed including material required.

Extra over for additional loop wire

If the size of the loop circumference warrants an additional turn of wire, which will be specified by the JRA Project Representative, the additional wire will be measured and paid per meter wire.

Installation of magnetometer sensor device

The item shall include the installation of the sensor and will be paid per number installed. Where the installation includes the core drilling, cleaning of hole, placement of device and sealing of hole with the specified epoxy including all material required.

Installation of video based detection device

The item shall include the installation of the video based detection device and will be paid per number installed including material required.

Commissioning

This item will include the making alive, testing and commissioning of vehicle actuated or responsive systems. This includes that the contractor will select the different controller plans and activating the detection as required.

SECTION C: INSTALLATION OF TRAFFIC SIGNAL POLES AND SIGNAL HEADS

1. SCOPE

This section covers the technical details for the provision of labour, supervision, transport, specialized plant and facilities, cement and minor consumables for the installation of traffic signal poles, heads and direction signage (ST signs) including the excavation for and casting of concrete bases and installation of base plates(frames).

2. INSTALLATION OF TRAFFIC SIGNAL BASES

The bases for traffic signal poles will be hand excavated and the rate shall allow for excavation in all types of material. The rate for installation of bases for traffic signal poles shall include the casting of in-situ concrete or precast bases complying to JRA specifications, the excavation for the footing and the installation of the steel frame base plate including material required.

The item will be measured per number of completed bases, per type of traffic signal pole and the rate shall allow for the supply of material, concrete, as well as excavation.

3. INSTALLATION OF TRAFFIC SIGNAL POLES

This item covers the installation of traffic signal poles includes different heights and types. Rates must include material, transport to site and supply of labour for the installation of the poles. The item will be measured per type of pole and per number of poles installed.

4. PAINTING OF POLES

All poles shall be painted with two layers of anti-corrosive paint followed by golden yellow paint and black enamel paint on the top 750mm of the pole, as specified in the South African Roads Traffic Signs Manual. Cantelevers and Extended(Totem) poles will be painted black behind the Traffic Signal head in accordance with SARTSM height requirements. The rate shall provide for the material and labour to paint the complete pole. The item will be measured per type of pole and per number of poles painted.

5. ASSEMBLY AND INSTALLATION OF SIGNAL HEADS

The Contractor(s) is responsible for the material required, assembly and transport of traffic signal heads to site. Each signal head item, as specified in the schedule of rates, shall include the complete assembly of all the elements, which shall include the following:

- Lenses (LED modules)
- Aspect housing
- Visors
- Modular background screens
- Pole mounting straps

6. INSTALLATION PROCEDURE

The installation shall comply with the specification in the SARTSM. The height of the centre of the green signal aspect of the S1 signal heads shall not be less than 2,3m and not more than 3m above the level of the carriageway. The same height requirements apply to the amber right turn arrow of the S10 signal heads. Where indicated on the drawings, the yellow right turning arrow of the S10 signal heads shall be located to the right of

and in a horizontal line with the yellow aspect of the S1 signal heads. Similarly, the green right turning arrow of the S10 signal heads shall be in a horizontal line with the green aspect of the S1 signal head.

When fitted, the background screens shall be practically on the same plane as the lenses and shall be rigidly mounted to withstand the rigorous weather conditions encountered in South Africa.

The unit of measurement will be the number of signal heads, and the rate shall include all the items specified above and all other items to install the signal heads to the satisfaction of the JRA Project Representative, including material required.

7. INSTALLATION OF PEDESTRIAN PUSH BUTTONS

This item will include the installation of push button, including transport and assembly. The push button shall be installed at the height and with the layout of cabling as shown on the drawings. The pushbutton will be fixed to the pole using rivet nuts.

The item will be measured per number of push button assembled and installed, including material required.

8. INSTALLATION OF DEVICES FOR VISUALLY HANDICAPPED PEDESTRIANS

Visually handicapped pedestrians can be assisted to locate pedestrian actuated signals, and to know when the pedestrian phase is operating, by the installation of audio-tactile devices in the pedestrian button assembly. Accessible pedestrian signals (APS's) supplement pedestrian signal indications with audible and/or vibrotactile information, which could include directly audible or transmitted tones, speech messages, talking signs, and vibrating surfaces.

Contractor(s) must supply a rate for the supply, installation and testing, including decibel testing of any audio-tactile devices per crossing at traffic signal intersections, as specified by the JRA in the works order.

9. INSTALLATION OF POLE TOP CONNECTORS

Pole top connectors shall be installed at the positions shown on the detail drawings. The pole top connectors will be measured per number installed, including material required. This rate should include the rate for the terminations of the cables.

10. INSTALLATION OF DIRECTION SIGNS

The direction signs shall be installed at the positions shown on the detailed drawings.

The installation will be measured per sign installed, including material required.

SECTION D: INSTALLATION OF SIGNAL CONTROLLERS AND STUBBY

1. SCOPE

This section covers the installation, connection, commissioning and testing of traffic signal controllers and / or stubbies. It includes the excavation and casting of the concrete base for the footings, the installation of the controller cabinet and controller, connection to electrical supply, commissioning and testing of the controller, including material required.

The controller, complete with cabinet, shall be supplied by the contractor(s), the programming of the software (configuration) will be the responsibility of the Contractor. The rates shall include transport to site as well as the provision of the required labour, including material required, supervision, transport, specialized plant and facilities and consumables such as concrete, ferrules, lugs, insulation tape, etc.

2. INSTALLATION OF CONTROLLER, AND CABINET

The Contractor(s) shall be responsible for the complete installation of the controller. The item will include excavation of existing material, removal of spoil material from site, compaction of the work surface and casting a concrete base, including material required. The base for the controller cabinet shall be hand excavated and the rate shall allow for excavation in all types of material, including material required.

3. INSTALLATION OF STUBBY

The Contractor(s) shall be responsible for the complete installation of the stubby. The item will include for the material required, excavation of existing material, removal of spoil material from site, compaction of the work surface and casting a concrete base. The base for the stubby cabinet shall be hand excavated and the rate shall allow for excavation in all types of material.

4. INSTALLATION OF UNDERGROUND CHAMBER FOR CONTROLLER, STUBBY AND UPS

The chamber shall be non-metallic with no scrap value. The housing of the chamber shall be ribbed for strength and securing the housing after installation.

The chamber and access covers shall have an IP68 rating or better and the covers shall comply with SANS50124:1994, EN124:1994 with a class B125 Permanent set and B125 Load test.

Multiple sealed cable entries (minimum 12) are to be provided. Any cable penetration must be capable of being sealed to prevent moisture and dust ingress.

Access shall be via double entry manhole covers with a secure electronic and/or coded mechanical locking system.

Monitoring and reporting equipment must be installed to report alarms such as authorised / unauthorised access, as well as temperature and moisture alarms.

The mechanical lift/lowering system must be manufactured from Grade 304 stainless steel or better.

Suitable adaptors shall be installed to cater for the different controller types, stubby needs, or UPS mounting. This also includes IP68 rated cable glands and end caps as required.

The underground chamber supplier shall approve all installations, with a signed certificate, before handover to JRA.

5. CONNECTION TO THE MAIN ELECTRICAL SUPPLY

The Contractor(s) shall liaise with the JRA, City Power or Eskom (whichever is applicable) to determine the nature and location of the power supply and shall be responsible for establishing the location of the main electrical power supply and will be required to excavate trenches and install sleeves between the controller and the main electrical supply.

6. COMMISSIONING

On completion of the installation, the contractor(s) shall test each piece of equipment and each circuit for correct functioning under supervision of the Quality Assurer of the JRA. During the commissioning testing, any necessary adjustments and calibration procedures shall be carried out.

An original signed certificate from the Original Equipment Manufacturer (OEM) will be required after each controller installation, stating that the OEM visited the installation and whether the installation was done according to installation specifications and standards. The letter will further include the intersection name and controller serial number.

An electrical certificate of compliance (CoC) will be issued to the JRA before final acceptance (hand over) by the JRA. The JRA representative must be onsite while CoC testing is conducted. The pricing will be measured per intersection.

SECTION E: REMOVAL, REPAIR AND REPLACEMENT OF EXISTING TRAFFIC SIGNAL INSTALLATIONS

1. SCOPE

This section covers the technical details for the provision of labour, supervision, transport, specialized plant and facilities and minor consumables for the removal of old equipment, repair and/or replacement of traffic signal equipment within the area covered by the JRA.

2. MATERIALS / EQUIPMENT TO BE SUPPLIED BY CONTRACTOR(S)

The Contractor(s) must supply the following materials / equipment:

- All Material required,
- All equipment, tools and fuel, if required, for the machinery required to complete the work
- All transport for his staff, machinery and equipment.
- Consumable items such as cement, insulation tape, ferrules, lugs, adhesive solvents, soaps, cleaning rags, hand cleaner cotton waste etc.
- Specialised equipment eg ultrasonic and radio detection equipment for locating other services.
- All safety equipment required by the Contractor(s).
- Any specialised tool / handheld / laptop as required.

3. PROCEDURE FOR REMOVAL OF OLD EQUIPMENT

Existing traffic signal heads shall be removed as indicated by the JRA Project Representative. This will consist of switching off the power to the signal heads, removal of cables and removal of the signal heads as indicated by the JRA Project Representative. The Contractor(s) shall notify the JRA before commencement and before switching off a traffic signal installation. The JRA Project Representative will also indicate to the Contractor(s) which signal heads should be kept for re-use and which signal heads should be taken to the JRA Depot.

The removal of poles will consist of unbolting the poles from the steel frame and base plate if cantilever or high poles, or the excavation of the pole if a standard height pole is to be removed. An extra over item is provided if the frame is to be cut off directly above the concrete level and the reinstatement of the area to the natural ground level. This will be measured in number of poles.

The rate for disassembling will be a sum per traffic signal pole and must make provision for all costs to remove poles, disassemble and transport the signal heads and poles to the location indicated by the JRA Project Representative.

4. REMOVAL AND REPLACEMENT OF CONTROLLER BOX

This item shall include the switching off and isolating of the power supply, removal of poles, dismantling the controller, excavating the controller pole / cabinet and removal of the controller and the pole / cabinet foundation from site to a location indicated by the JRA Project Representative. The item will be paid per number of controllers removed.

5. REMOVAL OF DAMAGED CONCRETE BASES

Where required, the JRA Project Representative will request the Contractor(s) to remove the concrete bases of the traffic signal poles. The rate must make provision for the breaking up and removal of the concrete footing, backfill and compaction and re-instatement of the area the natural ground level. The item will be measured per concrete base removed and different rates should be provided for the removal of bases for the different types of poles.

6. REPLACEMENT OF TRAFFIC SIGNAL EQUIPMENT

The procedure for the replacement of traffic signal equipment will be similar to that of installing new equipment and is covered under the installation of new equipment in the Schedule of Rates.

7. COMPLETION OF INSTALLATION AND TOUCHING UP

After installation, any touching up of paintwork or realignment of signal poles or heads required by the JRA Project Representative must be done by the Contractor(s) at the Contractor(s)'s expense and to the satisfaction of the JRA Project Representative.

8. FAULT FINDING: LABOUR

When repairs to a traffic signal installations are required other than the work described above (even when minimal parts or material is used), the Contractor(s) will be required to execute such work on an hourly basis. The bidded rates for such labour shall fully allow for travelling costs to and from the required traffic signal installation site and no separate payment will be made for travelling time.

SECTION F: TRAFFIC SIGNAL MAINTENANCE

Preventative Maintenance Cycle

Bidders shall provide a rate for carrying out preventative maintenance on traffic signals. This shall be priced per site for a minimum order of a batch of 50 sites per order. Should the Employer request such maintenance the rate shall be applied pro-rata for the total quantity of controllers to be attended to.

Reactive Maintenance

Bidders shall provide a rate for a call out to a faulty traffic signal. This shall be priced per site and include man-hours, travel costs and replacement of faulty modules. Material / modules required to be charged separately as per pricing schedule.

Full Maintenance of an area

Bidders shall provide a rate for carrying out all maintenance related activities on traffic signals. For example, the JRA may assign an area of traffic signals to the appointed contractor where the contractor will take full responsibility of the traffic signals in the area including preventative, routine and reactive maintenance. The number of traffic signals are estimated to be between 80 and 130 traffic signals, however this is just an indication. This shall be priced per month and shall exclude material but include all labour related costs. Material / modules required to be charged separately as per pricing schedule.

SECTION G: EXCAVATION OF TRENCHES, HORIZONTAL DRILLING AND INSTALLATION OF SLEEVES

1. SCOPE

This section covers the technical details for the provision of labour, supervision, transport, specialized equipment and facilities for excavation and backfilling of trenches / pit holes, underground horizontal drilling and installation of sleeves.

2. MATERIALS / EQUIPMENT TO BE SUPPLIED BY CONTRACTORS

The Contractors must supply the following materials / equipment:

- All tools, plant or drilling machinery, drills / cutting equipment and fuel, if required, for the machinery.
- All transport for his staff, machinery and equipment.
- All material required, sleeves, couplings, sleeve end caps, draw wire, etc
- Consumable items such as cement, cable marker tape, adhesive solvents, soaps, cleaning rags, hand cleaner cotton waste, etc.
- Specialised equipment eg ultrasonic and radio detection equipment for locating other services.

3. INFORMATION PERTAINING TO OTHER SERVICES

The contractors must obtain the required information from the other service providers (SP) as well as apply and pay the JRA the required fee in order to obtain a way leave.

4. RELOCATION AND PROTECTION OF SERVICES

The item is provided as a provisional sum to be used to the discretion of the JRA Project Representative to protect services or relocate services if required at a specific intersection.

5. TRACING OF EXISTING SLEEVES

The tracing of existing sleeves shall be carried out on instruction of the JRA Project Representative and will consist of hand excavated trenches to determine the position of existing ducts. The trenches shall be backfilled and compacted on completion. The item will be measured in running meter (m), less than 1,5m deep, of material excavated.

6. ACCOMMODATION OF TRAFFIC

The accommodation of traffic must be carried out as required, including all road signs, cones, arrangements with the traffic department or the provision of manpower which may include flagmen as required ensuring the safe accommodation of traffic during installations.

The road signs supplied by the Contractors for the accommodation of traffic, must be in good condition and will be inspected by the JRA Quality Assurer prior to or during the commencement of construction, as instructed in the works order.

7. CUTTING, LIFTING AND REPLACING OF ROAD SURFACE

The lifting and replacement of the various types of pavement surfaces, i.e. interlocking blocks, concrete or asphalt may be required. The standard JRA paving blocks are 60mm or 80mm thick grey interlocking concrete blocks. The rate shall include cutting and lifting of the surface, stock piling of re-usable material, removal of spoil material and reinstatement of pavement surface by reusing existing material or providing new material. Where reinstatement of asphalt surfacing is required, it shall be done to a minimum thickness of 40mm.

If any specialised paving materials are encountered or where existing materials cannot be re-used, instructions and agreed rates in the form of a variation order from the JRA Project Representative must be received by the Contractors before lifting of the materials commences.

8. REMOVAL AND REPLACEMENT OF LAWN GRASS

When trenches are excavated in lawn grass, the Contractors shall carefully lift and preserve the grass and replant after backfilling and compaction of the trenches. The item will be measured in square meters of lawn grass lifted and replaced.

9. EXCAVATION

The item shall include the excavation of trenches, stock piling of re-usable material, removal of spoil material installation of sleeves in accordance with the JRA specifications, backfilling by reusing existing material or using suitable fill material and compaction. All excavations for trenches and installations of sleeves shall comply with the relevant clauses of SANS 1200 as specified below.

10. UNDERGROUND HORIZONTAL DRILLING AND INSTALLATION OF SLEEVES

This item includes for direct and direction drilling under roadways which cannot be trenched across. Contractors will require specialised drilling machinery and drills or cutting equipment. The item includes the excavation, compacting and backfilling of entry holes for drilling equipment and holes on the opposite side of the drilling equipment.

The Contractors shall supply sleeves / pipes in straight continuous lengths which must be manufactured from high density polyethylene and must comply with the European standard EN 50086 2 - 4 1994 - Conduit Systems for electrical installations Part 2 - 4 in particular requirements for Conduit Systems buried underground. Alternatively continuous lengths of high density black polyethylene pressure pipe which must comply with SANS 533, 1982 can be used. Provision shall be made by the Contractors for the JRA Project Representative to inspect samples of the equipment to be installed as and when reasonably requested to do so. This is especially important where a different type of material is used than what is presently used by the JRA.

11. SURCHARGE FOR DRILLING NEAR OTHER SERVICES

The rates quoted for drilling must be for locations where no other services exist. A surcharge in the form of a percentage may be included by the contractors at the end of the schedule of rates, for drilling in locations at less than one metre from existing services.

12. BACKFILLING OF TRENCHES

All trenches must be inspected and approved by the JRA's Quality Assurer before cables are laid. Backfilling of trenches must be done in accordance with the "Code of Practice for Work" in the road reserve.

13. EXCAVATIONS IN MAJOR BUSINESS DISTRICTS

All excavations in the Major business centres can only be carried out between the hours of 20h00 and 06h00 during the week and between 12h00 on Saturday and 06h00 the following Monday, unless otherwise agreed by the JRA or in emergency situations.

14. EXCAVATED MATERIAL

All excavated material must be piled in positions where it will offer the least obstruction to traffic. Under no circumstances may drainage systems be obstructed. Excavated material not required for backfilling must be removed within 24 hours.

15. PROTECTION OF EXCAVATION SITES

At no time must open trenches be left unprotected. The Contractors must at all times bear in mind the requirements of road and pavement users and must cause as little inconvenience and obstruction as possible. No trench may be left open for more than 48 hours.

16. INSTALLATION OF SLEEVES / PIPES

All sleeves / pipes shall be installed as follows:-

- All holes / sleeves and pipes must be installed at a minimum depth of 500 mm from the top of the hole / sleeve or pipe to the road surface.
- The sleeves must extend at least 500 mm beyond the kerbs into the pavement area.

- The sleeves must be installed complete with 1,5 mm galvanised steel draw wire. The bidden rate should include the supply of this steel wire.
- The concrete kerbs at road crossings must be marked by means of the letter "TS" ground into the concrete.
- The ends of all sleeves / pipes must be blanked or sealed off by means of end caps to suit the sleeves / pipes.
- Plastic bags or sheeting placed over the end or other materials pushed into the pipes will not be accepted.

17. RELEVANT STANDARDS

All excavations of trenches and installation of sleeves shall comply with the relevant clauses of SANS 1200.

- Selected granular material and selected fill material: The requirements for selected granular materials or selected fill material given in SANS 1200LB, if relevant, shall apply.
- Bedding: Bedding materials for ducts shall comply with Clause 3.2.1 of SANS 1200LC.
- Backfill materials and materials for the reinstatement of roads and paved areas: The requirements of SANS 1200 DB Clauses 3.5 and 3.6 shall apply.
- Selection of materials: Clause 3.7 of SANS 1200 DB shall apply, where relevant.
- Excavation equipment: The Contractors shall use plant in good order that can excavate trenches to widths that will assure proper backfilling.
- Control of water: Clause 4.2 of SANS 1200 DB and Clause 4.2 of SANS 1200 LC, shall apply.
- Compaction equipment: Clause 4.3 of SANS 1200 DB and Clause 4.2 of SANS 1200 LC, shall apply.
- Construction precautions: The Contractors' attention is drawn to the provisions of Sections D16 of Chapter V of the Regulations gazetted under the Factories, Machinery and Building Works Act 1941 (Act 22 of 1941), as amended, which lays down the statutory precautions to be taken in all trench excavations.
- Storm water, seepage and dewatering of excavations: The Contractors shall properly and adequately protect the works from flooding, damage by storm water, flow from springs and seepage and he shall comply with the conditions of SANS 1200 A sub clause 5.5.
- Accommodation of traffic and access to properties: Clause 5.1.3 of SANS 1200 CB shall apply.
- Existing services that intersect or adjoin trenches: The requirements of Sub-Clause 5.4 of SANS 1200 A shall apply.
- Trench widths and depths: The minimum trench dimensions for ducts shall be as specified in Clause 5.1.1 of SANS 1200 LC.
- Cables that are not laid in ducts shall have a minimum of 500mm cover for 500V cables or less, and 900 mm cover for cables more than 500V. Minimum trench width shall be 250mm or the total width of the group of cables plus 100mm on each side.
- The use of narrow trenching plant, moles or such other equipment shall be subject to the approval of the JRA Project Representative and shall be conditional upon the specified degree of compaction of backfill being achieved.

- Bedding and compaction of bedding: SANS 1200 LB-1983 shall apply.
- Ducts: Clause 5.2 of SANS 1200 LC shall apply.
- Cables without ducts: A layer of bedding material 100 mm thick shall be placed at the bottom of the trench, and well compacted before the cables are laid. At least 150 mm of bedding material shall be placed over the cable and compacted carefully with a tamping tool as specified in SANS 1200 LC Clause 4.2 before normal backfilling can commence.
- Backfilling and compaction: The relevant requirements of Clause 5.6 and 5.7 of SANS 1200 CB shall apply.
- Concrete encasement: Where so required, ducts shall be encased in concrete with minimum curb strength of 15 MPa after 28 days.
- Minimum distances between electricity cables and detector lead-in cables or telecommunication cables: Trenches shall be excavated in such positions that detector lead-in cables or existing telecommunication cables and electrical power cables are separated by at least 300 mm of soil. Where this is not possible, the Contractors shall seek the JRA Project Representative's instructions before laying the cables.
- Marking cables and ducts: Cable marking tape shall be placed in the backfill, 300 mm above the cable or duct. The relevant requirements of Sub-Clauses 5.9 and 5.10 of SANS 1200 LC shall apply.
- Reinstatement of surfaces: Existing paved surfaces shall be repaired and reinstated as required in terms of Sub-Clauses 5.9 and 5.10 of SANS 1200 DB.
- Tolerances: The requirements of Clause 6 of SANS 1200 LC shall apply for cable and duct trenches.
- Testing: The requirements of Clause 6 of SANS 1200 LC shall apply.
- Rates: The relevant requirements of Clause 8 of SANS 1200 CB shall apply, but the Contractors shall include the cost of supplying and laying marking tape in his rates for trenching.

SECTION H: INSTALLATION OF ROADMARKING

1. SCOPE

- 1.1. This section covers the permanent marking of the road surface with white, yellow or red painted lines or symbols and retro-reflective road studs as indicated by the JRA Project Representative.
- 1.2. All road markings for the control, warning, guidance or information of road users shall be applied in accordance with the provisions of the Road Traffic Act (Act 29 of 1989) and its regulations and SARTSM, except where otherwise indicated by the JRA Project Representative.
- 1.3. The section provides technical details for the provision of labour, supervision, transport, specialized plant and tools, material / consumables required for the application of the roads markings.

2. MATERIALS

Road markings will be applied using hot-applied thermoplastic, standard road-marking paint and/or any approved alternative materials or products offered by the Bidder(s).

Thermoplastic material is applied hot with an appropriate hand or mechanical applicator. It sets on laying and forms a cohesive film by cooling. The JRA will require the use of thermo-plastic material because of its good durability.

Hot-applied Thermoplastic Road Marking Materials

Hot-applied plastic road marking materials shall comply with the requirements of BSEN 1871 and BSEN1436 - Road Marking Materials - Physical Properties and Laboratory Tests. The binder shall be a plasticized synthetic resin and the material shall be reflectorized by mixing in 20% by mass Class A glass beads. The colors to be used shall be bright white, yellow and red. The color of the yellow and red paint shall be as specified in SANS 731-1

Skid resistance

- All types of products offered shall have an acceptable skid resistance.
- Additional skid resistance material can be required where "Skid Proof surfaces" are necessary, e. g Cycle tracks. A flame dried silica sand(or similar product) of which the average particle size of approximately 0.5 mm can be evenly hand dropped on wet material at approximately 2.5 kg per 25 m², after which a final coat paint is applied

Colour

The colours to be used shall be bright white, yellow or red. The colour of the yellow and red road marking materials shall be as specified in SANS 731-1.

Retro-reflectivity

Retro-reflectivity is the ability of a white line to reflect light from a vehicle's headlights back to the driving position of a vehicle. The materials offered shall have at least 220 millicandelas per lux per square metre(mcd/lux/m²), but preferably 250 mcd/lux/m², at 7 days, and 150 mcd/lux/m² after 6 months. For yellow paint: 130 mcd/lux/m².

The JRA Quality Assurer may from time to time perform spot checks to ensure compliance with retro-reflectivity

Road studs

Road studs complying with the requirements of SABS 1442 will be supplied by the Contractors.

STANDARDS APPLICABLE TO ROAD MARKING MATERIALS

The following European standards are applicable to road marking materials offered by the Bidder:

BSEN 1871 - Road Marking Materials - Physical Properties

This element of the specification covers paints and cold plastics it removes the restrictions on constituent materials and mixtures and focuses upon performance for the end-user. As long as the material performs to its specified level there is flexibility in the elements that make up the material.

BSEN 1436 - Road Marking Materials - Road Performance for Users

The standard specifies the performance for the road user of white and yellow road markings by retro-reflectivity, retro-reflectivity in wet conditions, skid resistance and luminance.

BSEN 1824 - Road Marking Materials: Road Trials

BSEN 1824 provides the methodology for testing the performance of road marking products, against the categories laid down in the specification. It gives guidance for conducting road trials for road marking materials intended for use in both permanent and temporary road marking. If required by the JRA, the products offered by the Bidder(s) will be tested for performance using this standard as follows:

- i. Luminance factor, divided into performance classes
- ii. Retro-reflectivity, divided into performance classes
- iii. Skid resistance, divided into performance classes
- iv. Erosion, within a rating system framework
- v. Colour co-ordinates, where colours must match those within a colour box

The road trial report should cover other details such as the application rate for materials and drop on materials, the type of application and the type of road surface.

Trials will last for a minimum of twelve months and thereafter determined by the number of wheel passages. This trial system, is more reflective of "on road" conditions as the performance levels are set in relation to traffic volume rather than a set time interval.

If materials have already been tested against these standards, Bidder(s)s should include such results.

WEATHER LIMITATIONS

Road marking shall not be applied to a damp surface or at temperatures lower than 10°C, or when, in the opinion of the JRA Quality Assurer, the wind strength is such that it may adversely affect the painting operations.

MECHANICAL EQUIPMENT FOR APPLYING ROAD MARKINGS

The equipment shall consist of an apparatus for cleaning the surfaces, a mechanical road marking machine and all additional hand-operated equipment necessary for completing the work.

The machine shall be so designed that it will be capable of painting the road markings everywhere to uniform width with sides within the tolerances specified, without the thermo plastic running or splashing.

The machine shall further be capable of painting lines of different widths by adjusting the spray jets on the machine or by means of additional equipment attached to the machine.

The machine shall be equipped with a device that will enable the driver to follow a target on the roadway or to follow previously placed lines. The machine shall be capable of adjusting the spacing of dotted lines in such a way that existing road markings can be reinstated.

The machine shall be capable of spraying at a speed of not less than 5,0 km/h and shall be provided with clearly visible warning flashing lights which shall always be in operation when the machine is on the road.

The mechanical road marking machine shall be capable of applying of retro-reflective material.

The bidder is required to provide proof of such specialized equipment for thermoplastic material application which will be used as part point allocation during the evaluation process.

One machine must be able to do "Profile" road markings of at least 5 mm high and 30 mm wide individual dots for better reflectivity in raining conditions on special request from JRA for special projects. This method of markings is usually done where a need for audible and rumble effect is required to pre warn motorist of a problem point in the road. Provisions for this type of marking are made in the bid rates.

SURFACE PREPARATION

Before any paint is applied, the road surface shall be clean and dry and completely free from any soil, grease, oil, acid or any other material which will be detrimental to the bond between the thermo plastic and the road surface. The surface where the road-marking materials are to be applied shall be properly cleaned by means of watering, brooming or compressed air if required.

Additional high pressure water cleaning with de - greaser material may be needed. Provisions are made in the bid rates.

Traffic markings shall be applied to new bituminous surfaces only after two weeks/14 days has elapsed to ensure damage will not be caused to the painted surface by volatiles evaporating from the road surface. Alternatively, water-based paint can be used in emergencies as it does not "Bleed" with new bituminous surfaces.

Where road markings are to be applied to a concrete pavement, an armour coat-based primer or similar approved by the JRA shall be applied before any road markings are applied. The primer shall be provided by the contractor and the rates provided in the Pricing schedule shall make allowance for this. Particular care shall be taken to ensure the surface shall be clean.

Thermoplastic and cold plastic road marking material must be applied to a dry road surface, with no surface dampness, dew, or subsurface wetness to ensure good adhesion. The ambient temperature shall be above 10°C or the temperature recommended by the Manufacturer.

SETTING OUT THE ROAD MARKINGS

The dimensions and positions of road markings required by the JRA shall be shown on the drawings provided by the JRA and shall be in accordance with SARTSM.

In the case of new road markings, the lines, symbols, figures, or marks shall be pre-marked by means of paint spots of the same colour as that of final lines and marks. These points shall be at such intervals as will ensure that the traffic markings

can be applied, and in no case shall they be more than 1,5 m apart. Normally spots of approximately 10mm in diameter should be sufficient.

After pre-marking the positions of the proposed road markings such as broken lines and the starting and finishing points of barrier lines shall be indicated on the road. These pre-markings shall be approved by the JRA Project Representative prior to any painting operations being commenced.

The positions and outlines of special markings shall be produced on the road surface in chalk and shall be approved by the JRA Project Representative before they are fixed in position.

STANDARD ROAD MARKING PAINT APPLICATION

- The figures, letters, signs, symbols, broken or unbroken lines or other markings shall be painted in accordance with the instructions of the JRA Project Representative and SARTSM.
- Where the paint is applied by machine, it shall be applied in one layer. The Contractor shall ensure the satisfactory operation of the road-marking machine before the machine is used on the actual road surface. It shall be tested on a suitable site which is not part of the roadway. Adjustments to the machine shall be followed by further testing. Only when the machine has been correctly adjusted and its use has been approved by the JRA Quality Assurer may the machine be used on the permanent work. The operator shall be experienced in the use of the machine.
- After the machine has been satisfactorily adjusted the rate of application shall be checked and adjusted if necessary before application on a large scale is commenced.
- The paint shall be stirred before application in accordance with the manufacturer's instruction. Paint shall be applied without the addition of thinners.
- Standard road-marking paint shall be applied at a nominal rate of 1,0 l/m² or as directed by the JRA Project Representative and proprietary brands shall be applied at the rates specified by the Manufacturer.

APPLICATION OF THERMO-PLASTIC PAINTS

Thermo-plastic paints shall be applied in accordance with the manufacturer's specification. Once heated to the correct temperature the thermoplastic becomes viscous and can be applied. The thermo-plastic shall be heated carefully to the optimum temperature as if over-heated it can become brittle and be more prone to wear and disintegration, as well as discolouring. The material shall therefore be heated to a maximum temperature specified by the manufacturer of the material. The JRA may take random measurements of the temperature of the material.

It shall be applied at approximately 1.5mm to allow the thermoplastic to melt into the upper road surface filling all holes in porous surfaces, as it cools it firmly adheres to the road surface.

Before the material cools completely, additional glass beads may be applied if required by the JRA Project Representative. As the marking wears, the glass beads within the thermoplastic mix will be exposed ensuring consistent retro-reflectivity throughout the life of the line.

RETRO-REFLECTIVE BEAD APPLICATION

- The beads shall be dropped or sprayed onto the paint layer, the beads can be pre-mixed in paint or other material before application or a proportion of the beads can be dropped on pre-mixed materials.
- The preferred method is that of spraying (under pressure) or dropping (under gravity) beads onto the wet road-marking material basically simultaneously with the paint application.
- The mechanical road marking machine shall be capable of applying of retro-reflective.
- Where retro-reflective paint is required the retro-reflective beads shall be applied by means of a suitable machine in one continuous operation, immediately after the paint has been applied. The rate of application of the beads shall be 0,6 to 0,8 kg/l of paint or such other rate as may be directed by the JRA Project Representative. Different size beads and makes may be pre mixed to obtain maximum reflectivity.

ROADSTUDS

The road studs shall be positioned and applied in accordance with the instructions of the JRA Project Representative and SARTSM.

The road studs shall be fixed by means of an approved epoxy resin in accordance with the manufacturer's instructions, subject to such amendment methods as may be required by the JRA Project Representative. The studs shall be protected against impact until the adhesive has hardened.

Before fixing the road studs the surfaces shall be thoroughly cleaned as specified in Clause B5.

TOLERANCES

Road markings shall be applied to an accuracy within the tolerances given below:

a) Width

The width of lines and other markings shall not be less than the specified width, nor shall it exceed the specified width by more than 10mm

b) Position

The position of lines, letters, figures, arrows, retro-reflective road studs and other markings shall not deviate from the true position by more than 100mm in the longitudinal and 20mm in the transverse direction.

c) Alignment of markings

The alignment of the edges of longitudinal lines shall not deviate from the true alignment by more than 10mm in 15m.

d) Broken Lines

The length of segments of broken longitudinal lines shall not deviate by more than 150mm from the specified length.

GENERAL

In broken lines the length of segments and the gap between segments shall be as indicated on the drawings provided by the JRA Project Representative and in accordance with SARTSM.

Lines on curves, whether broken or unbroken shall consist of chords but shall follow the correct radius.

Where thermo-plastic road marking materials or any other new technology materials are used the manufacturer shall produce an approved warrantee.

PROTECTION

After the paint has been applied, the traffic markings shall be protected against damage by traffic or other causes. The Contractors shall be responsible for erecting, placing and removing warning boards, flags, cones, barricades, and other protective measures which may be necessary in terms of any statutory provision and/or as may be recommend SARTSM.

STORAGE AND HANDLING

All road marking materials supplied and used by the contractor shall be so handled and so stored in a weather-proof storeroom as to prevent any damage and deterioration of the paint quality.

Care should also be exercised to protect road-marking materials from pollutants or any other material that can contaminate the material.

MEASUREMENT AND PAYMENT

Applying standard road marking paint

- The unit of measurement for painting the lines shall be a linear meter (100mm x 1m) of each specified width of line and the quantity paid for shall be actual length of line painted, square meters to be converted to linear meter ($1 \text{ m}^2 = 10 \text{ linear meter}$) in accordance with the instructions of the JRA Project Representative and SARTSM, excluding the gaps in broken lines.
- The unit of measurement for painting the lettering, symbols or traffic island markings shall be a square meter and the quantity to be paid for shall be the actual surface area of lettering, symbols or traffic island markings complete. Distinction shall be made between the different types of lines, islands and colour of the markings.
- The Bid rate per kilometre or per square metre as the case may be for painting the traffic markings shall include full compensation for supplying, transporting the material to site, providing the necessary labour and equipment, and for painting and protecting as specified, including the setting out of lettering, symbols and traffic island markings, but excluding setting out and pre-marking the lines. No provision for site establishment has been made in the pricing schedule
- The bid rate shall include furnishing of all material.

Fixing Road studs

The unit of measurement for applying road studs shall be the actual number of road studs placed.

The Bid rate shall include full compensation for supplying the road studs, providing labour and equipment, and for fixing as specified. Distinction shall be made between fixing road studs by applying the epoxy resin with and without drilling 15mm holes in the surfacing before.

Setting out and pre-marking the lines

The unit of measurement for setting out lines (excluding traffic-island markings, lettering and symbols), excluding line gaps, shall be the kilometre of lines (or linear meters) set out and marked. Where two or three lines are to be painted next to each other, the setting-out of lines shall be measured only once. Pre markings of arrows, wording, stop lines, islands and symbols will be measured in square meters multiply with 10 to obtain linear meters for payment

The bid rate shall include full compensation for setting out and pre-marking the lines as specified, including all materials. Paint for pre-marking will be supplied by the contractor.

Reinstating existing road markings

- The unit of measurement for re-painting the lines shall be a kilometre of each specified width of line and the quantity paid for shall be actual length of line painted in accordance with the instructions of the JRA Project Representative and SARTSM, excluding the gaps in broken lines.

- The unit of measurement for re-painting the lettering, symbols or traffic island markings shall be a square meter and the quantity to be paid for shall be the actual surface area of lettering, symbols or traffic island markings complete. Distinction shall be made between the different types of lines, islands and colour of the markings.
- The Bid rate per kilometre or per square metre as the case may be for reinstating the traffic markings shall include full compensation for transporting the material to site, providing the necessary labour and equipment, and for painting and protecting as specified.
- In the case of hot-applied thermo-plastic paint or alternative road marking products offered by the Bid, the Bid rate shall also include full compensation for procuring and furnishing all material

Removal of existing, temporary or permanent road markings

- The unit of measurement shall be the square metre of existing road markings removed by means of sand blasting, water jetting / hydro blasting on the instruction of the JRA Project Representative. Over-painting markings with black paint or bituminous solutions is not allowed, unless only as temporary solution until actual sandblasting / water jetting as per JRA Quality Assurer agreement.
- The Bid rate shall include full compensation for sand, all plant, labour, consumables, water, cleaning of the road surface and all other costs involved.

SOURCE OF SUPPLY

Comprehensive details, including supplier's/manufacturers catalogues and specifications must accompany the bid. This is to be attached to the bid

The bidder shall furnish the following information:

- Name and location of all suppliers/manufacturers to be used
- Whether the source of supply is owned by the bidder
- Number, size and type of transport/equipment vehicles available for delivery and execution

SECTION I: TRAFFIC SIGNAL DESIGN DUTIES

1. SCOPE OF WORK

Develop traffic signal design plans for new signal installations; warrant studies; modifications to existing signals, flashing warning lights and ITS installations and shall include commissioning and fine tuning of approved plans. The appointed consultant will be responsible to sign off designs ensuring that all traffic signal designs comply with SARTSM regulations, approve the final installation ensuring compliance including fine tuning where required.

2. PROJECT TEAM REQUIREMENTS

Professional Traffic and/or Transportation Engineer or Technologist with a Bachelor's degree in civil engineering or NQF 7 in Civil Engineering, registered as a professional engineer or technologist with ECSA and at least 5 years' relevant experience in traffic and transport studies with emphasis on traffic signal designs. Claim for this item will only be acceptable on the submission of proof of registration as Professional Civil Engineer or Technologist and proof of required qualifications.

MATERIAL SPECIFICATIONS

This section "material specifications" details the specification to which the material must comply to.

RATES

1. Bidders to state the percentage of the rate that is linked to SEIFSA, this will be either for metal or ROE, in the pricing schedule (BoQ). Note this is only on items where JRA allows price changes.
2. Bidders should note that annual price adjustment will be allowed. This increase will be after 12 months after the closing date of the bid, and will be in line with the CPI increase as per SEIFSA, a further increase will be allowed after a further 12 months. This is over and above any SEIFSA related price changes linked to ROE or metal price.
3. Failure to provide the necessary information will result in no price increase to be considered.

TRAFFIC SIGNAL CONTROLLERS AND RELATED EQUIPMENT

1. SCOPE OF WORKS

- 1.1. This section covers the configuration and supply of Traffic Signal Controller equipment and associated components currently in operation in the JRA's jurisdiction for the installation thereof as detailed in previous section.

2. STANDARDS AND CURRENT MANUFACTURES

- 2.1. The following standards form an integral part of this contract. All equipment offered shall be new and shall conform to the applicable sections of the specifications which will hereafter be referred to by the abbreviations shown in the relevant square brackets:
- 2.2. South African National Standard specifications SANS 1547: 2013 Edition 1.06 - Traffic Signal Controllers [SANS 1547], or latest
- 2.3. The South African Road Traffic Signs Manual Volume 3: Traffic Signal Design, May 2012 [SARTSM], or latest.
- 2.4. There are currently three manufacturers being used by the JRA, which might change during the contract period.
- 2.5. The manufacturers currently being used by the JRA is Siemens, Syntell and Automotor Traffic Signals. The JRA will upon issuing work indicate what manufacturer and what model should be used at the relevant intersection.

3. TECHNICAL REQUIREMENTS

It is the responsibility of the contractor to ensure that the following requirements are adhered to. Failure will result in non-acceptance of work completed which will result in no payment being made until the requirement has been met.

The scope mainly covers the supply of spares for traffic signal controllers with the applications and specifications required as per current installed base.

The required functions of the equipment to be supplied are outlined in the following paragraphs:

The prime function of the traffic signal controllers shall be to provide for control of traffic signal timings by

reference to pre-prepared and locally stored traffic signal timing sequences ("fixed-time plans"), selected by time-of-day / day-of-week or manually,

reference to pre-prepared and locally stored traffic signal timing sequences selected in response to calls by vehicle actuation loops or pedestrian push buttons ("semi-vehicle actuated control"),

reference to a set of suitable timing plans, selected by the ATMS and remote monitoring based on the traffic demands as measured by sensors in the field ("traffic-responsive plan"),

implementation of frequent incremental changes to the signal timing parameters as downloaded by the ATMS in response to actual traffic demands as measured by sensors in the field ("traffic adaptive control") and provide transit priority and emergency pre-emption.

Signal controllers shall operate in the local control mode using stored signal plans, e.g. fixed time plans or actuated operations based on detector inputs.

The controllers shall be capable of real-time control and remote monitoring of traffic signal controller operation and should be able to both upload and download pertinent data including timings stored in the signal controller and fault log information.

Bidders may propose functionality that is equivalent to or exceed the minimum technical requirements of these Specifications.

Any such solutions which do not meet or exceed any and all applicable minimum requirements shall be clearly identified by the Bidder.

The JRA must have full control over all assets and requires that the Contractor shall supply all configuration tools / software required for programming of controllers (Including updates).

3.1. Controller Spares Manufacturing

- 3.1.1. A high standard of construction is essential in all products offered and shall in all respects be suitable for the purpose intended and for all the environmental conditions specified.
- 3.1.2. The supplier shall accept responsibility for the satisfactory quality, design and workmanship of the products and every part whether manufactured by him or supplied to him by other manufacturers.
- 3.1.3. Controllers must be capable of operating in a demanding environment, e.g. high temperatures, unstable electrical supply, etc. The Supplier shall provide a statement of declaration in respect of the operating environment of the equipment offered.
- 3.1.4. The products supplied must be compatible with the existing JRA traffic signal controllers and systems and suppliers must be familiar with the existing and proposed systems.
- 3.1.5. All components and materials shall be subject to the approval of the JRA Project Representative.
- 3.1.6. Controllers spares must meet the following additional requirements:
 - 3.1.6.1. Able to operate in a demanding environment which includes tolerance to an unstable or variable power supply and long "brown-outs" within the operating regime of Joburg City Power or Eskom.
 - 3.1.6.2. Be compatible with UPS power supply options.
 - 3.1.6.3. Be compatible with LED traffic signal installations.
 - 3.1.6.4. Provide solid state lamp switching technology.
 - 3.1.6.5. Be of modular construction.

3.1.7. All JRA controllers must monitor all phases including Peds and Turnings arrows that are applicable, including ambers.

3.1.8. Circuit breaker monitoring are required to differentiate between a power failure and a tripped circuit breaker.

3.1.9. The RMS should have the following reports available:-

- 3.1.9.1. Phase failures
- 3.1.9.2. Detection faults
- 3.1.9.3. Lamp(LED) failures
- 3.1.9.4. GPS clock failures
- 3.1.10. The reference point for synchronisation purposes will be stated by the JRA and the controller firmware should be adjusted to align with this.
- 3.1.11. The controllers shall be able to withstand over voltage periods of voltages up to 400V, in the case that the power utility has a neutral theft therefore results in three phase voltage. As soon as the power stabilizes, returns to normal working conditions with the correct start-up.\
- 3.1.12. JRA will not purchase any full controllers (which include RMS, GPS clocks, etc.) if any parts of the full controller are not in production or being manufactured and / or not available for purchasing until such time that tested solutions are available.
- 3.1.13. The router must be trackable via GPS and should be compatible with Eagle eye software.

Modules

- 3.1.14. Modules are defined as units that may be removed from a system by separation of connectors or an interface.
- 3.1.15. Printed circuit boards shall be of a high industrial standard and shall comply with the IPC standards (Association Connecting Electronics Industries) for the manufacturing and construction methodology used.
- 3.1.16. Contract materials shall have a long life and shall provide reliable operation. They shall be designed to withstand long periods of storage, insertion, extraction and switching operation and shall not be required to exceed their current or voltage rating.

Ease of Maintenance

- 3.1.17. To ease maintenance and enhance the safety of maintenance personnel, equipment shall be constructed of light weight material as far as possible.
- 3.1.18. Modules shall be easy to remove for maintenance purposes.
- 3.1.19. Cabinet keys shall be identical as per sample provided by the JRA.

- 3.1.20. For ease of maintenance all controllers shall have a normal plug with earth leakage for the use of drilling machines, soldering irons and electronic equipment.
- 3.1.21. Fitment into a universal or underground cabinet shall be made possible.

Controller Cabinets

- 3.1.22. The controller cabinets should be robust, corrosion resistant and generally of high quality.
- 3.1.23. Traffic signal controller cabinets shall be constructed of 3CR12 steel, or other material approved by the Project manager and must be a colour as specified by the Project Manager.
- 3.1.24. External surfaces of the housing and cabinets shall be free from irregularities; all welds shall be neat, clean and smooth.
- 3.1.25. All street equipment shall be installed in weatherproof housings correctly sealed to prevent the ingress of moisture and insects.
- 3.1.26. All housings and cabinets shall be fitted with identical robust locks which require a special key to open them to prevent unauthorised access. A sample lock and key will be supplied by the JRA. The number of keys supplied shall be agreed with the Project manager.
- 3.1.27. Each housing or cabinet shall be furnished with a three pin switched socket outlet for mains operated tools and test equipment or as approved by project manager.
- 3.1.28. A heavy-duty clear plastic envelope or steel document holder, minimum dimensions of 210 x 297 mm shall be attached inside the cabinet for storing timing and maintenance records.
- 3.1.29. Cabinets supplied must be secure, to deter vandalism and theft as far as possible. Seams between cabinet panels shall not exceed a width of 1 mm to prevent the use of a crow bar to separate panels.
- 3.1.30. JRA is planning to have a universal cabinet in the future, therefore a price should be supplied for a backplane which can be used to fit into the new universal cabinet that will house all current controller equipment. This option will be utilised for new controllers and associated equipment that is ordered, therefore the fitment of the controller to the backplane will be done at the factory. The fully fitted backplane will then be delivered, ready to be fitted into the universal cabinet.
- 3.1.31. Allowance for the universal cabinet will be made for in the pricing schedule. This will work on the principle where the contractor will obtain a quotation from the manufacturer where after the percentage mark up as indicated in the pricing schedule will be added to the price. Further details will be supplied to the successful bidders once the universal cabinet design is approved and adopted by the JRA.

Power Supply

Unless otherwise specified, all controllers operate from a 220 VAC, 50 Hz supply, but shall be able to operate within a supply ranging between 200VAC to 250VAC.

Controllers spares shall be able to operate in a demanding environment which includes tolerance to an unstable or variable power supply and long "brown-outs" within the operating regime of Joburg City Power or Eskom.

The remote monitoring system should be monitoring the incoming and outgoing supply on the/both circuit breaker/s to accurately differentiate between power failures and tripped circuit breakers.

As and when requested by the JRA, controllers will have an additional power supply from a private source either residential or business and shall have the same protection as the main supply.

- There shall be two supplies.
 - Main Supply from City Power or Eskom.
 - Auxiliary / Backup Supply from private residence or business.
 - The Auxiliary / Backup supply switch over period may be more than 2 seconds.
 - Remote Monitoring Systems (RMS) functions.
 - Monitoring Main Supply
 - Report when No Main supply
 - Monitoring Auxiliary / Backup Supply
 - Report when No Auxiliary / Backup supply.
- a) All equipment shall have Microdot technology.
- a. A microdot is text or an image substantially reduced in size onto a small disc to prevent detection by unintended recipients. Microdots are normally circular and around 500 microns (0.5 mm) in diameter but can be made into different shapes and sizes and made from various materials such as polyester or metal.
 - b. Pins can not fade. Must be fire resistant to temperatures up to 1200 C. Readability must be at least 60x magnification under microscope. Security features: highly advanced elements, graphics, micro and nano texts, DNA taggants in adhesive. UV wavelength must be at least 395nm flashlight. Must have asset management systems for audits and keeping record of which assets are marked/damaged/sold/scrapped etc
 - c. JRA will provide the description on the microdot.

What if's:

1. If Mains has no voltage and Aux has no voltage –Must report both to RMS.
2. If Mains has no voltage and Aux has voltage – Go to Aux. Must report Mains has no voltage.
3. If Mains has voltage and Aux has voltage – Remain on Mains.
4. If Mains has voltage and Aux has no voltage – Remain on Mains and report that Aux has no voltage.
5. If Mains is high or low voltage and Aux has no voltage – Must report both to RMS.
6. If Mains is high or low voltage and Aux has voltage – Go to Aux. Report to RMS.
7. Keep in mind that Generator will kick in during load shedding for the private residence or business.
8. Resting position is Mains.
9. Will require a report to monitor duration on AUX supply.

4. Testing and Inspection

Suppliers shall test and inspect all modules prior to delivery to ensure that the equipment comply with the above technical standards.

The supplier shall be required to submit its Quality Assurance Policy, QA plan, testing procedures, checklists, compliance certificates and an organogram of the QA and testing team for the Traffic Signal Division as part of the contract.

Should this be found to be insufficient, the supplier shall work with the Project Manager to get a compliant QA system in place prior to awarding of the contract.

The supplier shall be required to submit test results and signed off acceptance checklist with every delivery of each batch of equipment.

The supplier shall allow and facilitate ad-hoc inspections (as requested by the Project Manager) of the assembly line, testing process and related documentation by the Project Manager during the contract period.

The QA plan and testing procedures shall be revised as required during the contract period when found to be deficient or when the approved design is modified. The Project Manager shall approve all changes before implementation.

Controllers must undergo three (3) testing procedures, viz Type test, Factory test and Site test

- Type testing

Full documentary evidence of this shall be provided with the submission.

Must include full environmental testing in line with the requirements in Section 1 - ENVIRONMENTAL REQUIREMENTS

- Factory Acceptance Testing (FAT)

Factory test shall take place on two (2) controllers of each batch to be supplied under this Contract, at the Supplier's works. Controllers shall have successfully passed these tests prior to delivery.

The controllers selected for the test shall be fully equipped and connected back to a control computer for monitoring purposes.

The Supplier shall produce a test schedule and methodology for these Factory Acceptance Tests and submit this for approval at least 4 weeks before these tests are due to take place. The tests shall not take place until the documents have been approved.

The factory acceptance tests shall be witnessed by a maximum of four (4) JRA officials and priced for a period of one (1) week. The cost of transport, accommodation and S&Ts for JRA officials, if the tests are to be conducted outside the Johannesburg area, as well as all other expenses pertaining to the tests, shall be to the Supplier's account. The Supplier shall assist with making the travel and accommodation arrangements if called upon to do so. The Supplier shall arrange for these tests to be conducted at a mutually agreed site in South Africa.

Suppliers shall note that in the event of the factory acceptance tests at the Supplier's works having to be repeated due to unsatisfactory performance, all expenses including travel, accommodation and S&Ts involved in repeat tests shall be borne by the Supplier.

The following tests shall be performed on complete and assembled controllers, fully powered and connected to the appropriate electrical loads. The results of the tests shall be fully documented and delivered to the JRA at the time the controllers and related equipment is delivered:

A functionality test in which the controller is operated and cycled continuously for minimum of 24 hours.

A detector check in which the controller is monitored for a response to calls on all actuated detector inputs including pedestrian push buttons.

A conflict monitor test.

A power brown-out test.

A controller recovery test in which the timer and conflict monitor are powered down separately. The controller shall be tested to recover to full operation and in the operational mode running before the test is executed (i.e. time based coordination or free and semi-actuated or fully actuated, etc.

Failure to successfully execute FAT will render the controller manufacturer non compliant and a new FAT will be undertaken on a different controller. All costs associated with the re-test will be to the manufacturer's account.

- Site Acceptance Testing (SAT)

Site testing shall involve the following:

a ten (10) day test in the Traffic Signal Depot workshop

a thirty (30) day test after installation

ongoing monitoring of the controllers during the warranty period and for the remainder of the supply contract.

The controllers shall operate fault free for a period of ten (10) consecutive days in the JRA's Traffic Signal Depot workshop prior to installation. During this period the controllers shall be connected to the Control Computer for monitoring and control. All necessary work to achieve this shall be undertaken by the Supplier. The aim of the 10 day test is to prove the configuration and eliminate any "teething" troubles.

The fault rate of the Supplier's controllers will be monitored on site after installation and no payment will be made, for 30 days, until the rate specified below has been attained.

The Supplier shall warrant the fault rate for his controller in a covering letter with his reply to the tender. Each controller shall have no more than:

One (1) fault in the first thirty (30) days after installation

No more than three faults per controller in the first twelve (12) months after installation (including item 0. above)

Maximum of two (2) per year thereafter.

Failure to satisfactorily resolve the excessive fault rate in either of the stages above (30 day / 1 year / 2 years) will require the affected controller to re-commence SAT and for the warranty period to re-start. A second failure of SAT (within 2 years from the new commissioning date) will require that particular controller to be replaced and SAT will commence from scratch

- Test results

Test results documentation shall be kept on file for a minimum period of two years after the controller or module was commissioned or installed at the JRA. The JRA may request copies of the test and inspection records from the Suppliers during the two year warranty period.

5. Warranty

The Supplier shall remedy any defect in, or malfunction of, the equipment that occurs within the warranty period.

All equipment, parts, materials, and workmanship supplied under these specifications shall be fully warranted. All equipment shall be warranted for a minimum of two (2) years from date of commissioning. This warranty shall cover all parts and labour necessary or incidental to the repair of any defect in equipment, parts, materials, or workmanship and malfunctions that arise during the warranty period. The period of warranty coverage shall, in no case, be less than the manufacturer's usual and customary warranty period. All warranties that are customarily issued by the vendor and/or manufacturer shall be provided to the JRA.

In the event that equipment is repaired or replaced during the warranty period, the warranty period for that equipment shall be extended by an amount that when added to the un-expired portion of the warranty period totals 24 months from the date of such repair or replacement

The cost associated with the warranty shall not be separately stated, but shall be included in the equipment / installation cost.

Minor repairs may, at their discretion, be made by the JRA, or their appointed specialist suppliers, with the consent of the manufacturer. All other repairs under warranty will be made by the manufacturer. The manufacturer will bear all costs including labour, parts, and shipping charges.

Any faulty equipment must be replaced within a period of three (3) working days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract

Where required the supplier shall be responsible for inspecting installations before commissioning to ensure it complies with the requirements for a warranty-able installation within the City of Johannesburg's power supply regime, which includes long brown-outs. The cost for this pre-commissioning inspection shall be deemed to be included in the rate for the supply of the controller.

Controllers shall be replaced, under warranty, if the controller fail to operate as intended more than once (1) in the first thirty (30) days and more than four (4) times within the first twelve (12) months and the failures are not due to external factors such as accidents or damage to the controller itself, but within the current City Power or Eskom power supply regime, eg reduction of voltages, "brown outs", unstable or varying power supply, etc.

The satisfactory operation and accuracy of the clocks shall be warranted for a period of two years from date of commissioning.

Where Suppliers have installed the controllers, they shall be responsible for all defects which result from poor workmanship or negligence on the part of the Supplier, for a period of three (3) months after the issuing of the final acceptance of the installation.

If required the JRA may request the contractor to dispose of the old controller that were replaced in accordance with approved disposal methods.

Should, during the three (3) months defects liability period, controllers / installations not function correctly or become damaged as a result of poor workmanship on the side of the Supplier or his employees (eg due to loose or incorrect connections), the Supplier shall be liable for repairing the damage or replacing the controller at his own cost.

All controllers shall have undergone a Three Day Soak Test (whilst connected to the JRA in-station) prior to delivery to the Johannesburg Roads Agency. Records of the aforementioned test(s) shall be provided with each controller supplied. In the event that the Supplier's manufacturing plant is based outside of the Greater Johannesburg area, the Three Day Soak Test shall be conducted after the controller has been transported to Johannesburg so as to enable the Supplier to identify and repair any defects which may have occurred during transit. The three (3) day Soak Test shall be conducted over and above the normal Quality Tests (Factory Tests). A representative(s) from the JRA shall be, at any given time, permitted to inspect/test controllers that are being tested during this period.

All tests conducted by the supplier prior to installation shall be for his account.

Equipment Warrantees

Equipment to be supplied under the contract shall be of industrial quality, carrying certification from accredited standards organisations. The design life, maintainability, product support, etc. shall exceed 10 years. The submission shall include documentation to illustrate conformation to this requirement (previous projects, client references, etc.)

All warrantees that are customarily issued by the vendor and/or manufacturer shall be provided (or ceded as applicable) to the JRA.

Any faulty equipment must be replaced within a period of three (3) working days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract.

6. Technical Operations Manual

All traffic signal control equipment supplied shall be furnished with a complete operator's manual which shall comprise a concise set of procedures that the JRA requires in order to operate the equipment.

The technical operations manual shall provide specific procedures to be followed for both hardware and software operations. Instructions shall be detailed but easily understandable. The manual shall include descriptions of all procedures for starting up and shutting down the equipment, modifying the operation, diagnosing faults, block and circuit diagrams, test points, etc.

A hardware manual shall be provided/supplied, comprising complete technical descriptions of all modules, etc in the controllers, their servicing and maintenance. The technical description shall start with overall controller function and proceed in logical stages to the circuit description of each unit/module.

The manufacturers' recommended procedures for preventative maintenance shall be given. This shall include a chart showing what shall be undertaken at what frequencies.

The manual shall cover both routine maintenance and repair maintenance down to board and module replacement level.

Procedures for fault diagnosis, testing, location and repair of faults shall be comprehensively covered.

Instructions shall be provided for the maintenance of equipment by specialised trained technicians.

A detailed list of spares and parts shall be provided detailing the desirable stock levels for each item and the typical frequency at which spares need to be replaced. The list shall refer to the circuit reference on the appropriated drawing as well as the manufacturer's name and part number.

A software manual describing the operation of the software shall be provided and shall be written in a manner in which a competent person would be able to understand the functions of the program and be able to configure the controllers and develop the firmware.

8. Standards related to Interfacing with an ATMS

In support of efficient mobility management, the JRA will continue to deploy Intelligent Transport Systems technology where it is cost-effective to do so. As technology continues to become cheaper and more accessible and ubiquitous, so its use is likely to grow. In providing services of value to the public, the systems will need to be increasingly accessible to and integrated with third party systems

The JRA will continue to ensure that its systems are appropriately integrated with each other. To minimise integration issues now and in the future, a policy of adopting open standards is being followed.

For historical reasons, most of the traffic signal controllers deployed in South Africa have been based on standards emanating from the UK, and it is against this backdrop that the Suppliers should be aware that it is the JRA's strategy to build, configure and operate systems in accordance with open standards, and in particular with UTMIC design principles.

Traffic signal controllers to be supplied must be able to communicate with the ATMS and shall be compliant with the following UTMIC specifications:

The UTMIC Framework Specification TS003:2009

The UTMIC Objects Registry TS004.006.2010, specifically the UM/008 "Full UTC MIB" portion (for SNMP transmission).

Suppliers shall indicate, for the products offered in response to this tender:

Which if any has been formally assessed as UTMIC Compliant. (Please give date of certification and state which version of the UTMIC Technical Specification.)

Which if any of the products offered is registered in the UTMIC Products Register. (Please state which version of the Register.)

Any additional aspects in which the products offered comply with the current version of the UTMIC Technical Specification TS003.00x:20yy and TS004.00x.20yy, with reference to specific UTMIC Objects where applicable.

Where Suppliers have offered a solution which is not compliant with the current version of the UTMIC Technical Specification, in whole or in part, they shall indicate:

The likely impact on the overall JRA system of this non-compliance.

The cost and time required to develop these up to compliance, as a contractual option for JRA to adopt if it chooses.

JRA is committed to support the development of UTMIC nationally. Suppliers shall indicate where / why in the context of current procurement they believe the currently available UTMIC Technical Specification is not adequate for JRA's requirements.

Suppliers shall confirm that, in respect of such gaps above they will, if successful:

Insofar as can be achieved within project timescales, implement the latest available UTMC specification (TS003 and TS004).

If this is not possible, implement JRA's system so as to minimise the additional development effort to achieve retrospective compliance.

9. Controller Communication Protocols

All documents related to the controller communication protocols between the controller (and its OTU/adaptor) and the ATMS shall be supplied to the JRA. A declaration of positive intent must be provided with the contract submission.

The JRA welcomes the signing of Non-Disclosure agreements (NDA) for protocols and personal constraints if required by the Supplier. The NDA documents shall be supplied by the Supplier and a draft shall be included in the submission.

10. TECHNICAL SPECIFICATIONS

ENVIRONMENTAL REQUIREMENTS

The controller and its components shall be able to operate reliably within an ambient temperature range of -15°C to +50°C as measured outside the cabinet.

The controller shall be able to operate reliably up to a Relative Humidity of 95% as measured outside the cabinet

The controller cabinet shall be sealed to IP65, or otherwise approved by JRA Project Representative.

11. TRAINING REQUIREMENTS

General training requirements

The Supplier shall provide training to people nominated by the JRA that are involved in the operation and maintenance of the traffic signal control equipment supplied as part of the Contract. The Supplier shall supply all necessary manuals, instructional notes, drawings, training aids, handouts, and any other materials in sufficient quantities required to train all appropriate personnel. Such material shall remain the property of the JRA.

Training shall be provided to JRA ITS, Traffic Signal implementation, Traffic Signal maintenance personnel and JRA's approved contractors. Training shall include theoretical and "hands-on" training which shall consist of working with the actual equipment.

Training will be structured and divided (modular based) so that traffic signal personnel can be assigned to attend the training modules that are relevant to the performance of their specific job duties.

The training shall be designed to ensure that technicians can download, operate, install, maintain, and troubleshoot in the field to the defective unit, and in the electronic lab to the component level, and make effective and reliable repairs, to all equipment provided under the terms of this contract proposal.

The supplier shall provide an outline training programme with their submissions and shall demonstrate that the training will be adequate to bring the Operational and Maintenance staff to the requisite levels of skill. This shall include course content, timing and the level of previous training and experience that will be assumed for the staff.



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Operational Staff

The operational staff will be trained both theoretically and “hands-on” (practically).

The number of training sessions, their duration and the maximum number of trainees per session shall be proposed by the Suppliers.

The Supplier shall submit the syllabus of the training (per module) to the project manager for approval and shall agree on the dates of the proposed training.

Technical Personnel

The Supplier shall train the Employer’s technical personnel to maintain the equipment and undertake normal activities associated with its operation and use.

The technical training shall be split into two parts for technical operational staff and maintenance staff.

The training for technical operational staff shall include all technical operation issues, including the configuration of the traffic signal controllers.

The training of Maintenance staff shall cover all aspects of routine and first line maintenance and configuration of the equipment including the use of test equipment and diagnostics provided through to management of a spare parts inventory.

A test shall be conducted on each attendee and a full report shall be submitted on the attendees’ competency on each item trained.

Method of Measurement for General Training

Training will be measured as a Lump Sum which shall cover all preparation of course materials and as well as the time and human resources to provide and run the course.

Cost shall include that a test shall be conducted on each attendee and a full report shall be submitted on the attendees competency on each item trained.

The rate for providing the training shall be based on the training being conducted in Johannesburg, unless otherwise specified by the Supplier.

Bidders can assume that the training venue shall be provided by the training provider.

A percentage mark-up (maximum of 10%) should be provided to cover costs of accommodation, travelling and meals of the persons attending the training.

Intensive training

Suppliers shall provide comprehensive, intensive training to staff identified by the JRA. The number of staff attending per training shall be kept low and will probably be between one and five persons.

It is envisaged that the training shall not be less than ten (10) working days.

The training should include an in-depth training which shall consist of both theory and practical and shall include the following:-

- Controller operation,
- Different components of the controller and their function,

- Proper handling of the modules/components,
- Installation requirements of the controller, including proper installation methods of earth and cable terminations,
- Fault finding on the controller,
- Identification if the fault occurred due to external hardware,
- Testing of operation of all different plans and ensuring that wiring does not cause any conflict,
- Installation of RMS and GPS clocks,
- Installation and testing of vehicle detection and push button detection in the controller,

A test shall be conducted on each attendee and a full report shall be submitted on the attendees competency on each item trained.

A percentage mark-up (maximum of 10%) should be provided to cover costs of accommodation, travelling and meals of the persons attending the training.

Method of Measurement for Intensive Training

Training will be measured as a Lump Sum which shall cover all preparation of course materials and as well as the time and human resources to provide and run the course.

The rate for providing the training shall be based on the training being conducted at a facility provided by the supplier.

A percentage mark-up should be provided to cover costs of accommodation, travelling and meals of the persons attending the training.

Cost shall include that a test shall be conducted on each attendee and a full report shall be submitted on the attendees competency on each item trained.

Basis of Payment

Training, measured as provided above, will be paid for at the contract unit price Lump Sum, which price shall be full compensation for furnishing instructors and training materials; for providing the training sessions; and for all labour, equipment, transportation, cost of testing and assessment of attendees and incidentals necessary to complete this item of work.

12. TRAFFIC SIGNAL CONTROLLER REQUIREMENTS

This part describes the requirements for traffic signal controllers that shall be supplied by the Suppliers.

Unique serial numbers for identification and product/site traceability shall be installed on all controllers. Controllers offered on this tender shall have a proven record of satisfactory operation in the field. This shall be demonstrated by reference to previous traffic signal installations, undertaken by the Tenderer, giving contact details of the clients and details of the installations.

JRA will under no condition allow any communication connection by non-municipal parties to the controller in anyway.

Controller Reference point for synchronisation purposes will be stated by JRA before installation.

GPS clock setting will be minimum once per day and shall set the clock on restarting of controller.

Push button no call fault time period must be settable as per JRA requirements.

Vehicle No call fault time period must be settable as per JRA requirements.

Two types of traffic signal controllers are required with the capabilities and applications (with Adaptors/OTUs as necessary) as described below:

Smart Traffic Signal Controller: Traffic signal controllers that provide control by reference to a set of suitable timing plans, selected by the ATMS based on the traffic demands as measured by sensors in the field ("traffic-responsive plan") and that are able to implement frequent incremental changes to the signal timing parameters as downloaded by the ATMS in response to actual traffic demands as measured by sensors in the field ("traffic adaptive control") and have the functionality to provide transit priority and emergency pre-emption.

Basic Traffic Signal Controller:

Traffic signal controllers implanted at mid-block pedestrian crossings or at minor intersections that provide control by reference to pre-prepared and locally stored traffic signal timing sequences selected in response to calls by pedestrian push buttons.

The Supplier shall supply traffic signal controllers which shall be capable of:

Communicating with a central RMS computer.

- Providing transit vehicle priority or emergency vehicle pre-emption (Smart traffic signal Controllers);
- Operating in isolated mode, e.g. fixed time or actuated operations based on detector inputs
- Operating in a flashing red mode.
- The controllers shall have conflict monitoring functionalities and Bidders shall describe in detail how the conflict monitoring requirements are met in the design of the controller.
- The following requirements shall apply to Smart traffic signal (adaptive) Controllers:
- A traffic signal controller using a microprocessor based design providing from four (4) to eleven (11) timed or demanded traffic movements including pedestrians, storing at least 32 signal plans in response to actual demands and as downloaded by the ATMS;
- Extension of the above traffic signal controller with a phase card (lamp drive or switch card) to provide from 12 to 18 timed or demanded traffic movements including pedestrians, storing at least
- 32 signal plans in response to actual demands and as downloaded by the ATMS; (additional payment item provided for this option, refer BOQ
- All phases shall have the capability to be recalled to minimum green, maximum green or pedestrian walk;
- Phase detection shall be capable of declared either presence or passive;
- All detection shall have its own input.
- Ability to perform vehicle counts, defineable over specific times of the days / week / month. Counts data to be available or retrievable over supplied communication used. Information to assist Traffic Engineers as far back as one calendar month.

Smart traffic signal Controllers shall be able to provide

- communication between the controller and the ATMS, capable of remote monitoring and operating in an adaptive system;
- Smart traffic signal Controllers shall allow incorporation of a red-light violation compatible system to be connected to the controller;

- Controllers shall be compatible with UPS Power Supply systems and alternative/auxiliary power supply systems.
- On power on, controllers shall provide suitable automatic restart with diagnostics check and reporting without operator intervention required.
- Controllers shall be able to detect when all red traffic lights (aspects) related to any one phase have failed, ("red-out" failures) and shall save records of such failures in memory and upload the records to the ATMS. The Controller shall automatically switch to SAFE mode (flashing red).

Controllers shall be able to operate in the following modes of operation:

- o – vehicle actuated (VA);
- o – semi-vehicle actuated (semi-VA);
- o – fixed time (FT);
- o – manual;
- o – master controller system (MCS);
- o – cable less linking facility (CLF);
- o – urban traffic control (UTC);
- o – flashing; and
- o – hurry call (HC).

•**Artificial Intelligence (AI)** will be an additional add on function which will be requested as and when required. This processing power must not affect the Smart Controller processing power or affect the current working processes

The following requirements shall be supplied in terms of Basic Traffic Signal Controllers:

- Basic traffic signal controllers shall be able to control at least four (4) timed or demanded traffic movements including pedestrians in response to actual pedestrian pushbuttons.
- Basic traffic signal controllers shall be capable of storing at least four (4) plans.
- Basic traffic signal Controllers shall be capable of communicating with the ATMS and be capable of remote monitoring;
- Basic traffic signal Controllers shall allow incorporation of a red-light violation compatible system to be connected to the controller;
- Controllers shall be compatible with UPS Power Supply systems;
- Controllers shall be able to detect when all red traffic lights (aspects) related to any one phase have failed, ("red-out" failures) and shall automatically go into SAFE mode (red flashing) and save records of such failures in memory and upload the records to the ATMS.
- All types of controllers shall be able to provide cycle lengths of 0 – 180 seconds in 1 second increments;
- All controller clocks and memory shall be battery backed-up to retain time, date and signal timing data for a period of at least 30 days. Energy source shall be rechargeable and warranted to last at least two years;
- All terminal blocks shall be easily accessible and shall have adequate capacity for application.

MOVEMENT SIGNALLING SEQUENCES

- The signal aspects shown to vehicular traffic shall be RED, GREEN, AMBER, RED in that order.
The pedestrian shall be STEADY RED MAN, GREEN man walking, flashing RED man, STEADY RED MAN in that order.
- CONTROLLER START-UP PROCEDURE**
The controllers' start-up procedure shall comply with SARTSM and SANS 1547 requirements.

For previously installed controllers not complying with this; a module needs to be supplied which will allow the controllers to comply with the SARTSM requirements related to flashing red start-up sequence.

MOVEMENT FACILITIES

The controller shall provide movement facilities which may be:

- Vehicle and pedestrian movements operated on a fixed time sequence.
- Vehicle movements actuated and extended by vehicle detector inputs.
- Pedestrian movements introduced automatically or actuated by pedestrian push button inputs.
- Vehicle movements truncated early and extended by transit priority inputs.
- Vehicle movements truncated early and controller operations held in pre-determined vehicle movement or by emergency vehicle pre-emption inputs.

TRANSIT SIGNAL PRIORITY

Smart traffic signal controllers shall have the following signal priority functional requirements:

TSP Function	Functional Requirement
TSP inputs	A minimum of four (4) TSP inputs are required per controller, which may operate simultaneously. As an example two inputs are assigned to northbound transit vehicles and two inputs are assigned to southbound transit vehicles. Alternatively, each input may be assigned a unique intersection approach. Furthermore, the TSP logic employed for the two northbound inputs can differ. The objective is to provide a lower priority strategy to transit vehicles that are not significantly behind schedule, and employ a more aggressive high priority strategy when vehicles are significantly behind schedule. The relative urgency of the priority request will be determined by the transit management centre and relayed to the local controller via the transit vehicle detection system. The TSP inputs shall have multiple levels of priority (a minimum of two). If a higher TSP request is received while servicing a lower TSP request, the controller will interrupt the current TSP sequence to service the higher level request. Each TSP priority input can be activated by Time-Of-Day (TOD) and day-of-week.
TSP Phase(s)	For each TSP input, a TSP phase(s) will be identified to receive priority treatment during TSP operation. There must be at least one phase per TSP input, but there may be up to two phases per TSP input.
TSP Delay	The TSP Delay is the time in seconds from receipt of a Check-In until TSP Sequence is initiated. TSP Delay will be adjustable by TSP Sequence.
TSP Sequence	One TSP Sequence per TSP input. A sequence may include one or more TSP strategies, which may be used during priority depending on the arrival time of the transit vehicle relative to the signal display. However, it shall be 'user acceptable' to have both deployed in sequence to serve the same input call if it is not successfully serviced by the first TSP. For example, an Early Phase Activation may be employed and a transit phase Green Extension for the same input. If the transit vehicle arrives during a transit phase red, then the Early Phase Activation is employed. If the transit vehicle arrives during the transit phase green, then the Green Extension is applied.

TSP Function	Functional Requirement
Minimum TSP Green (Non-TSP Phase)	In Coordination Mode, a minimum TSP green value is entered for each non-TSP phase and each TSP Sequence. The greater of the minimum TSP green or the minimum green time will be implemented in the case of Early Phase Activation. For pedestrian phases, a TSP green and walk value shall be programmable, lower than the typical minimum green and walk duration. In Free Mode, a minimum TSP green value is entered for each non-TSP phase and each TSP Sequence. The greater of the minimum TSP green or the minimum green time will be implemented in the case of truncations.
Maximum TSP Phase Green	In Coordination Mode, the maximum time that TSP phases can be held green without violating the Minimum TSP Green time (or minimum split times as the case may be). Alternatively a value less than this time may be used. In Free Mode, a maximum time the TSP phase can be held. This time can differ from the maximum phase duration. The Maximum TSP Phase Green is programmable by TSP Sequence.
TSP Re-Service Time	The minimum number of controller cycles, or time between active TSP sequences. The TSP Re-Service Time will be activated (off/on) by individual TSP input or all TSP inputs (i.e. global re-service time)

REMOTE MONITORING

- All types of controllers supplied shall include Remote Monitoring Facilities.
- The proposed architecture of the Remote Monitoring System is illustrated in Appendix A.
- The JRA requires that bidder's provide a price for proprietary remote monitoring instation software and associated hardware. The JRA will provide the communications backbone separately; the bidder is required to provide all other aspects of the system.
- All JRA controllers must monitor all phases including Peds and Turnings arrows that are applicable, including ambers. The controller must report accurate and reliable information of lamp failures.
- Circuit breaker monitoring is required to differentiate between a power failure and a tripped circuit breaker.
- The RMS should have the following reports available: -
 - (i) Each Phase failures – all lamp failures on a phase
 - (ii) Detection faults divided into push buttons, vehicle, permanent call and no call. – timeout reached
 - (iii) GPS clock failures – when GPS does not set the clock within 48 hours.- It will be a future requirement to have reports available related to GPS performance including the time of the GPS clock module as received from the satellite.
 - (iv) Controller clock time as a list

Future changes to the software may be required where the bidder will provide a quote and upon approval by the JRA project manager be implemented.

Enhancements to the remote monitoring system may include detailed summary reports and auto created fault files for all sites on the system.

- (i) The file format for faults report must be in the form of a CSV file and follow the guidelines set out below:
 - All Data fields will be separated with a delimiter. The delimiter will be specified by JRA.
 - All records shall be on a separate line.
 - The first line of the file will contain the header with column field names and delimited in the same was as the rest of the file.

- Interval time for CSV file creation will be determined by JRA.
- The CSV file will be made available for retrieval through a fixed link.
- The data fields required in the CSV file will be determined by JRA.

Summary Reports:

- The Remote monitoring system will provide a summary report to track controller performance and will be used to recap periodic activity occurring at each intersection.
- The report will provide a daily, weekly or monthly summary of all fault occurrences together with total fault count over the period and displayed in a suitable format.
- The summary report will be made accessible through the system as a download.

The reference point for synchronisation purposes will be stated by the JRA and the controller firmware should be adjusted to align with this.

The router must be trackable via GPS and should be compatible with Eagle eye software or similar.

General Requirements

1) Equipment to be supplied under the contract shall be of industrial quality, carrying certification from accredited standards organisations. The design life, maintainability, product support, etc. shall exceed 10 years. Bid shall include documentation to comply to this requirement (previous projects, client references, etc.)

ROUTER

1. Router Hardware Requirements:
 - a) Device should support 4G or higher, but also include the ability to switch to lower speeds depending on the need.
 - b) Device should support Dual Sim Card capability for Network Redundancy.
 - c) Device should support Diversity, 5 - way External Antenna solution and Connectors for Antenna scalability in bad signal areas.
 - d) Device should be capable of keeping itself alive on the GSM networks. (Ping alive functionality.)
 - e) Device should be able to Auto swap between Dual Sims on experiencing signal problems or network acquisition.
 - f) Device should have a WEB Interface for Over-The-Air setup and device management. (Provide remote WEB interface accessibility)
 - g) Device should be able to accommodate an IN-Sim / Chip Sim solution.
 - h) Device should support Sim pairing / lock to device and commissioned as additional security solution
 - i) Out-station RMS Devices – must be Customizable to meet JRA-ITS requirements (for Reporting):
 - (1) 4G-Router Platform, must integrate with In-station RMS via JRA-APN or WAN (Traffic Signals).

- (2) Remotely accessible features of 4G or higher Router (Smart MODEM) are: -
- (a) Firmware update.
 - (b) Configuration & Troubleshooting.
 - (c) SIM & Device (4G-Router) Connectivity Data Full Report(s).
 - (d) LAN ports status etc.
- (3) Users must be able to view the following on In-Station / RMS: -
- (a) SIM IP
 - (b) SIM Numbers / IMSI
 - (c) IMEI of the devices connected
 - (d) GPS coordinates
 - (e) Devices connected to the 4G or higher Routers
 - (f) Geo Fencing
 - (g) SIM Lock to device (not Epoxy)
 - (h) SIM events
 - (i) 4G Router events
 - j) Device should support:
 - (1) an IP to IP tunnel communication solution.
 - (2) Port Forwarding capability.
 - (3) onboard DHCP Server configuration
 - (4) Connection status / System log display
 - (5) Trouble shooting page (ping)
 - (6) Static IP Routing
 - (7) Network preference selection
 - (8) SMS Notification capability
 - (9) LAN IP configuration
 - k) Device should support the following LED Display capability:
 - (1) a Signal strength indicator as well as Web based Over-The Air Signal strength indicator in real time
 - l) Device should have DIN Rail mounting capability
 - m) Device should support Input and Output expansion scalability for:

- (1) Ethernet Switch expansion capability
 - (2) IP Camera connection support
 - (3) General purpose Output Relays for remote switching interface capability
- n) The bid rate should include the supply and fitment of a blank plate covering the sim trays, it must also include the embedding of the sim cards or sim chips into the routers (sim card or chip supplied by JRA).

IP TUNNEL TERMINATION (IPTT) SERVER SOLUTION

- 1) When applicable the JRA will require IPTT servers.
- 2) The IPTT Servers should be connected to one another for redundancy and uptime management as well as manage and route all traffic via the Private APN infrastructure completely secure. It should be capable of establishing, maintaining and creating and adding of IP to IP tunnelling to existing Dual Sim Routers at the traffic controller without the need to go to site to add the tunnel back to the IPTT.
- 3) Connectivity should be managed and maintained even when the remote outstation routers swap GSM networks and fail over to alternative GSM Private APN Sim connectivity for network coverage redundancy provided from the hardware in the field.
- 4) A specific subnet behind the router at the traffic controller should be tunnelled to reach a subnet behind the IPTT or multiple subnets or end- points as required by the JRA.
- 5) The IPTT must supports up to 10000 tunnels with either 10Gbit fibre interfaces, but can support up to 10Gbit throughput of required. As more tunnels are required, more IPTT servers are added.
- 6) Besides the standard tunnelling functionality, the IPTT should also support:
 - Real-time graphing of all APN tunnel-based traffic
 - A Unit status page with last-date-of-connect information
 - Reporting and logging of:
 - Signal strength at the time of connection
 - Radio technology (e.g. EDGE, 3G, HSPA, etc.)
 - Unit ID, WAN and LAN IP information
 - Advanced real-time IP traffic tracing and debugging between elements
- 7) The IPTT's must be capable of supporting up to 10,000 simultaneous tunnels to outstations.
- 8) Each IPTT should be configurable in a redundant architecture which would guard against hardware or other environmental failures. This architecture should always be in an active-standby configuration.
- 9) The IPTT server should have a web interface for configuring new tunnels which is identical to that found in the MPRI products. Each tunnel has to be configured with a remote subnet and an end-point IP address.
- 10) An IP Tunnel must automatically be created in the router at the traffic controller to link the IPTT to the router.
- 11) The Contractor shall provide licenses for all items of software supplied.

OPERATOR INTERFACE

The access and control to the various controls and parameters within the controller shall be available to the JRA, which include access to traffic engineering parameters and facilities to enable site configuration data.

An additional future feature will be required, that will require the technician to verify his/her details (log-in) before any work can be performed on the controller. This include features such as reset, controller log, configuration, etc. This option will be a future requirement and will be discussed in detail with the appointed bidder after award, and allowance should be made in the pricing schedule to develop this feature if not readily available.

Suppliers should note that the JRA requires full control of their assets which include dongles, hand held terminals, etc which shall be supplied as part of the controller and is deemed to be included in the rates for the supply of the Controllers. If controllers require OEM handheld terminals and/or dongles or other equipment for interfacing with controllers on site, the supplier shall include pricing for it in the pricing schedule.

CONTROLLER PHILOSOPHY

Smart traffic signal traffic controllers shall be micro-processor based.

Basic traffic signal traffic controllers shall be microprocessor based.

Each outstation shall be provided with a function to send a message to the ATMS after power loss, before powering off.

CONTROLLER CLOCKS

Real Time Controller Clocks

- 1) A seven day, twenty-four-hour digital clock with a resolution of one second shall be installed in the controller for:
 - (i) Cable less linking co-ordination
 - (ii) Control of all timetable and plan timing functions
 - (iii) Movement and phase timings
- 2) The controller clocks need to be able to be set remotely through the adapter/RMS/ATMS.
- 3) Controller clocks shall provide battery backup for at least 30 days.
- 4) The clock operation shall be warranted and shall have an accuracy in line with the standard requirements.
- 5) Clocks that do not comply with the above operation and accuracy requirements shall be replaced under warrantee. Failure to comply with the above requirements will be regarded as a non-compliance. If more than three non-compliances occur on any one controller clock within a period of 30 days the JRA may cancel the contract with the Supplier and a portion of the contract may be reassigned to another Supplier.

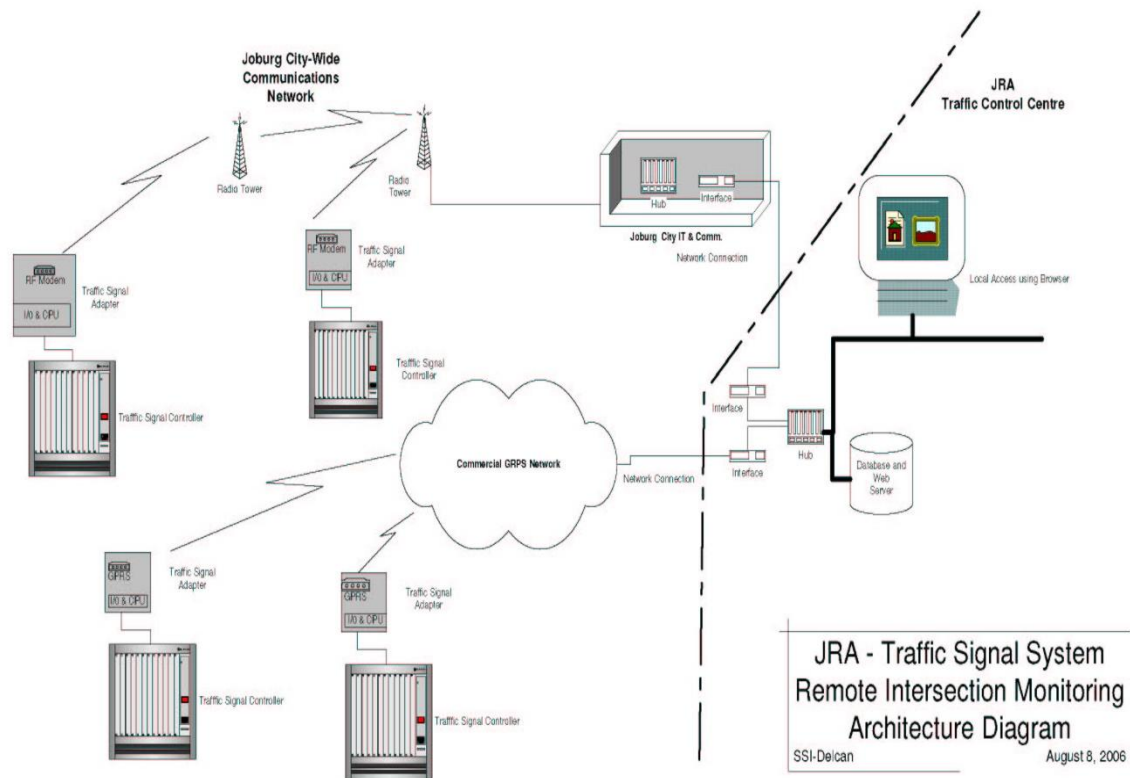
GPS clocks

All types of controllers shall be capable of synchronising with external time sources (such as GPS devices) using the latest version of Network Time Protocol (NTP).

GPS clocks must be able to set clocks at specified intervals. These interval times must be settable
The proper functioning of the GPS clock must be monitored via RMS.

APPENDIX A

PROPOSED ARCHITECTURE OF THE REMOTE MONITORING SYSTEM



VEHICLE DETECTION DEVICES AND RELATED EQUIPMENT

CHAPTER 5 PART A: GENERAL TECHNICAL SPECIFICATIONS

CHAPTER 6

1. Information Required

- 1.1 Bidder shall supply details of compatibility with existing detector technology in use by JRA.
- 1.2 Comprehensive details of all equipment will be required before installation. This information must include manufacturer's brochures and catalogues, which describe the technology used and include relevant drawings, specifications, and installation procedure.

GENERAL TECHNICAL REQUIREMENTS

2. Standards

- 2.1 The following standards form an integral part of this contract. All equipment offered shall be new and shall conform to the applicable sections of the specifications which will hereafter be referred to by the abbreviations shown in the relevant square brackets:
 - a) South African National Standard specifications SANS 1547 : 2013, or latest, Traffic Signal Controllers [SANS 1547]
 - b) SANS ISO 9001: 2015, or latest, - Quality systems - model for quality assurance in design, development, production, installation and servicing [ISO 9001]
 - c) The South African Road Traffic Signs Manual Volume 3: Traffic Signal Design, April 2001, or latest, [SARTSM].
 - d) SANS standards for electrical connection [SANS 10142] , latest,
 - e) SANS standards for surge and lightning protection [SANS10313] , latest,
 - f) SANS standards for earthing [SANS 10199] , latest,
 - g) Additionally, the detection equipment shall comply with European standard ENV13563 (Traffic control equipment – vehicle detectors) as applicable including:
 - Temperature class T1 (ambient temp -15 to +60 deg C)
 - Sensor units and above ground enclosures- protection class IP65
 - Detector units in road surface - protection class IP67

3. Design and Construction

- 3.1 A high standard of construction is essential in all products offered and shall in all respects be suitable for the purpose intended and for all the environmental conditions specified.

- 3.2 The Contractor shall accept responsibility for the satisfactory quality, design and workmanship of the products and every part whether manufactured by the contractor/bidder or supplied to the contract/bidder by other manufacturers.
- 3.3 Equipment must be capable of operating reliably in a demanding environment, eg high temperatures, unstable electrical supply, etc.
- 3.4 The products supplied must be compatible with the existing JRA traffic signal remote monitoring system and infrastructure.
- 3.5 All components and materials shall be subject to the approval of the JRA Traffic Signal Management.

4. Design for Ease of Maintenance

- 4.1 Modules shall be easy to remove for maintenance purposes unless the equipment has been installed as a permanent fixture, eg: intrusive devices.

5. Power Supply

- 5.1 Bidders should ensure compliance to the operating voltage.

6. Testing and Inspection

- 6.1 Suppliers shall test and inspect all equipment offered prior to installation to ensure compatibility and reliability. Testing shall include National Transportation Communications for ITS Protocol (NTCIP) compliance (where relevant) for each type of device supplied.
- 6.2 Test results documentation shall be kept on file for a minimum period of two years after the equipment is delivered to the JRA. The JRA may request copies of these tests and inspection records from the Contractor during the above stated year period.

7. Warrantee

- 7.1 Warrantees shall cover all parts and labour necessary or incidental to the repair of any defect in equipment, parts, materials, or workmanship and malfunctions that arise during the Warrantee period. The period of Warrantee coverage shall, in no case, be less than the manufacturer's usual and customary warrantee period. All warrantees that are customarily issued by the vendor and/or manufacturer shall be provided to the JRA.
- 7.2 The Bidder shall specify the warrantee period on all the equipment offered, which shall not be less than the JRA stipulated minimum requirement.
- 7.3 It is expected that video detection and magnetometer equipment have a minimum of 3 year warrantee except the magnetometer sensors. It is expected that the magnetometer sensors are warranteed for at least 7 years.
- 7.4 Minor repairs may, at their discretion, be made by the JRA, or their appointed specialist contractors, with the consent of the manufacturer. All other repairs under warrantee will be made by the manufacturer. The manufacturer will bear all costs including labour, parts, and shipping charges.

- 7.5 Any faulty equipment must be repaired or replaced within a period of three (3) working days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract.
- 7.6 In the event of equipment not complying with the Bidder's claims in the Bid documents, the following provisions shall apply:
- i) The JRA reserves the right to reject such equipment and if this right is exercised the Contractor shall have no claim for any payment.
 - ii) The Contractor shall replace such equipment immediately and without extra charge, with equipment complying with the specifications.
 - iii) The rejected equipment will be returned to the Contractor on receipt of the replacement equipment.
 - iv) The replacement equipment will be subjected to tests as before but at the Contractor's expense, the test results becoming the property of the JRA.
 - v) The fees for the replacement tests must be paid by the Contractor to the JRA at the time of selecting fresh samples for test.
 - vi) Should the replacement equipment fail to comply with the specifications or Bidder's claims the JRA reserves the right to exercise its rights in terms of the General Conditions of Contract.
 - vii) In the event of a dispute over the rejection of any equipment, JRA shall have the equipment tested by the South African National Standards [SANS] for compliance with the claims of the Contractor. The SANS shall act as an impartial arbiter and shall have full discretion on the test methods to be employed.

8. Technical Support

- 8.1 Where required the Contractor shall be responsible for reviewing design drawings prior to installation and inspecting installations of the supplied vehicle sensors and associated components before commissioning to ensure it complies with the requirements for a reliable and warrantable installation. This includes consideration of the City of Johannesburg's power supply regime, which includes long power interruptions. The cost for this technical assistance shall be included in the hourly rate bid for technical support.
- 8.2 The Contractor shall provide technical assistance to JRA staff in the set-up, calibration and operation of the supplied equipment. The Contractor will be paid for this technical support on an hourly basis based on the hourly rate bid for technical support.
- 8.3 The Contractor shall not be reimbursed for technical assistance time when the cause of the problem is related to a malfunction of the equipment supplied by the Contractor.

PART B: PARTICULAR TECHNICAL SPECIFICATIONS

1. VEHICLE DETECTORS

1.1 General

- 1.1.1 The JRA requires the supply and installation of vehicle detection devices as an alternative to inductive loops. The devices offered should be compatible with current utilised technologies in JRA and should have full SA support with the ability to “fit and forget” for at least 5 years.
- 1.1.2 Vehicle detectors supplied shall be clearly and durably marked where relevant including:
- Electrical ratings
 - Hazard labels where mains supply is found
 - Manufacturers part number / ID / patent number
 - ICASA license number (wireless devices)
 - Unique serial number for identification and provide product/site traceability
 - Microdots
- 1.1.3 The Bidder shall provide full details of equipment being offered, including data sheets, battery life of sensors, description of sensor setup, calibration equipment and software that is required, wiring diagrams, interconnection cable requirements, etc.
- 1.1.4 There are four types of applications for these detector technologies:
- Stop-line Presence – Detection of the presence of a vehicle stopped at the stop-line of a traffic signal. Requires a detection zone in each travel lane for the associated traffic signal stage operating under vehicle actuated operation. Typically located immediately upstream of the stop-line, except for lagging right turns when the detection zone is located immediately downstream of the stop-line. The size of the detection zone should be approximately 2.5m in the direction of travel.
 - Set-back Presence – Detection of the presence of a vehicle approaching a traffic signal. Requires a detection zone in each travel lane for the associated traffic signal stage operating under vehicle actuated operation. Typically located upstream of the stop-line. Location is dependent on traffic operating speeds or in the case of leading right turns the size of queue required before a right turn stage is activated. The size of the detection zone should be approximately 2.5m in the direction of travel.
 - Adaptive Control – Presence detection of vehicles approaching a traffic signal. Requires a detection zone in each travel lane of each major road approaching the intersection (through lanes only, except when right turn stages are used). Typically located immediately upstream of the stop-line. The size of the detection zone should be approximately 1m in the direction of travel.
 - Network Monitoring – Detection of traffic flow characteristics of vehicles approaching a road segment. Requires a detection zone in each travel lane approaching the road segment. Typically located in the exit lanes of an intersection approximately 20m downstream of the intersection. In the case of motorways, typically located at regular intervals (e.g., 500m) and situated in areas that experience a minimum of weaving between lanes. The size of the detection zone should be approximately 2.5m in the direction of travel. On motorways the vehicle sensor shall also be capable of detecting incidents.

A sensor technology is not required to be applicable for all applications.

- 1.1.5 If the Bidder offers a sensor that has not been tested by the JRA, full documentation for the equipment offered shall be submitted and the Bidder shall make samples available to the JRA for field testing at no cost. The bidder should also demonstrate the compatibility with existing JRA technology.

- 1.1.6 The JRA will provide the communications backbone such as sim card technology where wireless is not available. Where sim cards are used successful bidder shall embed and epoxy the sim at their cost. The Bidder must provide detailed information on the communication interface protocols and provide all assistance necessary.

1.2 Magnetometer Detector Unit

- 1.2.1 The magnetometer vehicle detector unit to be the Sensys VSN240-f-2 (MAG2) or latest unit or equal or equivalent for the purpose of providing vehicle presence, speed, volume and lane occupancy data (e.g. stop-line presence, set-back presence, adaptive control and network monitoring).
- 1.2.2 For vehicle presence detection, the detector unit shall be capable of presence and pulsed operation on a selectable basis.
- 1.2.3 The Bidder shall indicate how many individually monitored lanes one sensor is capable of monitoring.
- 1.2.4 For network monitoring (volume, speed and lane occupancy), the detector shall provide data with the following accuracy:
- i) Speed to 5 km/h, based on average speed per lane over a five-minute period;
 - ii) Volume +/-5% per lane over a five-minute period;
 - iii) Lane Occupancy +/-10% per lane over a five-minute period.
- 1.2.5 Speed calculations shall be based on dual-loop speed trap emulation.
- 1.2.6 For vehicle presence detection, controller interface cards capable of monitoring a minimum of four individually monitored lanes shall be provided. The interface cards shall be compatible with Euro-style 19" detector racks for installation in existing controllers. If NEMA cards are supplied, they shall be provided with suitable adapters for Euro-racks. If detector cards are properly encased, it will be allowed to mount it on a din rail.
- 1.2.7 Access points and repeaters (including mounting brackets) for relaying sensor detection data to the traffic signal controller shall be provided. The Bidder shall indicate how many sensors one access point is capable of monitoring.
- 1.2.8 Any equipment housed in pole mount enclosures shall be supplied together with any power supply and surge protection required.
- 1.2.9 For presence detection, the equipment shall be compatible with controllers in use at the JRA; viz Siemens ST800/ST950, Syntell M4/MX and Automotor ESA/UA, all these require standard potential free contact closures. Fault indication shall be available.
- 1.2.10 LTE(4G or higher) communications using NTCIP with TCP/IP to be offered for use in areas of no wireless coverage.
- 1.2.11 The communications protocol shall conform to NTCIP1201 and 1209 standards – further requirement are listed in Appendix A.
- 1.2.12 All software necessary to set-up and calibrate the sensor shall be provided by the bidder.

- 1.2.13 JRA has procured the SNAPS servers to monitor the magnetometers and related equipment. All equipment shall be able to communicate to all current controllers and to the existing SNAPS server.
- 1.2.14 The contact closure card should be compatible with the cards utilized by JRA currently.

1.3 Video Camera Vehicle Presence Detector Unit

- 1.3.1 The video camera vehicle presence detector unit to be the Traficam X-Stream and Thermicam units available from Flir or equal or equivalent for the purpose of adding vehicle actuated operation of traffic signalized intersections (e.g., stop-line presence, set-back presence, adaptive control and network monitoring) or at standalone sites.
- 1.3.2 Presence and pulsed operation shall be selectable.
- 1.3.3 The Bidder shall indicate how many individually monitored lanes one sensor is capable of monitoring and whether there are variants for near and far side installation.
- 1.3.4 The equipment supplied shall be housed in pole mount enclosures together with any power supply and surge protection required. All pole mount enclosures shall be provided with mounting brackets and have sufficient space inside for communications equipment.
- 1.3.5 Controller interface cards shall be provided and be compatible with Euro-style 19" detector racks for installation in existing controllers. If NEMA cards are supplied, they shall be provided with suitable adapters for Euro-racks. If detector cards are properly encased, it will be allowed to mount it on a din rail.
- 1.3.6 The equipment shall be compatible with controllers in use at the JRA; viz Siemens ST800/ST950, Syntell M4/MX and Automotor or any future controllers. All these require standard potential free contact closures. Fault indication shall be available.
- 1.3.7 All software necessary to set-up and calibrate the sensor shall be provided by the bidder.
- 1.3.8 Software for receiving and analysing sensor data will also be required.
- 1.3.9 JRA has procured the FLUX server to monitor the video detection devices. All cameras shall be able to communicate to all current controllers and to the existing FLUX server.

1.4 Environmental

- 1.4.1 Equipment supplied shall be suitable for operation under South African environmental conditions and shall operate under conditions of rain, hail, fog, road spray, low light and night-time without adverse effects on performance.
- 1.4.2 Equipment supplied shall comply with the relevant SA Standards for electrical connection (SANS 10142), surge and lightning protection (SANS 10313) and earthing (SANS 10199). Nominal supply voltage shall be 230VAC single phase (+/-10%), frequency 50Hz (+/- 2%)

with particular reference to the current power supply situation where power failures and irregular power fluctuations are daily occurrences.

1.4.3 Additionally the detection equipment shall comply with European standard ENV13563 (Traffic control equipment – vehicle detectors) including:

- i) Temperature class T1 (ambient temp -15 to +60 deg C)
- ii) Sensor units and above ground enclosures- protection class IP65
- iii) Detector units in road surface - protection class IP67

1.4.4 Any radio equipment supplied shall be ICASA approved for free-to-air usage.

1.5 Earthing and Lightning Protection

1.5.1 All enclosures shall have electronic components adequately isolated and provided with surge protection.

1.6 Spares

1.6.1 The Bidder shall detail what spares are required to support the technology before installation and fill in the relevant details in the Bill of quantities (BOQ).

1.6.2 An additional list may be attached if required where reference must be made to the list in the BOQ.

1.7 Other

The Bidder may offer any additional equipment available for ease of setup and maintenance of their equipment or any additional features / enhancements which were not listed in items above. Full details to be provided.

An additional list may be attached if required where reference must be made to the list in the BOQ.

CHAPTER 7 ANNEXURE A – NTCIP COMPLIANCE

- 1 Sensors shall comply with the latest version of the US National Transportation communications for ITS Protocol (NTCIP) standards (www.ntcip.org) :
 - i) NTCIP 1201 Global Object definitions
 - ii) NTCIP 1209 Transportation Sensor Systems
 - iii) NTCIP 2202 TCP and UDP/IP
 - iv) NTCIP 2103 PMPP / RS232
 - v) NTCIP 2104 Ethernet

- 2 At the subnet profile level the following shall be supported:
 - Ethernet (10/100Mbit/s) via fiber optic cable or wireless network
 - Serial communications via GPRS (2.5G or higher) modem using the JRA Access Point Name (APN) network

- 3 At the transport profile level the following shall be supported:
 - i) TCP/IP
 - ii) UDP/IP
 - 3.1 Two or more concurrent socket connections shall be possible

- 4 At the application level SNMP is defined:
 - i. The traffic sensor shall conform to NTCIP2301 as a Managed Agent and meet conformance level 1 requirements
 - 4.1 Maximum response time for an SNMP request for any object or group of objects shall be 200mS.

- 5 At the Information level NTCIP 1201 and 1209 shall be supported:
 - 5.1 All Mandatory Objects of all Mandatory Conformance Groups shall be supported as defined in these standards. The tables below list project specific requirements to these objects:

5.1.1 NTCIP1201 Global Objects:

NTCIP1201: GLOBAL OBJECT
--

Object	NTCIP1201 cause	Conformance Group	Project Requirements
Module Table Entry	2.2.3	CONFIGURATION	At least one row with Type = 3 (software) Make = manufacturer Model = device name Version = version no
Max Group Addresses	2.7.1	SECURITY	At least 1
Community Names Max	2.8.2	SECURITY	At least 3

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5.1.2 NTCIP1209 TSS

NTCIP1209: TSS SYSTEM SETUP			
Object	NTCIP1209 clause	Object Range	Project Requirements
Sensor System Reset	3.2.1		FSORS
Sensor System Status	3.2.2		FSORS
Sensor System Occupancy Type	3.2.3		FSORS
Max Sensor Zones	3.2.4	0-255	16
Sensor Zone Number	3.2.5.1	1-255	1-16
Sensor Zone Options	3.2.5.2		FSORS
Sensor Zone Options Status	3.2.5.3		FSORS
Sensor Zone Sample Period	3.2.5.4	0-3600	0-3600
Clock Available	3.2.6		FSORS
FSORS = Full Standardized Object Range Support			

NTCIP1209: TSS CONTROL			
Object	NTCIP1209 clause	Object Range	Project Requirements
Max Output Number	3.3.1	1-255	1-16
Output Number	3.3.2.1	1-255	1-16
Output Sensor Zone Number	3.3.2.2	0-255	1-16
Output Fail safe Mode	3.3.2.3		FSORS
Output Mode Status	3.3.2.4		FSORS
Max Output Groups	3.3.3	1-32	At least 2
Output Group Number	3.3.4.1	1-32	At least 2
Output Group Output State	3.3.4.2		FSORS
FSORS = Full Standardized Object Range Support			

5.2 All Mandatory Objects of the following Optional Conformance Groups shall also be supported. The tables below list project specific requirements to these objects:

5.2.1 NTCIP 1201

- i) Time management – as defined in 1201
- ii) Timebase Event Schedule – as defined in 1202
- iii) Report – requirements in table below
- iv) STMF – required if conformance level 2 is used under Application Profile 2301
- v) PMPP – required for subnet profile 2102

JRA 7

NTCIP1201: REPORT CONFORMANCE GROUP			
Object	NTCIP1201	Object	Project Requirements

	cause	Range	
Max Event Log Configs	2.5.3	0-65535	At least 64
Event Configuration Mode	2.5.4.3		(2) on change (3) greater than val (4) smaller than val (5) hysteresis bond
Max Event Log Size	2.5.5	0-65535	At least 1024
Max Event Classes	2.5.1	0-255	At least 16

5.2.2 NTCIP 1209 TSS Data Collection (Volume, Speed and Occupancy)

NTCIP1209: TSS DATA COLLECTION			
Object	NTCIP1209 clause	Object Range	Project Requirements
End Time	3.4.1.1		FSORS
Volume Data	3.4.1.2	0-65535	0-10000 & 65535
Percent Occupancy	3.4.1.3	0-1000 & 65535	FSORS
Speed Data	3.4.1.4	0-2550 & 65535	FSORS
Zone Status	3.4.1.5		FSORS
End Time Buffer	3.4.2.1		FSORS
Volume Data Buffer	3.4.2.2	0-65535	0-10000 & 65535
Percent Occupancy Buffer	3.4.2.3	0-1000 & 65535	FSORS
Speed Data Buffer	3.4.2.4	0-2550 & 65535	FSORS
Zone Status Buffer	3.4.2.5		FSORS
Note: NTCIP1209 does not include any classification objects at this stage – if the sensor offered supports these then the Bidder shall indicate them as an extension			

- 6 NTCIP compatibility testing – this shall utilize the Ntester and IDI Device tester. The aim of the NTCIP testing shall be to demonstrate 100% compliance with the NTCIP protocol stack operating within an automated poll-response environment and to verify compliance with all mandatory objects and those specified here.

TRAFFIC SIGNAL EQUIPMENT AND ASSOCIATED COMPONENTS

1. PROJECT SCOPE

1.1 The equipment covered in this section include the following main components:

ITEMS
1. Traffic signal poles;
2. Conventional traffic signal pole bases;
3. Traffic Signal Pole caps;
4. Terminal blocks
5. Flasher units;
6. Fuses, Circuit breakers
7. Earth spikes
8. Pedestrian push buttons;
9. Enhancing pedestrian safety
10. Traffic signal electric cables;
11. Electrical Consumables;
12. Traffic Signal Cable Sleeves 110mm
13. Retro-reflective tape;
14. Vinyl numbers for traffic signal poles.
15. Solar powered signs

- 1.1.1 It is important that Bidders are familiar with the JRA's traffic signal equipment standards and infrastructure to ensure compatibility.

2. INFORMATION REQUIRED

- 2.1 Comprehensive details, including manufacturer's catalogues, drawings and specifications must be available upon request.
- 2.2 Bidders shall state clearly on the summary compliance sheet if there are any items of the specification differ from the specification of the equipment offered. Failure to comply with this shall be regarded as non-compliance.

3. GENERAL TECHNICAL REQUIREMENTS

3.1 Standards and Guidelines.

- 3.1.1 The following standards and guidelines form an integral part of this contract. All equipment offered shall be new and shall comply to the applicable sections of the specifications which will hereafter be referred to by the abbreviations shown in the relevant square brackets as applicable:
 - a) South African National Standard specifications SANS 1459:2004 Edition 1.4 Traffic lights [SANS 1459]
 - b) South African National Standard specifications SANS 1547: 1992 Traffic Signal Controllers [SANS 1547]
 - c) SANS ISO 9001: 2015 - Quality systems - model for quality assurance in design, development, production, installation and servicing [ISO 9001]
 - d) The South African Road Traffic Signs Manual Volume 3: Traffic Signal Design, April 2001 [SARTSM].
 - e) South African National Standard specifications SANS 1091:2012 National colour standard.
 - f) South African National Standard specifications SANS 1507-1:2007 Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V) Part 1: General
 - g) South African National Standard specifications SANS 1507-2:2015 Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V) Part 2: Wiring cables
 - h) South African National Standard specifications SANS 1519.
 - i) South African National Standard specifications SANS 1411-1

3.2 Design and Construction

- 3.2.1 A high standard of construction is essential in all products offered and shall in all respects be suitable for the purpose intended and for all the environmental conditions specified.
- 3.2.2 Unless otherwise stated, all equipment shall comply with the relevant SANS specifications.
- 3.2.3 The contractor shall accept responsibility for the satisfactory quality, design and workmanship of the products and every part whether manufactured by him or supplied to him by other manufacturers.

- 3.2.4 Equipment must be capable of operating in a demanding environment, e.g. high temperatures and unstable electrical supplies.
- 3.2.5 The products supplied must be compatible with the existing JRA traffic signal system and infrastructure.
- 3.2.6 All components and materials shall be subject to the approval of the JRA Project Representative.

3.3 Power Supply

- 3.3.1 Unless otherwise specified, all equipment shall operate within a supply ranging between 200VAC to 240VAC and 50 Hz supply.

3.4 Warrantee

- 3.4.1 Warrantees shall cover all parts and labour necessary or incidental to the repair of any defect in equipment, parts, materials, or workmanship and malfunctions that arise during the warrantee period. The period of warrantee coverage shall, in no case, be less than the manufacturer's usual and customary warrantee period. All warrantees that are customarily issued by the vendor and/or manufacturer shall be provided to the JRA.
- 3.4.2 Suppliers shall specify the warrantee period on all the equipment offered.
- 3.4.3 Minor repairs may, at their discretion, be made by the JRA, or their appointed specialist contractors, with the consent of the manufacturer. All other repairs under warrantee will be made by the manufacturer. The manufacturer will bear all costs including labour, parts, and shipping charges.
- 3.4.4 Any faulty equipment must be replaced within a period of three (3) working days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract.
- 3.4.5 In the event of equipment not complying with the Bidder's claims in the Bid documents, the following provisions shall apply:
 - 3.4.5.1 The JRA reserves the right to reject such equipment and if this right is exercised the contractor shall have no claim for any payment.
 - 3.4.5.2 The contractor shall replace such equipment immediately and without extra charge, with equipment complying with the specifications or Bidder's claims in such manner as will ensure that the JRA does not suffer a work stoppage as a consequence of the rejection.
 - 3.4.5.3 The replacement equipment will be subjected to tests as before but at the contractor's expense, the test results becoming the property of the JRA.
 - 3.4.5.4 The fees for the replacement tests must be paid by the contractor to the JRA at the time of selecting fresh samples for test.
 - 3.4.5.5 Should the replacement equipment fail to comply with the specifications or Bidder's claims the JRA reserves the right to exercise its rights under this contract in accordance with the General Conditions of Contract conditions.

3.4.5.6 In the event of a dispute over the rejection of any equipment, JRA shall have the equipment tested by the South African National Standards [SANS] for compliance with the claims of the contractor. The SANS shall act as an impartial arbiter and shall have full discretion on the test methods to be employed.

3.4.6 Where required the Supplier shall be responsible for inspecting installations before commissioning to ensure it is complying with the requirements for a warrantable installation within the City of Johannesburg's power supply regime, which includes long brown-outs. The cost for this pre-commissioning inspection shall be deemed to be included in the rate for the supply of the equipment.

PART 4

PART B: PARTICULAR TECHNICAL SPECIFICATIONS

1. TRAFFIC SIGNAL POLES

- a) The Bid is for the supply of standard, extended length (totem) and cantilever (outreach) traffic signal poles, excluding pole bases.
- b) The poles supplied shall be manufactured to the exact physical dimensions and weight ($\pm 2\%$) of the existing poles used by the JRA. Examples are available for inspection at the JRA Traffic Signals Depot. Refer to the annexures in the bid document.
- c) All standard poles supplied shall be painted with two layers of anti-corrosive paint followed by golden yellow paint (as specified in the South African Roads Traffic Signs Manual) and black enamel paint on the top 750mm of the pole. The black enamel paint location will be specified by the JRA project manager for the cantilever and extended poles.
- d) Standard poles shall be mild steel tube of 110 mm nominal bore manufactured to SANS 62.
- e) "Hatch poles" shall have an inspection slot with cover plate that will allow the SWA cable connections to be terminated at this point, with the earth to be connected to the pole for bonding purposes.
- f) Extended range poles shall have a wall thickness of 4.5mm minimum. Provision shall be made for mounting two signal faces vertically in line. 3 cable entry holes shall be made for cabling the lower signal face.
- g) Overhead cantilever poles shall have a maximum outreach height of 6.2m and a minimum of 5.2m in accordance with the existing poles being used by the JRA.
- h) Poles shall be fabricated of mild steel painted according to specifications.
- i) The rate of measurement will be for a complete pole, including bolts, nuts and brackets and painted as specified above.
- j) Typical pole details are shown in the Appendix A1.
- k) The rate of measurement will be for a complete standard traffic signal pole, including bolts, nuts and brackets (as applicable) and painted as specified above.

- l) Separate rates for Bolts, nuts, brackets as well as overheard arms must also be supplied, which will be purchased as required.
- m) Ease of identifying stolen poles the supplier shall mark or imprint the initials "JRA" on all poles.
- n) Bolts must be rust resistant.

2. CONVENTIONAL SIGNAL POLE BASES

- a) Separate rates shall be supplied for conventional signal bases that are compatible with above traffic signal poles as shown in the typical details in Appendix A1 & A2.

3. TRAFFIC SIGNAL POLE CAPS

- a) Rates shall be provided for the supply of separate removable weatherproof pole caps that will facilitate wiring to not less than four signal heads and two pedestrian push buttons per traffic signal pole.
- b) The capping shall be made from Nylon 66 or similar non-ferrous and non-corrodible durable material approved by the JRA.
- c) Provision shall be made for the earth cable to be fixed onto Pole Cap base.
- d) Rates shall be provided for complete pole caps supplied, and installed.
- e) Rates shall also be provided separately for pole cap covers as well as for pole top connectors (Terminal blocks or push in connectors).
- f) Terminal blocks with plate or Wago connectors push in connectors or similar equivalent supplied by the bidder must first be approved by the JRA project manager.
- g) Earth bonding wire shall be included in all complete pole caps ordered.
- h) Cable connecting pole top cover to pole top

4. TERMINAL BLOCKS / PUSH-IN CONNECTORS

- a) Terminal blocks with plate shall be supplied for the following currencies:
 - 1) 5 Amp
 - 2) 10 Amp
 - 3) 15 Amp
- b) Wago 221 Series Compact Splicing Connector or similar equivalent with surrounding air temperature of maximum 85 °C and a maximum conductor size of 4mm² shall be supplied in following configurations:
 - 1) 2 conductor with levers transparent housing
 - 2) 3 conductor with levers transparent housing
 - 3) 5 conductor with levers transparent housing
- c) The rate of measurement will be per strip of 12 terminal blocks or per each Wago 221 Series Compact Splicing Connector installed.

5. FLASHER UNITS

1. Rates shall be supplied for SSF2, or similar approved, dual flasher units, 220V rating to be fitted to
 - a. an 11-pin base.
2. Rates shall be supplied for SSF2, or similar approved, dual flasher units, 12V rating to be fitted to
 - a. an 11-pin base.
3. Separate rates shall also be supplied for 11-pin bases for SSF2 flasher units.

6. FUSES AND CIRCUIT BREAKERS

6.1 Fuses shall be supplied for the following currencies and specifications:

- 1) 5 Amp fast blow ceramic fuse, 20 mm long
- 2) 4 Amp fast blow glass fuse, 20 mm long
- 3) 10 Amp fast blow glass fuse, 30 mm long
- 4) 13 Amp ceramic fuse, 20 mm long
- 5) 2 Amp fast blow glass fuse, 20 mm long
- 6) 6.35Amps fast blow

6.2 Rates shall be supplied **for Merlin Gerin** (or similar equivalent) Din rail circuit breakers for the following ratings: class a

- a) 1 Amp Circuit breakers, 3kA, 220 V, 50Hz
- b) 6 Amp Circuit breakers, 3kA, 220 V, 50Hz
- c) 10Amp Circuit breakers, 3kA, 220V, 50Hz
- d) 10Amp Double pole Circuit breakers, 3kA, 220V, 50Hz
- e) 20 Amp Circuit breakers, 3kA, 220 V, 50Hz
- f) 20 Amp Double pole Circuit breakers, 3kA, 220 V, 50Hz
- g) 30 Amp Circuit breakers, 3kA, 220 V, 50Hz
- h) 63 Amp Circuit breakers, 3kA, 220 V, 50Hz
- i) 63 Amp 400v Double pole isolator

6.3 Samples of existing fuses used by the JRA can be viewed at the JRA depot during the working hours.

7. EARTH SPIKES

7.1 Rates shall be supplied for 1.2 meter copper earth spikes with clamp supplied and installed.

8. PEDESTRIAN PUSH BUTTONS

8.1 Pedestrian push button assemblies shall be supplied. Pedestrian push buttons shall be manufactured from glass reinforced plastic of robust construction, corrosion resistant and is proof against the ingress of rain.

8.2 The colour shall be yellow with a black international “walking-man” symbol.

8.3 The unit must contain one 5 amp minimum normally open contact which must close when the button is pushed. The button plunger shall be designed to minimise the risk of jamming by foreign objects moisture or corrosion.

8.4 The rate of measurement shall be for pedestrian push buttons supplied and installed complete with nut rivet and bolt per pedestrian pushbutton.

9 ENHANCING PEDESTRIAN SAFETY

9.1 The JRA require Bidders to supply Accessible pedestrian signals (APS). APS to provide audible and/or vibrotactile information coinciding with visual pedestrian signals to inform visually impaired pedestrians when the WALK interval begins.

9.2 Accessible Pedestrian Signal (APS) solutions that provide information that is audible, vibrotactile, or both would be considered for testing by the JRA.

9.3 The sound shall preferably be adjustable and sound levels should adjust automatically with the ambient noise levels to be no more than 5 dB above ambient sound.

9.4 These APS devices shall preferably be mountable on the outside of the traffic signal poles on the same pole as the push button and shall be weatherproof.

9.5 It shall also be possible to control the APS device by means of a timetable of events programmed into the controller.

9.6 Bidders to offer APS solutions for APS and provide at least the following information:

- a) Type of product, e.g. speaker mounted in the pedestrian head (visual pedestrian signal), transmitter mounted in the pedestrian head or push-button integrated.
- b) Audible walk signal characteristics: voice, bell, buzzer, birdcalls, ticker or tones.
- c) Sound volume: fixed; variable by the installer; automatically varying in relation to ambient sound level; variable by the user; or audible only at user request.
- d) Presence of an audible locating tone for a pedestrian push button.
- j) Presence of a special walk onset tone at the beginning of the walk interval.
- k) Presence of a vibrating walk signal.
- l) Actuation indication: either a light or a tone to indicate that a pedestrian has pushed the button to request a walk interval.
- m) Tactile information: either an arrow to indicate which street a push button controls, or additional tactile information about street geometry.
- n) Ease of installation; mounting arrangements.
- o) Warrantee

- 9.7 Audible pedestrian devices supplied shall be marked with manufacturer's ID, Patent Number and a unique serial number to provide product/site traceability.

B9.9 Swarco Futurit TOUCH SOUND push button or similar equivalent with the braile symbols according to the intersection design.

B9.10 The following equipment shall also be supplied upon order with the rate of measurement per item supplied and installed.

- a) Count down time traffic signal head for pedestrian (3 Aspect)
- b) 3 Aspect backing board for count down time traffic signal head
- c) TrafiOne camera: Flir or similar equivalent
- d) TI BPL2 interface
- e) Lane lights: Swarco Futirit or similar equivalent
- f) Cable for lane light per meter
- g) Dummy red light violation flashers
- h) Digital Antenna (Including mounting bracket)
- i) Repeater (Including mounting bracket) : Sensys or similar equivalent
- j) Magnetometer sensors: Sensys or similar equivalent
- k) Epoxy (for magnetometer sensor)
- l) AI local adaptive optimisation kit. Including hardware, power supplies, cabling and software licence for 5 years
- m) Underground stubby for cable terminations which include all mechanisms and door access for opening and lifting the terminations this underground stubby will be ordered in two items as follows:
 - a. Underground stubby chamber
 - b. Underground wiring kiosk for stubby
- n) Training on items covered under "Enhancing Pedestrian Safety" which shall cover installation, operation and maintenance.

10 ELECTRIC CABLES

- 10.1 Suppliers shall provide rates for the supply of traffic signal cables with extruded solid dielectric insulation with the following core sizes:

- a) 16mm² x 2 core (SWA) supply cable – supplied in 500m drums
- b) 1, 5mm² x 2 core (SWA) cable – supplied in 500m drums

- c) 1,5mm² x 4 core (SWA) cable – supplied in 500m drums
- d) 1,5mm² x 7 core (SWA) cable – supplied in 500m drums
- e) 1,5mm² x 9 core (SWA) cable – supplied in 500m drums
- f) 1,5mm² x 12 core (SWA) cable – supplied in 500m drums
- g) 1,5mm² x 15 core (SWA) cable – supplied in 500m drums
- h) 1,5mm² x 19 core (SWA) cable – supplied in 500m drums
- i) 1,5mm² x 27 core (SWA) cable – supplied in 500m drums
- j) 1,5mm² x 37 core (SWA) cable – supplied in 500m drums
- k) 10mm² bare copper earth wire – supplied in 500m drums
- l) 6mm² bare copper earth wire – supplied in 500m drums
- m) Silicone 1mm panel wire – supplied in 100m rolls
- n) 7 core 1.5mm cab tyre – supplied in 1000m rolls
- o) 4 core 1.5mm cab tyre – supplied in 1000m rolls
- p) 3 core 1.5mm cab tyre – supplied in 1000m rolls
- q) Ethernet cable, twisted pair, solid bare copper cores, 4 pair cat 6
- r) AAC 2, 5mm² x 4 core cable SWA (Steel Wire Armoured) – supplied in 500m drums
- s) AAC 2, 5mm² x 7 core cable SWA – supplied in 500m drums
- t) AAC 2, 5mm² x 9 core cable SWA – supplied in 500m drums
- u) AAC 2, 5mm² x 12 core cable SWA – supplied in 500m drums
- v) AAC 2,5mm² x 15 core cable SWA – supplied in 500m drums
- w) AAC 2,5mm² x 19 core cable SWA – supplied in 500m drums
- x) AAC 2,5mm² x 27 core cable SWA – supplied in 500m drums
- y) AAC 2,5mm² x 37 core cable SWA – supplied in 500m drums

- 10.2 Cables shall be PVC insulated, steel wire armoured (SWA), PVC sheathed, 600/1000-volt grade to comply with SANS 1507. Cables shall be sized so that the total volt drop from the point of connection of the controller to the supply mains and any signal head does not exceed 5% of the nominal supply voltage under normal maximum loadings.
- 10.3 The cores shall be black with white numbering(imprinted) and will have the white words of the core digit/s every 150 millimetres or less.
- 10.3 To reduce theft of cables and ease of identifying stolen cable the supplier shall print “JRA” on all steel wire armoured cables every 1 meter or less.
- 10.4 The cables must also be fitted with bar coded unique identity tape and must be positioned within lay-up phase of the cable.

- 10.5 As the armouring of the cable may be used as the earth continuity path or as a supplementary earth continuity conductor; the JRA will require that some of the steel wires be replaced with tinned copper wires as per approved standard.
- 10.6 Rates shall be provided per type of cable per meter of cable supplied, transported and delivered to the JRA. Rates shall include for the removal, from the JRA Depot, of the cable reels on which the cables are supplied, upon request of the JRA when the cables have been issued.
- 10.7 Armoured cables shall have Earth Continuity Conductor (ECC), unless otherwise approved by the JRA representative.
- 10.8 Aluminium Alloy (AAC) cable shall be yellow with a brown stripe (ECC) in accordance with SANS 1507-1, to easily identify the alternative cable from the usual copper cable.
- 10.9 Aluminium Alloy (AAC) cable shall comply with requirements of SANS 1507 excluding the maximum DC resistance of the conductor will be 12.4 Ohm/km at 20 degrees C.
- 10.10 Aluminium Alloy (AAC) cable shall be low voltage armoured ECC (unless otherwise approved by the JRA representative) with stranded class 2 construction compliant with SANS 1411-1

11 Electrical Consumables

- 11.1 Suppliers shall provide rates for the supply of the following electrical consumables utilised by the JRA in the installation and maintenance of traffic signals:

- a) **Cable joints:**

- i) Splicing kit J3 - Joint master or similar equivalent
- ii) Splicing kit J0 - Joint master or similar equivalent

- b) **Glands:**

- i) No: 1 Steel Gland with Shroud
- ii) No: 2 Steel Gland with Shroud
- iii) No: 3 Steel Gland with Shroud

- c) **Ferrules:**

- i) Insulated ferrules 1.5mm²
- ii) Insulated ferrules 2.5mm²
- iii) Ferrules 10mm²
- iv) Ferrules 16mm²
- v) Bootlace ferrules 0.5 mm

- vi) Bootlace ferrules 1.5 mm
- vii) Bootlace ferrules 2,5 mm
- viii) Spade Terminal Female Tab 6.3mm for wire 1.5mm² PVC insulated
- ix) Spade Terminal Female Tab 6.3mm for wire 2.5mm² PVC insulated
- x) Spade Terminal Male Tab 6.3mm for wire 1.5mm² PVC insulated
- xi) Spade Terminal Male Tab 6.3mm for wire 2.5mm² PVC insulated

xii)

d) **Lugs:**

- i) To fit cable size 10mm and hole size 10mm
- ii) To fit cable size 10mm and hole size 16mm
- iii) Female push on lugs 1,5 mm²

e) **Relays:**

- i) LY4
- ii) MY4
- iii) LY2
- iv) MY2
- v) 11 Pin base

f) **Weidmuller** or similar equivalent **push in connectors and accessories for 1,5mm² to 2,5mm² cable**

- i) PTR 2.5/4/4AN - 4 connections, Push in type
- ii) W series – 2 connections, Screw type
- iii) ZEW 35 END STOP
- iv) TS35X7,5 SLOTTED RAIL

12 SLEEVES

- 12.1 Bidders shall provide rates for the supply of sleeves / pipes in straight lengths which must be manufactured from high density polyethylene and must comply with the European standard EN 50086 2 - 4 1994 - Conduit Systems for electrical installations Part 2 - 4 in particular requirements for Conduit Systems buried underground.

12.2 Sleeves shall be provided in the following sizes:

- b) DN110 mm Cable flex, black 6m with coupling
- c) 110mm couplings
- d) Sprag 25mm sleeves
- e) 25mm couplings

12.3 Separate rates shall be supplied for 1, 5 mm galvanised steel draw wire for installation in traffic signal sleeves.

12.4 Separate rates shall be provided for the supply of end caps that suit the sleeves / pipes to blank or seal off the sleeves.

13 REFLECTIVE TAPE

13.1 Supply of bright golden yellow or fluorescent green retro-reflective tape Diamond Grade Class 4 (b) to increase day-time as well as night-time conspicuity of traffic signal posts. The required width of the retro-reflective tape is 120mm.

14 VINYL NUMBERS FOR TRAFFIC SIGNAL POLES

Vinyl must be heavy Duty, UV resistant and self adhesive.

Numbers must be black on a REFLECTIVE white background.

Numbers will range between 1 and 18

Background: Height = 103mm Width = 83mm

Number: Height = 85mm Width = 55 mm

Font: Arial

See sample below



15 SOLAR POWERED SIGN

STANDARDS

- 15.1** The paint colours shall be in conformity with specification 1091 of the South African National Standards.
- 15.2** Signs with supplementary boards must be manufactured from one piece of material.
- 15.3** Reflective signs will be manufactured from reflective material pieces or can be screen-printed, according to the sheeting manufacturers recommended procedures over the application of (SANS 1519-1 2006 Class 1) Engineer Grade (EPG) , Class 3 High Intensity Prismatic, Class 4b Fluorescent Yellow or Class 4b.
- 15.4** Reflective material must be stored and applied according to the recommended requirements of the sheeting manufacturer.
- 15.5** All symbols, letter and numerals must be manufactured from a single piece of black, white, yellow or red vinyl material.
- 15.6** All finished signs shall be clearly marked with the sign manufacturer's name or logo and date of manufacture, as follows:
- 15.7** The address and telephone number of the sign manufacturer shall NOT appear on the sign.
- 15.8** The required information must remain intact on the sign for the duration of the warrantee

- 15.9 Reflective material must be identifiable as to a specific SANS 1519-1 class. The identification mark applicable to each class of material must be reflected in the Bid by the bidder.
- 15.10 All symbols, letter and numerals must be manufactured from a single piece of reflective material. Any overlap of materials must be kept to a minimum of 10 mm.
- 15.11 All signs to be manufactured with 1.4 mm Chromadek plate.
- 15.12 Reinforcement frames to be supplied with signs requiring, must be constructed of 25 mm x 25 mm x 2 mm powder coated battle ship grey paint, square tubing mild. Unistrut clamps can be fitted in place of square tubing frame on request. Signs to be affixed to frame with cadmium plated and colour coated rivets. Rivets to be placed no further than 12 cm apart.
- 15.13 The Solar Signs have designed with a 5-day buffer (5 non solar days) Reverse Polarity Protection with an input DC voltage of 6-32V DC Unique uP (Microprocessor) driven controller provides flashing speeds (500mS on/off) housed in the same IP65 enclosure and the power supply (The solar regulator and controller are modular, specifically for repair/maintenance purposes)
- 15.14 5mm Ultra Yellow LED's with a typical mcd (milli-candela) of 4800, with a peak wavelength of 590nm, spaced at 50mm intervals providing complete uniformity, and Ultra Bright White LED's with a typical mcd (milli-candela) of 16500 spaced at 50mm also providing complete uniformity. *(Dependent on the sign it will include both Yellow and White LED's for e.g.: For speed limitation signs; the border will be Yellow and Inside decal White – some signs will have only the decal white/yellow with no border, the same applies for both permanent and temporary signs,)
- 15.15 Each 5mm LED is held in place by a LED holder, the LED's are all connected in parallel
- 15.16 The border and inside of the sign can be reversed, with one being in a static position and the other in a flashing mode and vice versa.
- 15.17 Selectable dimming of fixed function. (Light Intensity Adjustment)
- 15.18 Optional Door Stoppers on the signs to protect the sign from falling and damaging the LED's
- 15.19 Eight (8) Meter Totem Pole as per the JRA standard.

WARRANTEE

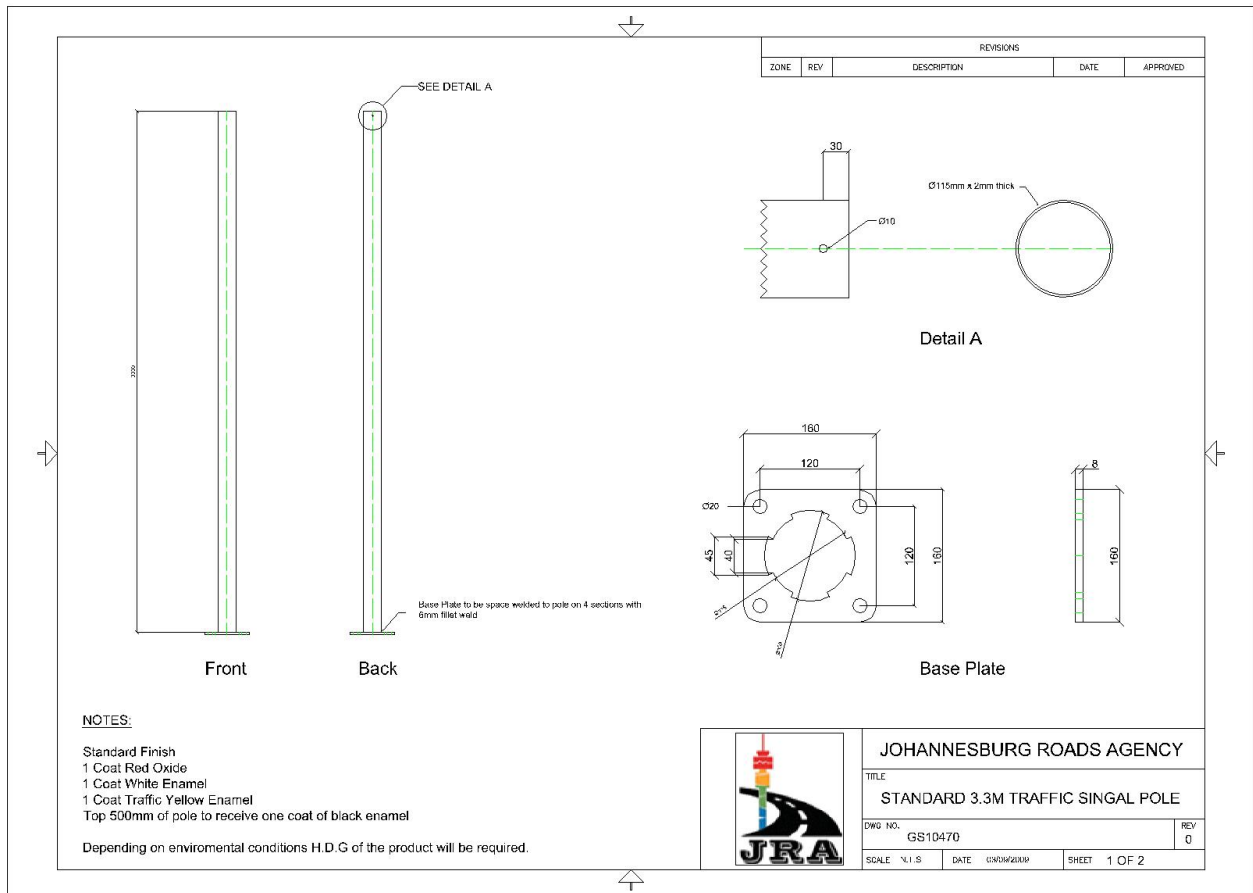
- 15.19 The durability of finished signs must be warranted as follows:
Class 1 - Engineer grade 7 years
- 15.20 The reflective sheeting manufacturer shall supply confirmation of the performance warranty for the reflective sheeting.
- 15.21 Any faulty material must be replaced within a period of 14 days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract at the discretion of the JRA.

TECHNICAL SPECIFICATIONS

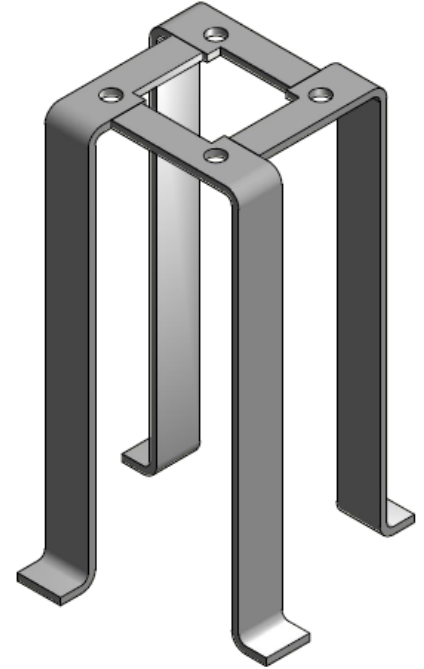
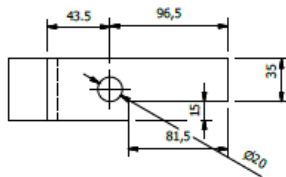
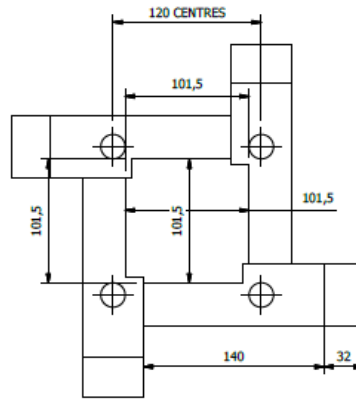
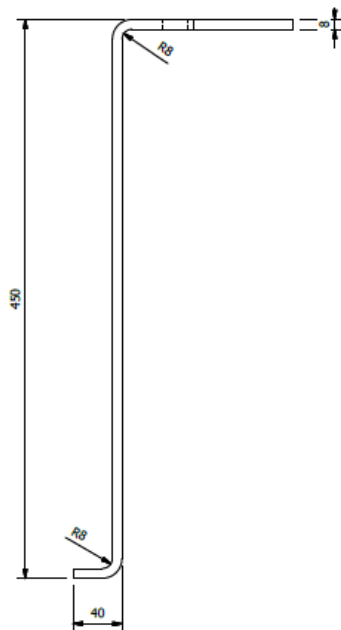
- 15.22** Signs to comply in all respects with specification SANS 1519 –1 2006 of the South African National Standards unless stated otherwise in this specification.
- 15.23** The signs must be in accordance with the latest edition of the South African Road Traffic Signs Manual and the Road Traffic Act No 29 of 1989 as amended and Regulation, unless specific instructions to the contrary are given on the official order form.
- 15.24** The bidder must submit a current test report as proof of compliance.

A1: TRAFFIC SIGNAL POLES

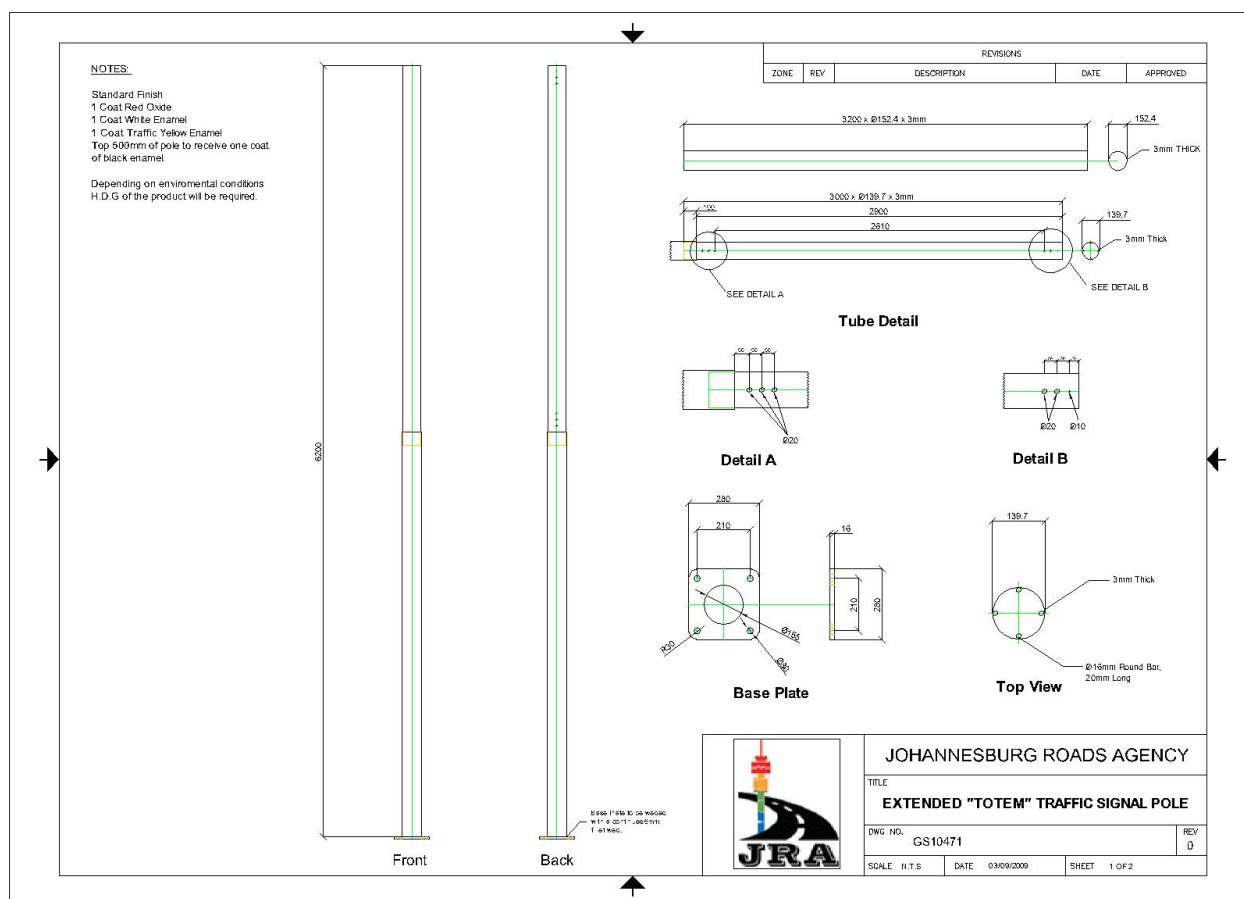
Normal 3.3M Pole



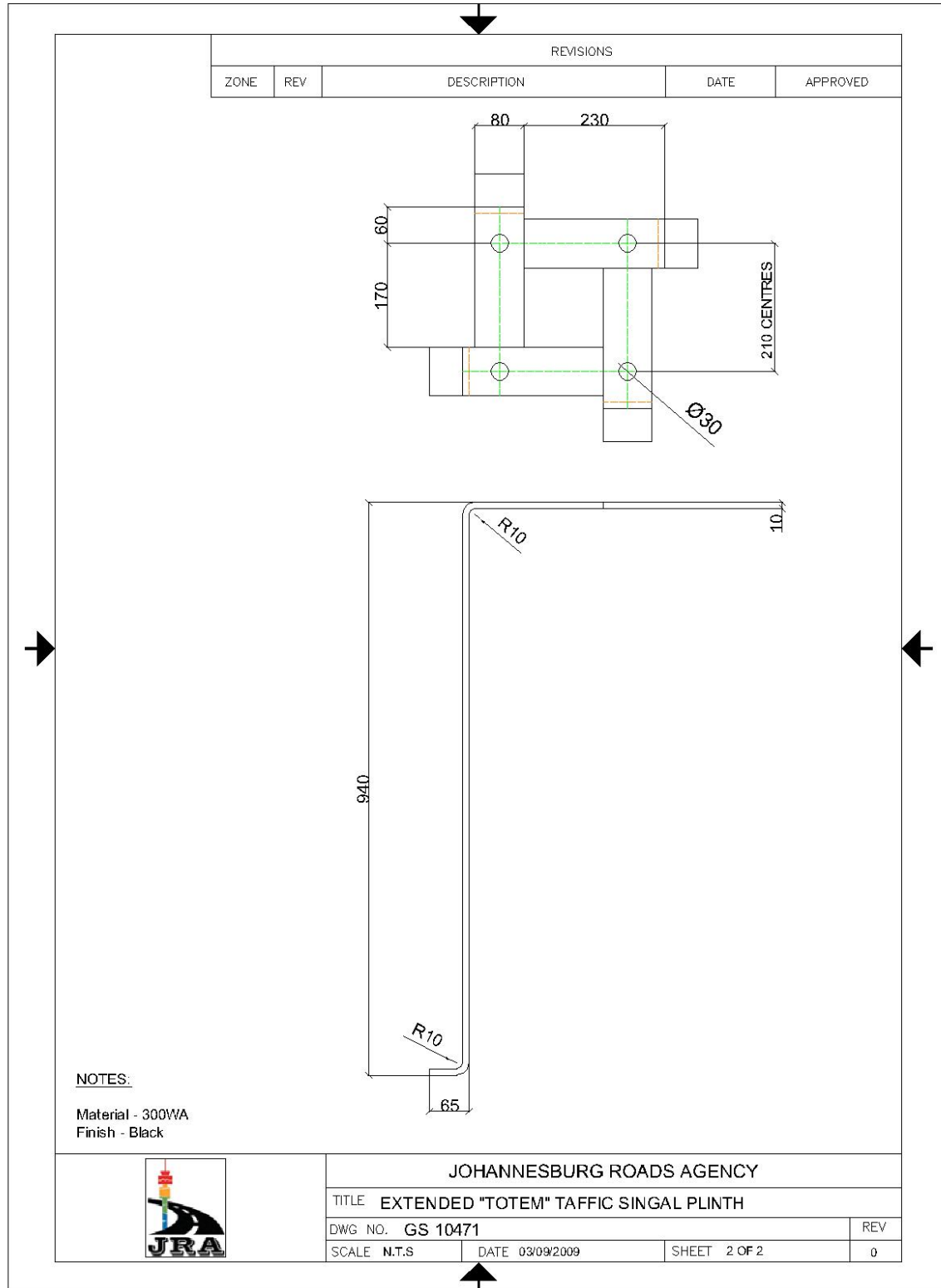
Normal 3.3M Pole – Plinth

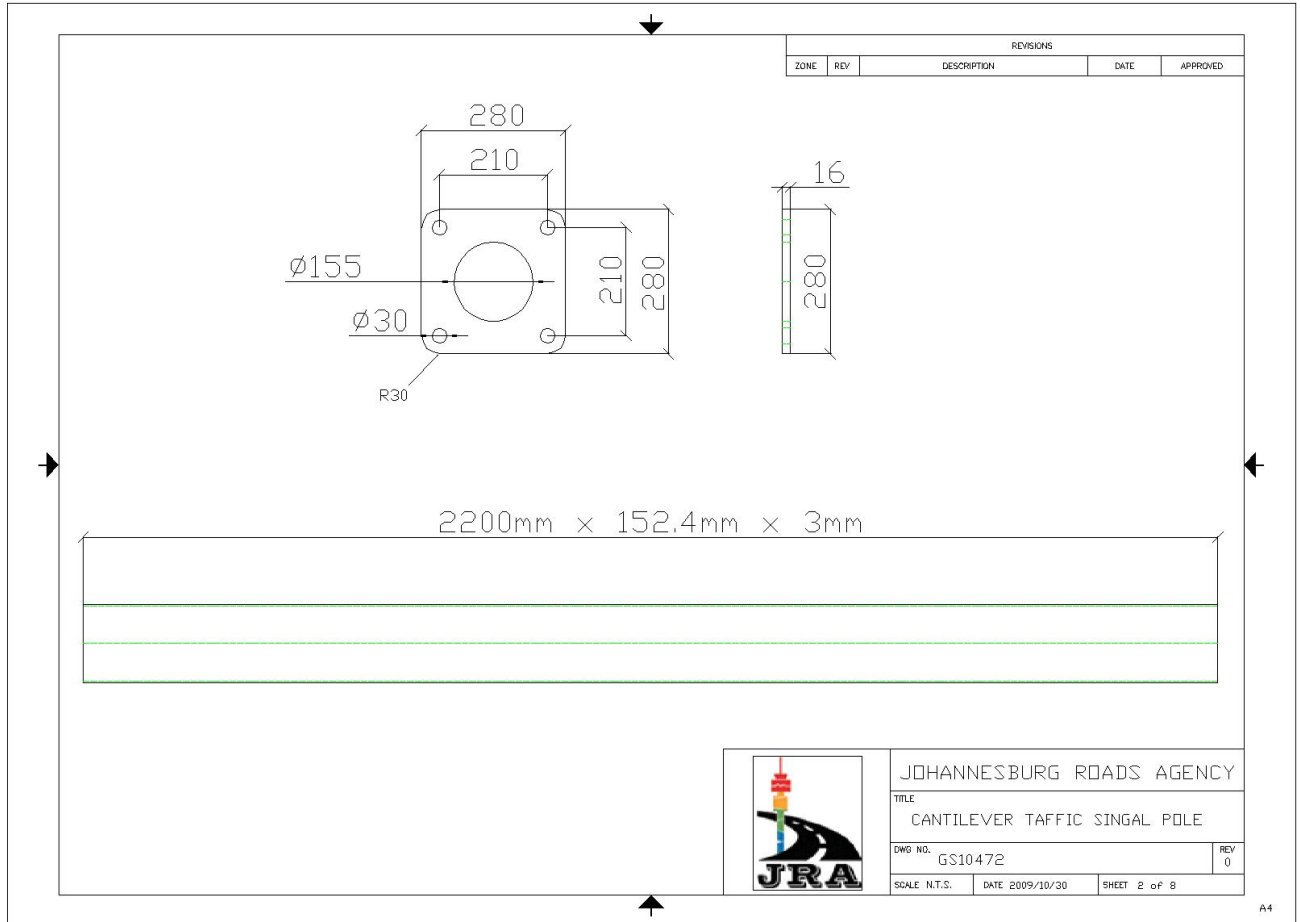


Extended (Totem) Pole

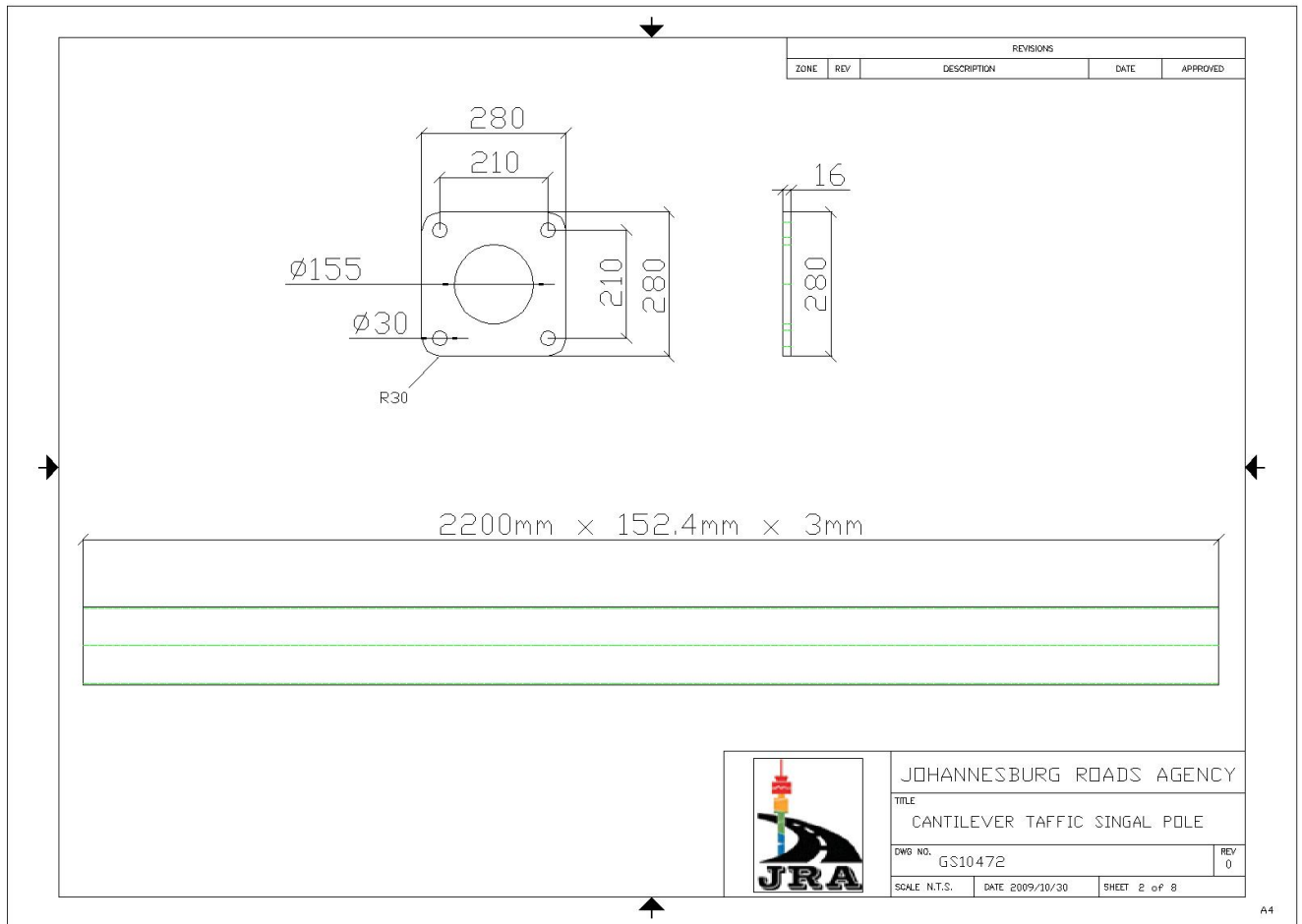


Extended (Totem) & Cantilever Pole - Plinth

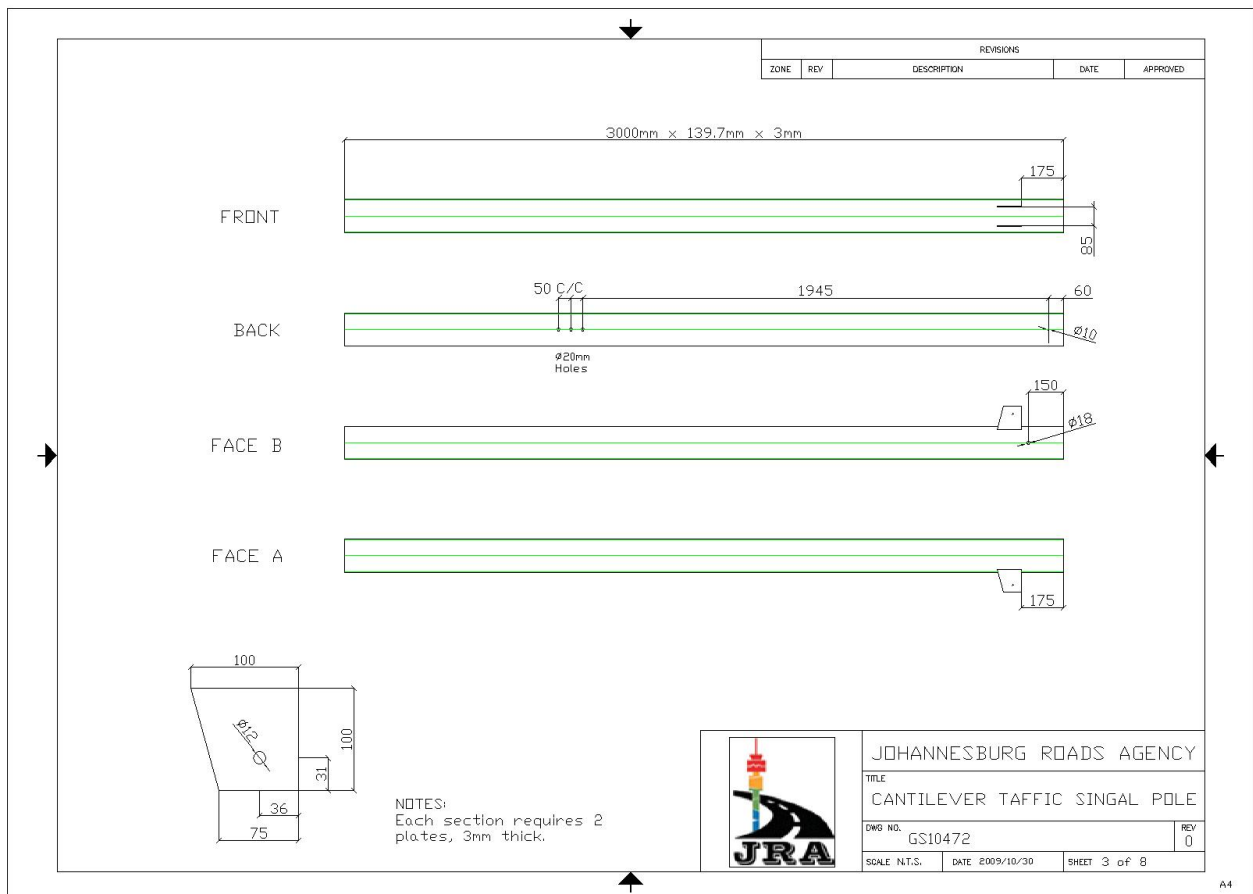




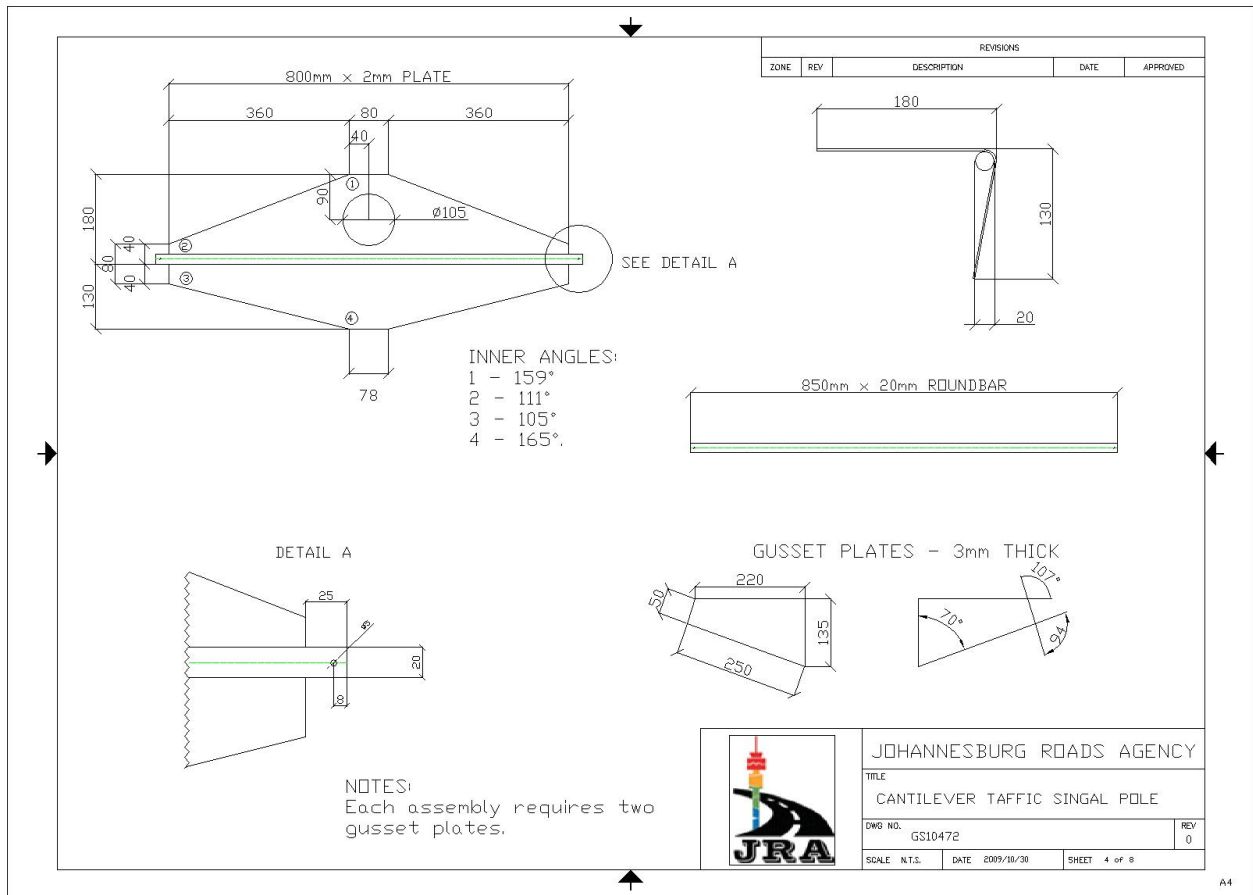
Cantilever Pole 2 of 8



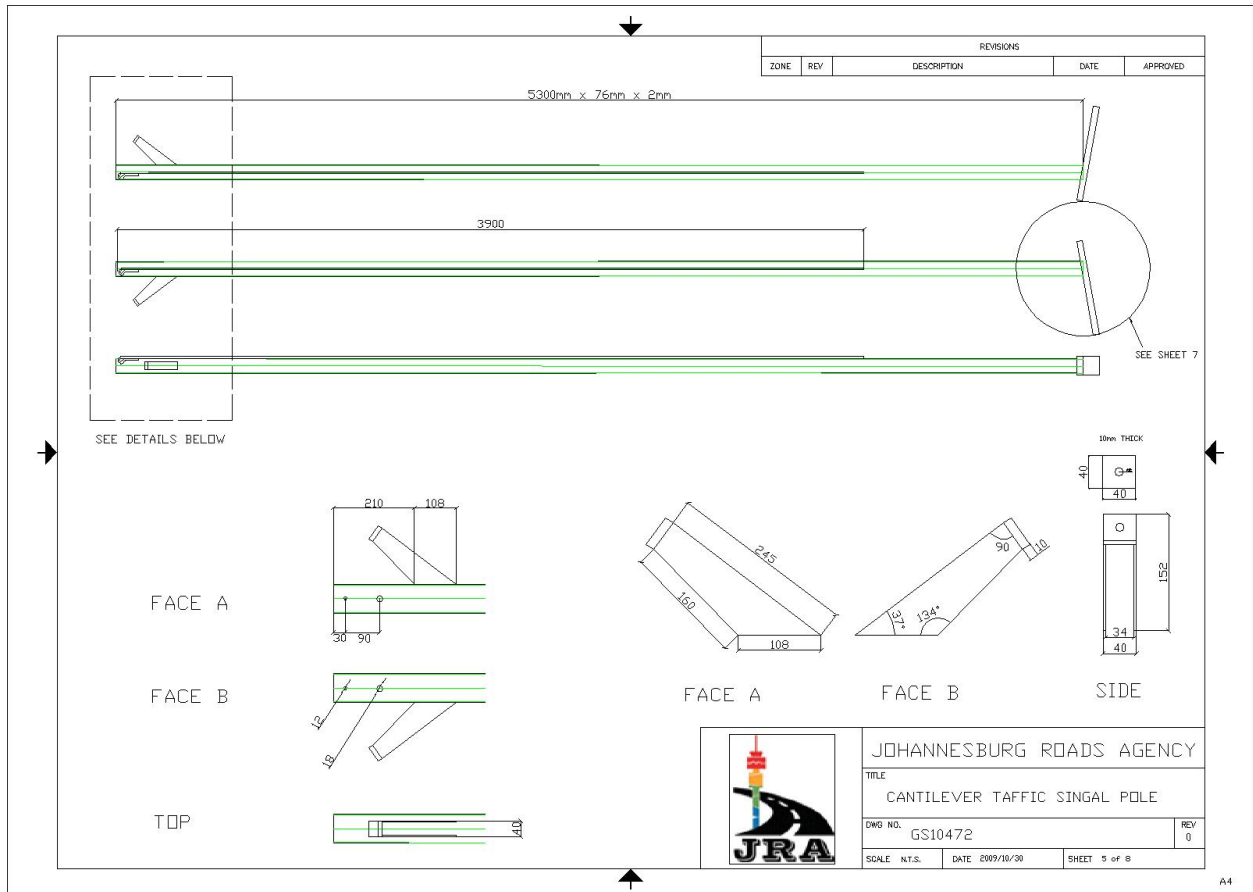
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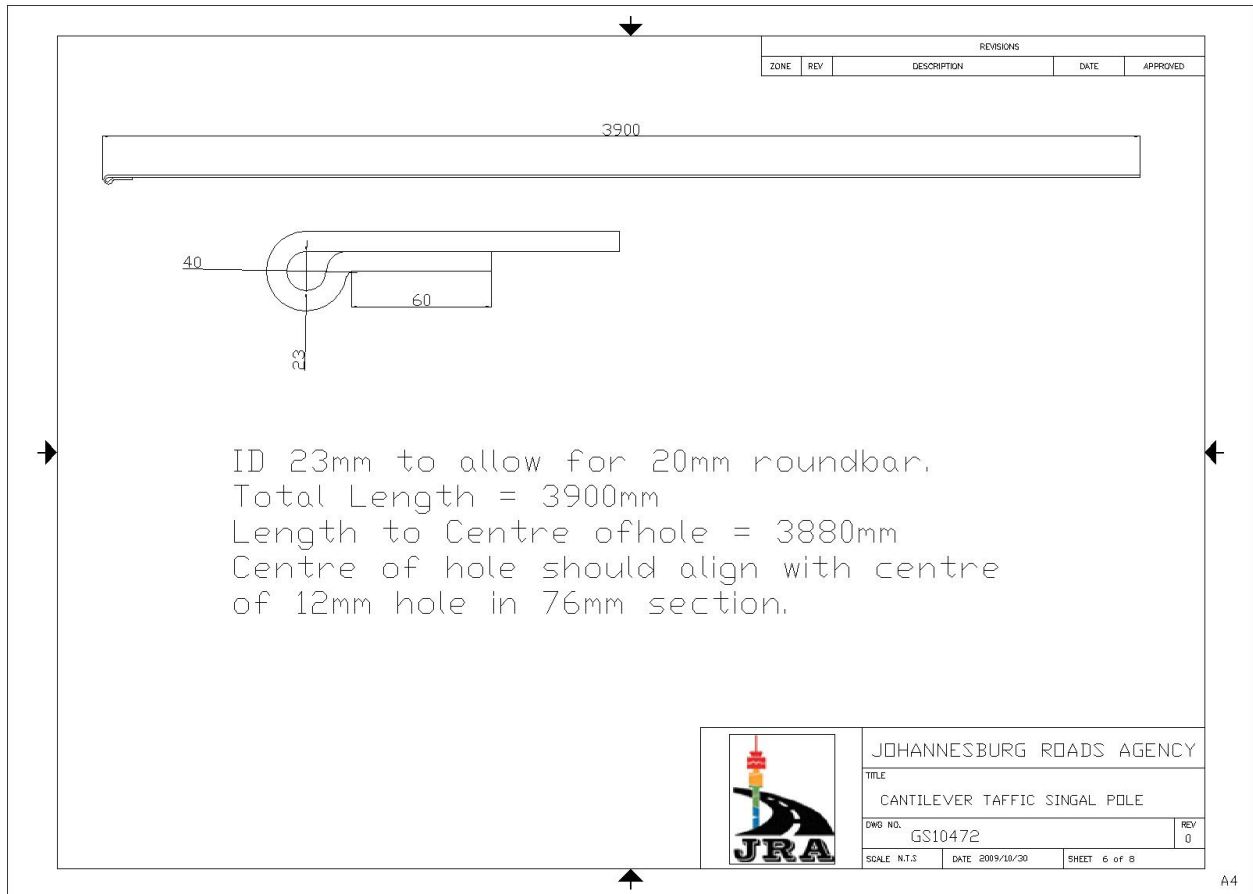
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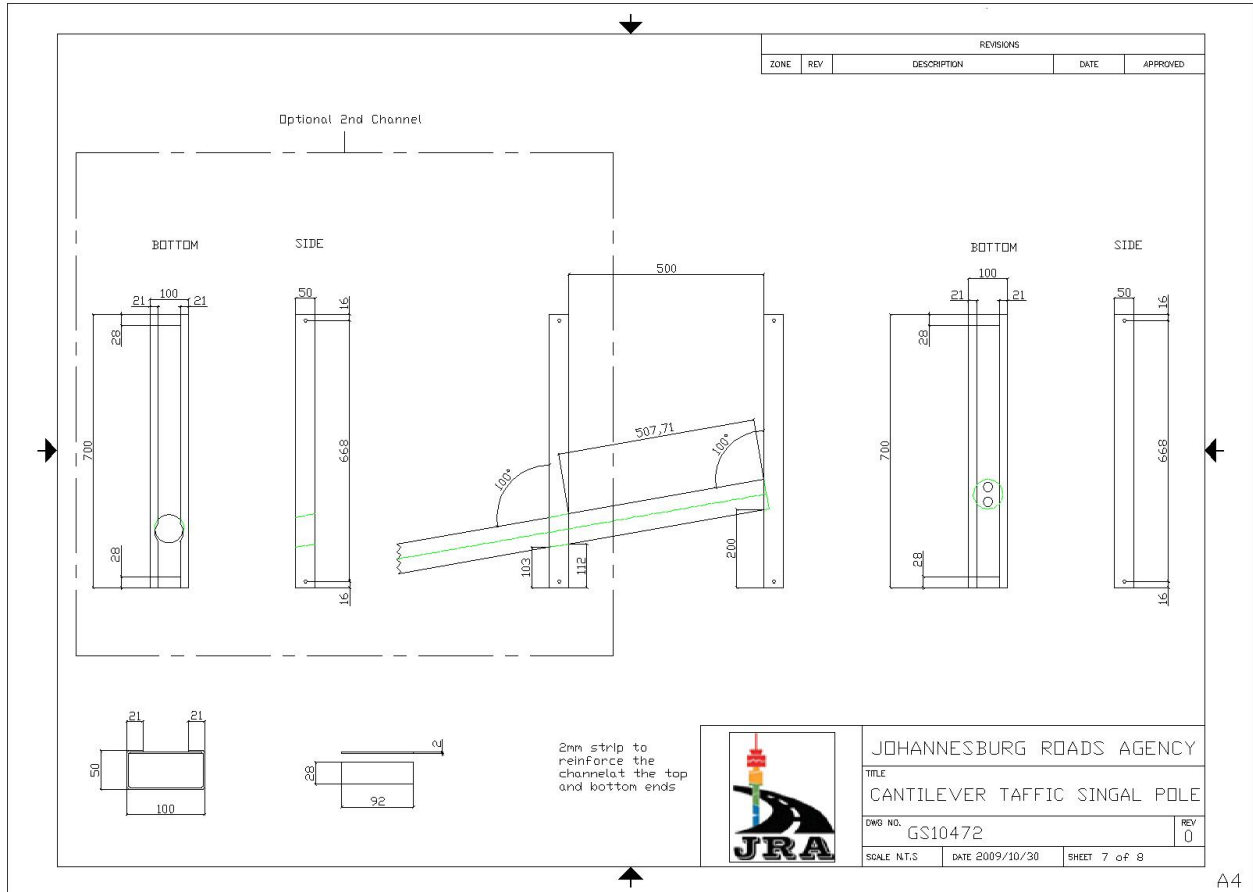


Cantilever Pole 5 of 8

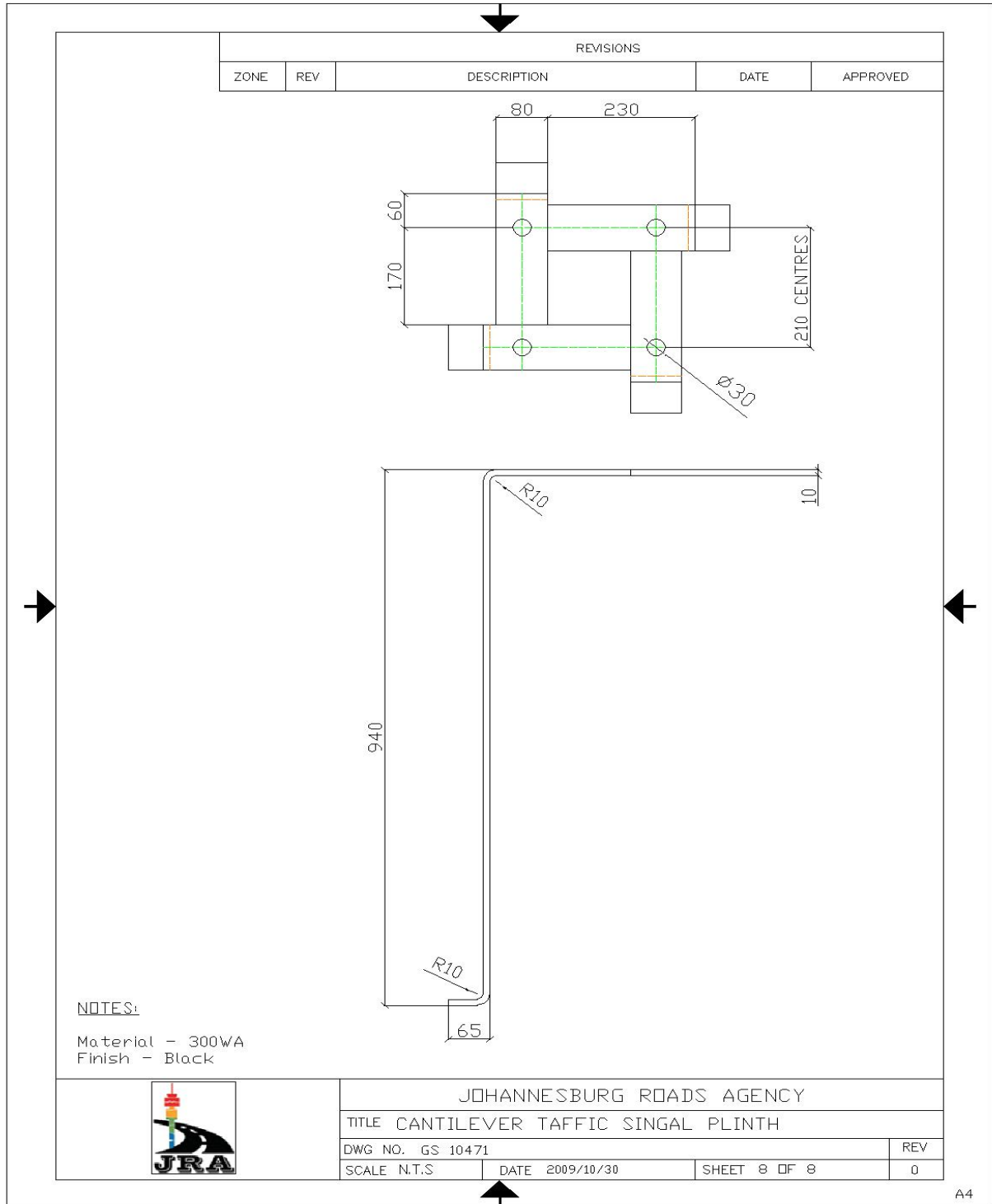


Cantilever Pole 6 of 8

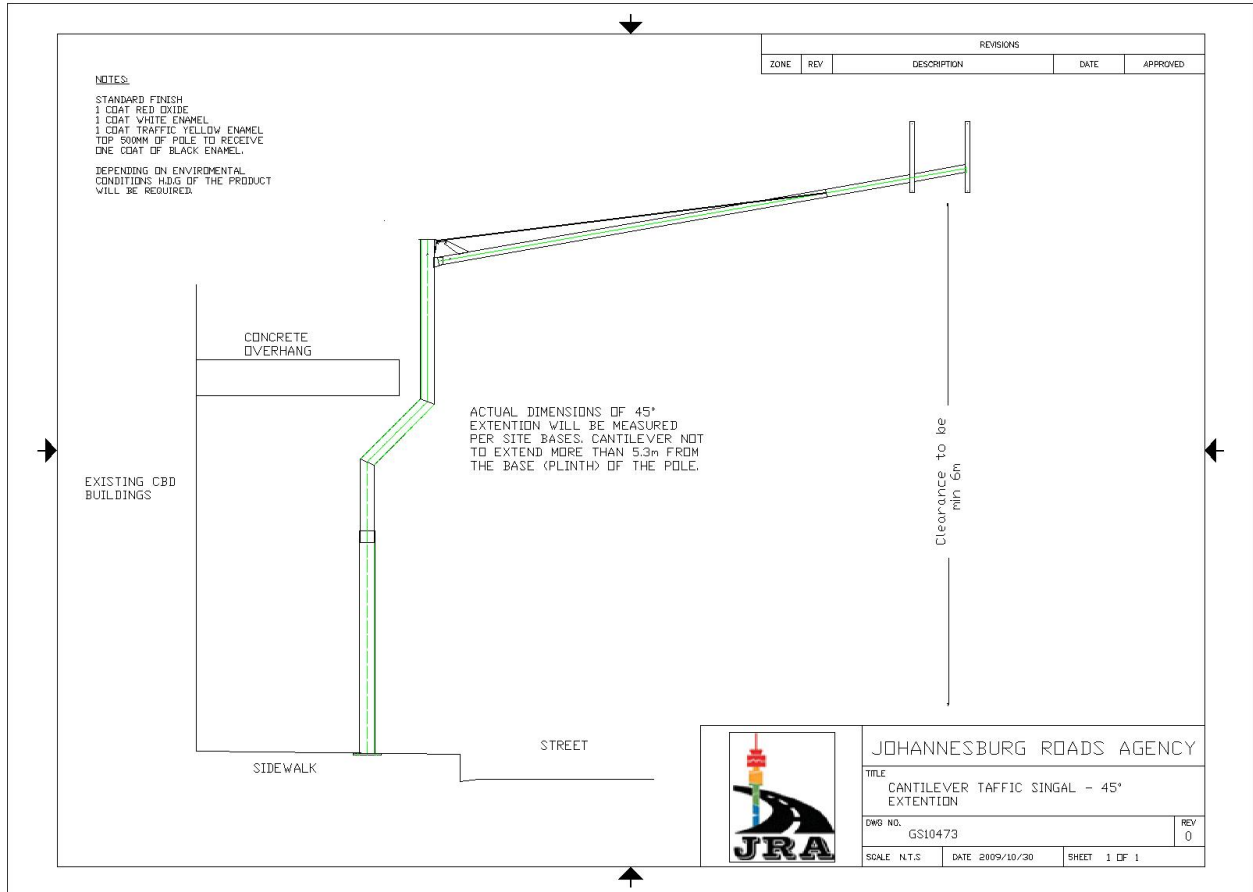




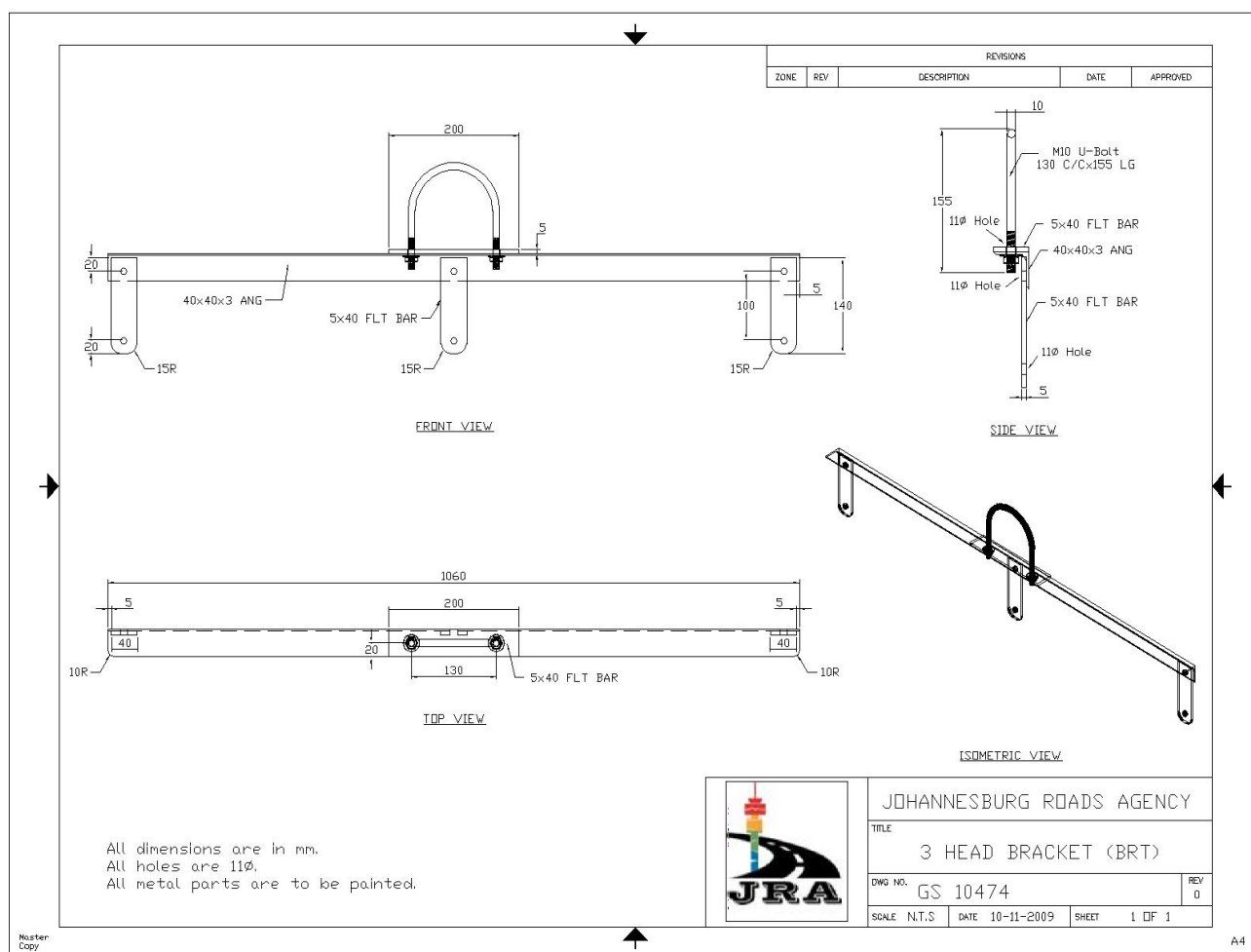
Cantilever Pole 8 of 8

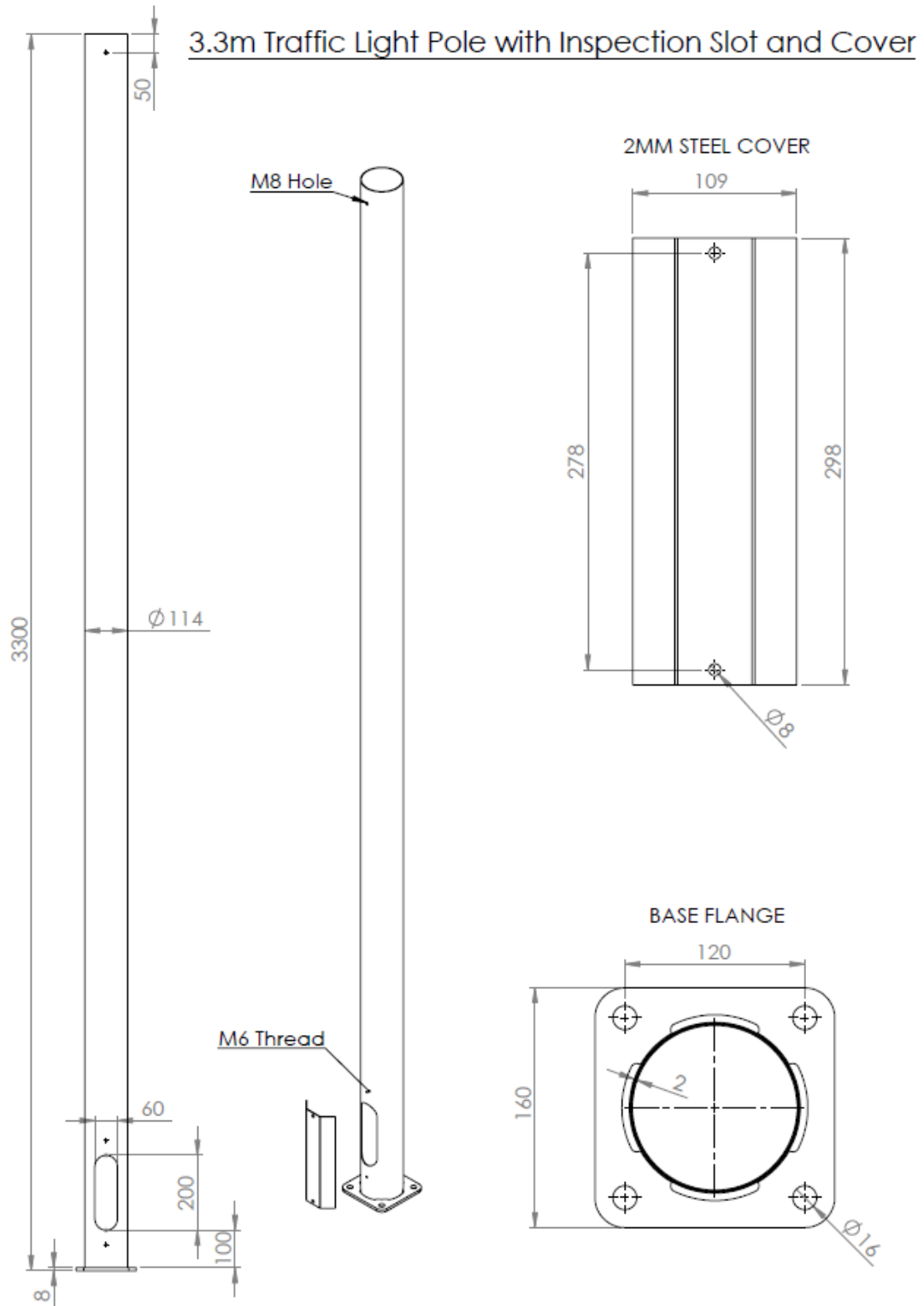


Cantilever 45-degree angle

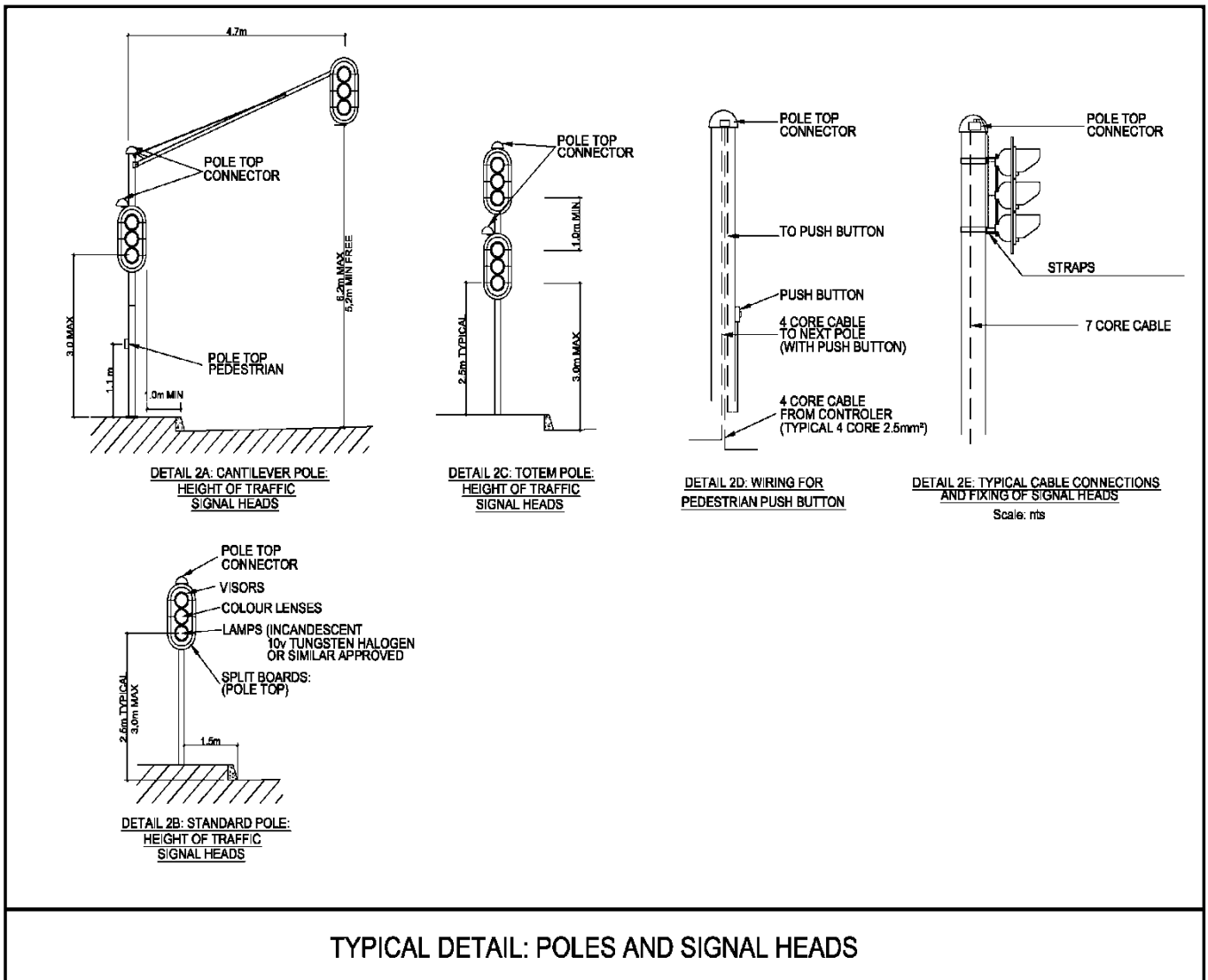


3 LIGHT HEAD BRACKET BRT



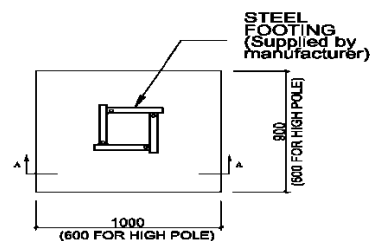


A2: TYPICAL DETAIL POLES AND SIGNAL HEADS

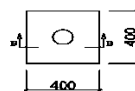


APPENDIX A: TYPICAL DETAILS

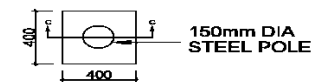
A3: TRAFFIC SIGNAL POLE BASES (CONVENTIONAL)



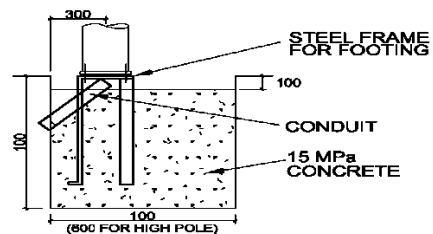
DETAIL 2F: PLAN FOR FOOTING OF TOTEM/CANTILEVER POLE



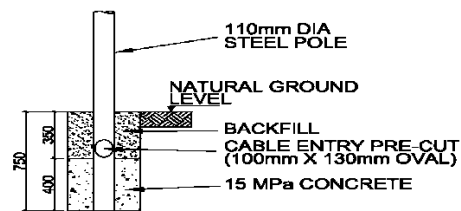
DETAIL 2G: PLAN FOR FOOTING OF STANDARD POLE



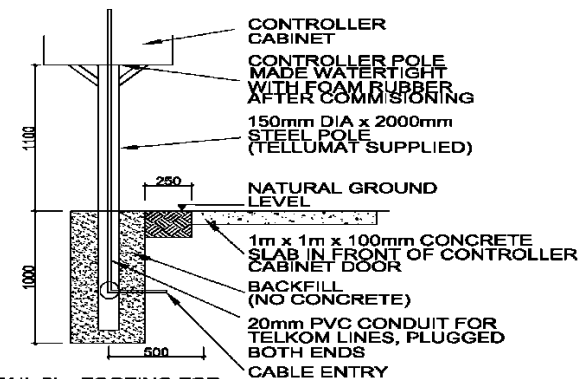
DETAIL 2H: PLAN FOR FOOTING OF CONTROLLER BOX



DETAIL 2J: FOOTING FOR TOTEM / CANTILEVER POLE SECTION A-A



DETAIL 2K: FOOTING FOR STANDARD POLE SECTION B-B



DETAIL 2L: FOOTING FOR CONTROLLER BOX SECTION C-C

TYPICAL DETAIL: TRAFFIC SIGNAL POLE BASES (CONVENTIONAL)

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

SMART TERMINAL UNIT (STUBBY)

PART A GENERAL TECHNICAL SPECIFICATIONS

1. SCOPE

- 1.1 The equipment to be supplied include the following main component:

ITEMS
1. Smart Terminal Unit (Stubby)

- 1.2 It is important that Bidders are familiar with the JRA's traffic signal equipment standards and infrastructure to ensure compatibility.

2. INFORMATION REQUIRED

- 2.1 Comprehensive details, including manufacturer's catalogues, drawings and specifications must be supplied upon request.
- 2.2 Bidders shall state clearly on the summary compliance sheet, which items of the specification differ from the specification of the equipment offered.

3. GENERAL TECHNICAL REQUIREMENTS

Standards

All equipment offered shall be new and conform to the applicable specifications.

Design and Construction

A high standard of construction is essential in all products offered and shall in all respects be suitable for the purpose intended and for all the environmental conditions specified.

The contractor shall accept responsibility for the satisfactory quality, design and workmanship of the products and every part whether manufactured by the bidder or supplied to the bidder by other manufacturers.

Equipment must be capable of operating in a demanding environment, e.g. high temperatures and unstable electrical supplies.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

The products supplied must be compatible with the existing JRA traffic signal system and infrastructure.

All components and materials shall be subject to the approval of the JRA Project Representative.

Design for Ease of Maintenance

To ease maintenance and enhance the safety of maintenance personnel, equipment shall be constructed of light weight material as far as possible.

Power Supply

Unless otherwise specified, all equipment shall operate within a supply ranging between 184VAC to 265VAC and 50 Hz supply.

Testing and Inspection

Suppliers shall test and inspect all equipment offered prior to delivery to ensure compatibility and reliability.

Test results documentation shall be kept on file for a minimum period of two years after the controller or module was commissioned or installed at the JRA. The JRA may request copies of the test and inspection records from the Suppliers during the two years warrantee period.

Warrantee

Warrantees shall cover all parts and labour necessary or incidental to the repair of any defect in equipment, parts, materials, or workmanship and malfunctions that arise during the warrantee period. The period of warrantee coverage shall, in no case, be less than the manufacturer's usual and customary warrantee period. All warrantees that are customarily issued by the vendor and/or manufacturer shall be provided to the JRA.

Suppliers shall specify the warrantee period on all the equipment offered.

Minor repairs may be made by the JRA, or their appointed specialist contractors, with the consent of the manufacturer. All other repairs under warrantee will be made by the manufacturer. The manufacturer will bear all costs including labour, parts, and shipping charges.

Any faulty equipment must be replaced within a period of three (3) working days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract.

In the event of equipment not complying with the Bidder's claims in the Bid documents, the following provisions shall apply:

The JRA reserves the right to reject such equipment and if this right is exercised the contractor shall have no claim for any payment.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

The contractor shall replace such equipment immediately and without extra charge, with equipment complying with the specifications or Bidder's claims in such manner as will ensure that the JRA does not suffer a work stoppage as a consequence of the rejection.

The replacement equipment will be subjected to tests as before but at the contractor's expense, the test results becoming the property of the JRA.

The fees for the replacement tests must be paid by the contractor to the JRA at the time of selecting fresh samples for test.

Should the replacement equipment fail to comply with the specifications or Bidder's claims the JRA reserves the right to exercise its rights under this contract in accordance with the General Conditions of Contract conditions.

In the event of a dispute over the rejection of any equipment, JRA shall have the equipment tested by the South African National Standards [SANS] for compliance with the claims of the contractor. The SANS shall act as an impartial arbiter and shall have full discretion on the test methods to be executed.

Where required the Supplier shall be responsible for inspecting installations before commissioning to ensure it is complying with the requirements for a warrantable installation within the City of Johannesburg's power supply regime, which includes long brown-outs. The cost for this pre-commissioning inspection shall be deemed to be included in the rate for the supply of the equipment.

PART B: PARTICULAR TECHNICAL SPECIFICATION

1. SMART TERMINAL UNIT FOR TRAFFIC SIGNAL INSTALLATIONS

1.1 General

- 1.1.1 Bidders shall ensure that they are familiar with the JRA's traffic signal equipment standards and infrastructure, such as traffic signal controllers, poles, signal heads, etc. to ensure compatibility.
- 1.1.2 Quality and robustness of the equipment offered is a firm requirement and should meet the minimum standards as determined by JRA.
- 1.1.3 Certain electrical information must appear on each smart terminal unit. The information on the factory-installed label shall include the following items:
 - Rated operating voltage
 - Rated operating current

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- Rated maximum power
 - Safety, warning and danger labels
- 1.1.4 This specification establishes the minimum requirements for a complete smart terminal unit for use with traffic signals. The smart terminal unit shall include, but not be limited to the following:
 - Secure cabinet
 - Terminal system
 - Cable management system
 - Tamper detection system
 - Locking system
 - all necessary hardware and interconnect wiring
- 1.1.5 The smart terminal unit shall adapt best practices to ensure an uncomplicated installation, replace, repair and maintenance processes.
- 1.1.6 The smart terminal unit shall be capable of accommodating two (2) thirty seven (37) core supply cables as well as a maximum of four (4) feeder cables ranging from four (4) to fifteen (15) cores.
- 1.1.7 Bidders must provide detailed information on the communication interface protocols and provide all assistance necessary.

1.2 Secure Cabinet

- 1.2.1 The secure cabinet shall be used for housing terminals, cable management components, locking mechanism and the tamper detection system, which includes but are not limited to a tamper detection control unit, power supply, battery, charging unit and all wiring including harnesses. A hardcopy of the smart terminal unit secure cabinet wiring diagram shall be provided to the JRA Traffic Signal Depot by the closing date and time of this tender.
- 1.2.2 All necessary hardware for mounting which include all bolts, washers, nuts and gaskets necessary for mounting shall be included in the bid price of the smart terminal unit.
- 1.2.3 The design for the cabinet to house the smart terminal unit shall meet the following requirements:
 - The cabinet shall be weather-proof and correctly sealed to limit the ingress of dust, water and insects. The smart terminal unit secure cabinet shall be a root mounted and shall consist of a root mounted pedestal as well as a top cover.
 - The supply and feeder cables to and from the smart terminal unit secure cabinet will come through the root which would mean that they are fed in from the bottom of the housing through the cable management system.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- The smart terminal unit secure cabinet shall provide adequate access to supply and feeder cable grommets in order to ensure an uncomplicated way of replacing or repairing cables.
- The vandal resistant housing shall allow one to replace the smart terminal unit secure cabinet quickly and conveniently if required.
- The smart terminal unit secure cabinet must be manufactured from a minimum of 2 mm galvanized steel, unless otherwise approved.
- The smart terminal unit secure cabinet shall house the terminal system, cable management system, tamper detection system, locking system and all necessary hardware including interconnect wiring.
- The smart terminal unit secure cabinet shall have a top cover which will provide access to all the systems enclosed in the cabinet.
- The smart terminal unit secure cabinet should be robust, corrosion resistant and generally of high quality.
- The typical dimensions of the cabinet should be in the following ranges:
 - Cabinet top cover width between 450mm – 550mm
 - Cabinet top cover depth between 210mm – 250mm
 - Cabinet top cover height between 375mm – 450mm
 - Total cabinet height between 725mm – 775mm
 - The bottom section of the cabinet should be tapered outwards. Around 90% of this bottom section will be underground

1.3 Terminal System

- 1.3.1 The terminal system shall be of a high quality and standard. Quality and robustness of the terminals offered is a firm requirement and will meet the minimum standards as determined by JRA.
- 1.3.2 The design for the terminal system shall meet the following requirements, unless otherwise approved:
 - The terminals shall have a minimum IEC rating of 800V (Volt) and 32A (Ampere).
 - The terminals shall be able to accommodate wires ranging in thickness from 0.2 mm² - 4mm².
 - The rated surge voltage on the terminals offered shall not be less than 8kV and the contamination class shall be better or equal to three (3).
 - The terminal system shall provide the ability to be clearly labelled or marked.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- The terminal system shall secure the interconnecting wires by means of a spring loaded mechanism.
- The terminal system shall have 40 terminals with 4 connection points each
- The terminal system shall provide the option to add additional terminals in order to increase the number of connections available in the smart terminal unit.

1.4 Cable Management System

1.4.1 The design for the cable management system shall meet the following requirements:

- The cable management system shall provide trunking for a maximum of two (2) supply cables and a maximum of four (4) feeder cables.
- The cable management system shall make provision for three (3) 32 mm armoured cable running from the bottom of the pedestal to the bottom of the grommet mounting plate.
- The cable management system shall accommodate all the single cores which originated from the supply and feeder cables. These cables will run from the top of the grommet mounting plate to the designated terminal.
- The cable management system shall provide an effective way to secure the single cores by means of a cable tie or similar fastening system.
- The cable management system shall be robust, corrosion resistant and of high quality.

1.5 Locking System

1.5.1 Mechanical locking option specification:

- The smart terminal unit secure cabinet shall be fitted with robust locks to prevent unauthorised access.
- A concealed lid locking system, which can only be opened by means of a special and unique key design will be used.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- The number of keys supplied shall be agreed with the JRA Project Representative.

1.6 General Operation

- 1.6.1 Operating temperatures for the smart terminal unit shall be between -20°C and +60°C.

1.7 Quality Assurance

- 1.7.1 Each smart terminal unit shall be manufactured in accordance with a manufacturer Quality Assurance (QA) program.

The QA program shall include two Quality Assurance procedures:

- 1.7.1.1 Design QA
- 1.7.1.2 Production QA

The Production QA shall include statistically controlled routine tests to ensure compliance with the specification of the smart terminal units.

- 1.7.2 QA process and test result documentation shall be kept on file for a minimum period of five (5) years.
- 1.7.3 Smart terminal unit designs not satisfying design QA testing and production QA testing requirements shall not be labelled, advertised, or sold as conforming to this specification.

1.8 Design Qualification Testing.

- 1.8.1 JRA, shall perform design qualification testing on new smart terminal unit offered, as well as when any major design change has been implemented on an existing design.
- 1.8.2 A major design change is defined as any modification, either material, electrical, physical or theoretical, that changes the characteristics of the system, or results in a different configuration. Where a dispute arises in determining if a system is a new design or if the system has had a major design change, JRA will make the final determination.
- 1.8.3 The following specifications shall be measured on submitted smart terminal units for design qualification testing:
- Secure Cabinet
 - Inspection of quality.
 - Verification and inspection of seals.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- Material thickness measurement.
- Terminal System
 - Inspection of quality.
 - Verify electrical ratings.
 - Verify surge voltage and contamination class.
 - Verify ability to apply labels and markings.
 - Verify terminal mechanism.
- Cable Management System
 - Inspection of quality.
 - Provision for three (3) 32mm armoured cables.
- Locking System
 - Inspection of quality.
 - Verification of lock body, ensure cabinet cannot be opened without using excessive force.
 - Mechanical lock option: Verify key is special and sufficiently unique.

1.9 Production Quality Control Testing

- 1.9.1 Production quality control tests shall be performed by the Bidder on a single sample prior to delivery. These tests shall consist of all of the above listed tests and Bidder shall retain test results for five years.
- 1.9.2 Each unit shall be visually inspected for any exterior physical damage or assembly anomalies.

1.10 JRA Quality Assurance Testing

- 1.10.1 The JRA may perform random sample testing on all equipment received.
- 1.10.2 Sample testing will normally be completed within thirty (30) days after delivery to the JRA Traffic Signals Depot, barring deficiencies in the delivery order.
- 1.10.3 All parameters of the specification may be tested on the sample.
- 1.10.4 The number of units tested (sample size) shall be determined by the quantity in the delivery order.

1.11 Warranty

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- 1.11.1 Bidders shall provide a one (1) year factory-repair warranty on the smart terminal unit from date of installation.

1.12 Installation Manual

- 1.11.2 1.12.1 An installation manual that provides a complete technical description of the smart terminal unit installation shall be supplied to JRA by the Bidder.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

LIGHT-EMITTING DIODE (LED) TRAFFIC SIGNAL HEADS AND ASSOCIATED COMPONENTS

1. STANDARDS AND GUIDELINES

- a) The following standards form an integral part of this contract. All items offered shall conform to the required sections of the specifications which will hereafter be referred to by the abbreviations shown in the relevant square brackets:
 - i. South African National Standard specifications LATEST EDITION SANS 1459 Traffic lights [SANS 1459: 2015 OR LATEST EDITION]
 - ii. The South African Road Traffic Signs Manual Volume 3: Traffic Signal Design, April 2001 [SARTSM] as governed by the Road Traffic act.
 - iii. LED modules shall have an IP65 certification

2. WARRANTEE

- a) The LED traffic signal modules and light emitting diodes (LED) as well as the traffic signal housing shall be warranteed for a period of 5 (five) years from the date of delivery. The visors shall be warranteed for a period of two years.
- b) If an LED module or the traffic signal housing fails to function as intended due to workmanship or material defects within 5 years from the date of delivery, the Supplier shall replace the entire LED signal module or traffic signal housing at no cost to the JRA.
- c) In the event that the LED module is replaced as part of the warrantee, then the 5 year warrantee will apply to the newly supplied LED module.
- d) Any faulty equipment must be replaced within a period of 14 working days at no cost to the JRA. Failure to comply with this requirement will be regarded as adequate grounds for the JRA to terminate the Contract at the discretion of the JRA.
- e) The warrantee on the LED modules shall cover the life and luminous intensity as well as the integrated circuitry for the entire warrantee period. If, during the Warrantee period, any one LED fails or no longer complies with either the luminous intensity or chromaticity as specified in the BID, the JRA may require the Supplier to replace the entire LED signal module free of charge.
- f) Each LED Module shall be identified on the reverse side of the module with the manufacturer's name and batch number for warrantee purposes. Identification of the components and sub-assembly manufacturers may be required should the reliability and performance of the module not meet the specification of such.

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- g) Each traffic signal head/ housing must be identified on the inside or reverse side with the manufacturer's name and batch number for warrantee purposes.

3. DEFINITIONS

- a. **Chromaticity** – The colour of the light emitted by an LED signal module, specified as x-y and x and y chromaticity coordinates.
- b. **LED Light Source** - A single light emitting diode (LED) or an array of LEDs.
- c. **LED Signal Module** - An array of LED's, integrated circuitry and lens that are capable of providing a circular signal indication all fitted in an enclosure. An LED signal module shall be capable of replacing the optical unit of an existing traffic signal head.
- d. **Luminous Intensity** - The luminous flux per unit solid angle in a given direction given in Candelas (cd).
- e. **Nominal Operating Voltage** – The AC RMS voltage, 220VAC at which photometric performance and power consumption are specified.
- f. **Power Consumption** - The electrical power in Watts consumed by LED signal module when operated at nominal operating voltage and ambient operating temperature range.
- g. **Power Factor (PF)** – equals Watts divided by Volt-Ampere (VA) or the ratio of power consumption in Watts to Volt-Amperes.
- h. **Total Harmonic Distortion (THD)** – is the ratio of the root-mean-square (RMS) value of the harmonics to the amplitude of the fundamental component of the waveform when operated at nominal operating voltage.

4. TECHNICAL SPECIFICATIONS

- a) Unless otherwise stated, all equipment must comply with LATEST EDITION SANS 1459.
- b) All LED modules shall have IP65 certification and proof of certification must accompany the bid document.
- c) Where applicable, 12 Volt DC LED shall comply with section 4.4 (Performance requirements) of SANS 1459.
- d) All LED modules shall have a power factor of 0.85 or higher. A certified copy of the test results as proof must accompany the bid document.
- e) Only high powered (high output) LED's will be accepted.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- f) Complete traffic signal heads and individual LED modules must comply with the various traffic signal configurations specified in SARTSM, including red and green arrows, pedestrian signals and flashing amber.
- g) LED traffic signal modules designed as retrofit replacements for existing incandescent signal lamps must be compatible with all standard 200 mm signal heads and must not require special tools for installation. Retrofit replacement LED signal modules must fit into existing traffic signal housing units without modification to the housing units. The LED module shall be accessed through Stainless Steel catches.
- h) The LED signal module must be a single, self-contained device, not requiring on-site assembly for installation into existing traffic signal heads.
- i) The LED signal module must be robust, impact resistant and with adequate protection and insulation against dust and moisture intrusion to protect all internal LED's, electronic and electrical components as specified in LATEST EDITION SANS 1459.
- j) Each aspect must present a uniform appearance free from excessive bright or dark spots over the whole of the lens when the aspect is viewed within the range of angles specified in LATEST EDITION SANS 1459.
- k) LED signal module lenses must be UV stabilised, scratch resistant and must minimize sun-phantom effects.
- l) It is important that the LED modules do not leave a residual voltage on the cables after the Traffic Controller has switched off the aspect. 'Residual' voltage to be well below 60 volts within 100 milliseconds of lamp drive switch-off.
- m) The LED modules shall be immune to stray and induced voltages. To this effect the LED module shall not emit any light if the voltage is below 90Vac.
- n) A module must reach 90% of full illumination (TURN-ON) within 75 milliseconds of the application of the nominal operating voltage. The signal must cease emitting visible illumination (TURN OFF) within 75 milliseconds of the removal of the nominal operating voltage.
- o) The current draw and turn-off voltage decay must be sufficient to ensure compatibility and proper triggering and operation of load current switches and conflict monitors in existing signal controllers.
- p) The LED Modules must provide a constant luminous intensity level while being driven by the Traffic controller and no flickering will be permitted.
- q) Self-flashing units must operate at a cycle frequency of between one and two flashes per second. The luminous intensity must be zero for 30% - 50% of the period and not less than the specified minimum for 30% - 50% of the period.

All LED modules must comply with the following technical specifications:

(a) Colour

All LED'S in any aspect must be the same nominal colour.

The colour of the light emitted by an aspect must be red, amber or green as required. When determined in accordance with 5.2 (**LATEST EDITION SANS 1459**) the chromicised co-ordinates defining the colour of the light emitted by an aspect, must fall within the chromicised region defined in column 2 to 6 of table appropriate to the colour given in column 1.

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Table 1 - Colour boundaries

	2	3	4	5	6
Colour	Chromicised Co-ordinates				
	Co-ordinates	1	2	3	4
Red	x	0,680	0,670	0,700	0,710
	y	0,320	0,320	0,290	0,290
Amber	x	0,560	0,546	0,612	0,618
	y	0,440	0,426	0,382	0,382
Green	x	0,028	0,183	0,284	0,008
	y	0,385	0,359	0,520	0,720

Photometric Performance

This specifies requirements for the luminous intensity of aspects, both in terms of general appearance and measured intensity distributions.

Each aspect should present a pattern of light points that is uniformly distributed across the circular aperture and is uniform in any variation in intensity when viewed from any angle within the viewing range. There should be no single dark patches. The above requirements do not preclude the mixing of LED'S of various angular distributions as each type of LED can be set out in a uniform pattern.

When determined in accordance with 5.3 of **LATEST EDITION SANS 1459**

1. The maximum luminous intensity of a disc aspect must not exceed 600 cd in the case of a general purpose aspect.
2. The average of the luminance measurements in each direction for all test areas must be at least equal to the appropriate values given in table 4.

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3. The ratio between maximum and minimum luminance of the test areas must not exceed 10:1.

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Luminance of symbolic aspects for vehicle

1	2	3
Angle down from geometric axis degrees	Average luminance of test areas cd/m ² min	
	Angle left and right from geometric axis Degrees	
	0	15
0	3000	900
10	900	900

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Table 4 - Luminance of symbolic aspects for pedestrians

1	2	3	4
Angle down from geometric axis degrees	Colour	Average luminance of test areas cd/m ² min	
		Angle left and right from geometric axis Degrees	
		0	15
0	Red	1000	1000
	Green	1000	1000
10	Red	1000	1000
	Green	1000	1000

- | | |
|--|--|
| 1) Supply voltage options: | 230 Volt AC, 50 Hz and 12Volt DC |
| 2) Power Factor (PF): | 0.85 or greater when operated at nominal operating voltage, and 25°C. (test results to be submitted) |
| 3) Warranted no switch-on voltage: | 90 Volt AC and less |
| 4) Total harmonic distortion (THD): | Less than 20% |
| 5) Power consumption: | Less than 10 Watts |
| 6) Ambient operating temperature range (measured at the exposed rear of the module): | -20 °C to +65 ° |
| 7) Absolute maximum operating temperature: | 75 °C |
| 8) Flammability rating: | UL-V 94B (self-extinguishing) |

5. TESTING AND INSPECTION

Suppliers must test and inspect all modules prior to delivery to ensure that the modules comply with the above technical standards. All modules must be visually inspected for any exterior physical damage or assembly anomalies. Test results documentation must be kept on file for a minimum period of five years after the module was supplied to the JRA. The JRA may request copies of the test and inspection records from the Suppliers during the five year warrantee period.

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6. SIGNAL HEADS

- 6.1 Traffic signal heads must be supplied as complete units with LED traffic signal modules, associated signal housing, cables, visors, backboards, two right angle mounting brackets and buckles together with two separate adjustable mounting straps. A combined bracket and strap arrangement is not acceptable.
- 6.2 The LED traffic signal heads must be suitable for direct mounting on existing JRA poles ranging from approximately 150 mm to 270 mm diameter.
- 6.3 A visor or hood of approximately 240 mm and at least 160 mm must be fitted around each lens. These visors must be made of black poly-ethylene suitable for outdoor exposure and must be fixable to the housing by means of screws. Metal or other non-flexible visors are not acceptable.
- 6.4 A price for acute angle visors must be provided and will be ordered separately when required. Acute angle visors shall be made of metal.
- 6.5 The signal heads must, wherever possible, be made of nylon 66 material. Signal heads with a high resistance to breakage are preferred.
- 6.6 Aluminium mounting bosses on both the top and the bottom of the traffic light housing shall be required for fixing to the pole.
- 6.7 The signal heads must be all black.
- 6.8 The design must be such as to enable two heads with backing boards facing at right angles to be mounted on the same pole at the same height.
- 6.9 Protrusions from the top, bottom and sides of the head assemblies are not acceptable since they may lead to difficulties in the mounting of the units.

7. SPECIALISED BACKGROUND SCREEN INCORPORATING ST SIGNS

- 7.1 Supply of 3 aspect background screens with top part extended to accommodate directional arrows ST1-3, the background screen should be made of Chromadek steel, re-enforcing strips to be installed and mounting screws to be supplied to fit on existing traffic signal heads. Including supply of directional arrows for background screens, ST1-3, (left turn, right turn or straight ahead) Arrow size to be reduced by 10% from original design
- 7.2 Supply of 3 aspect background screens with top part extended to accommodate directional arrows ST4-5, the background screen should be made of Chromadek steel, re-enforcing strips to be installed and mounting screws to be supplied to fit on existing traffic signal heads. Including supply of multi directional arrows, ST4-5, (straight and left or straight and right) Arrow size to be reduced by 10% from original design

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- 7.3 A price should be provided for an extended bezel which will be utilised if required to house the LED module.
 7.4 The bezel should be able to fit onto existing housings.

8. Extended Bezel

9. WIRING

- 9.1 The wiring of the signal heads must be coloured according to the following table and must be brought to a terminal block housed in the top section of the traffic signal head:-

<u>Lens</u>	<u>Colour of Lead wire</u>
Red	Red & Black
Amber	White & Black
Green	Blue & Black

- 9.2 All wires must be connected by means of a lug attached to a terminal block fixing screw. Wire ends at the terminal block must be fitted with suitable cable lugs.
- 9.3 For electrical connection purposes a 20 mm clearance hole must be provided at the back of the head not more than 150 mm from the top of the head. A 20 mm right angle yprague connector must be fitted to the hole and a length of flexible tubing must be attached to the connector.
- 9.4 The respective lengths of the flexible tubing must be:-
- 3 and 5 aspect traffic signal heads: 900 mm
 - 1 and 2 aspect traffic signal heads: 1200 mm
 - Where required a surcharge will be payable for longer tubing and tails
- 9.5 The length of the five connecting leads from the terminal block through the flexible tubing must be such that there is at least 230 mm protruding from the flexible tubing. The wire ends at the terminal block must be fitted with suitable cable lugs but the protruding ends must be left free.
- 9.6 The flexible tubing must have an internal diameter of approximately 12 mm and an external diameter of approximately 16 mm.

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ITEM GROUP: TRAFFIC SIGN POLES

1. SCOPE

1.1 The bidder will be required to supply Traffic Sign Poles for installation, as and when required.

2. STANDARDS

- 2.1. All poles must be made of commercial quality mild steel and be in accordance with BS 1775 – Commercial Quality Steel
- 2.2. *Items related to D shape poles*
 - 2.2.1. Poles shall be D shape hot dipped zinc coated (galvanized), 76mm diameter, 2mm wall thickness traffic sign poles in accordance with the requirements of SANS 763 – 1988
 - 2.2.2. One cross bar of 200 mm x 10 mm x 3mm flat bar must be welded at the bottom of each pole
 - 2.2.3. 1 x 13 mm diameter hole to be drilled 25mm from top of grey section through both walls
 - 2.2.4. Top end of pole to be covered with 2 mm thick steel disc. The disc must not overlap onto the side of poles
 - 2.2.5. Poles must be marked with welded 30mm Capital letters “JRA” exactly 600mm from bottom of pole
- 2.3. *Items related to round poles*
 - 2.3.1. Poles shall be round shape hot dipped zinc coated (galvanized), 76mm diameter, 2mm wall thickness traffic sign poles in accordance with the requirements of SANS 763 – 1988
 - 2.3.2. One cross bar of 200 mm x 10 mm x 3mm flat bar must be welded at the bottom of each pole
 - 2.3.3. No holes to be drilled in round shape poles
 - 2.3.4. Top end of pole to be covered with 2 mm thick steel disc. The disc must not overlap onto the side of poles
 - 2.3.5. Poles must be marked with welded 30mm Capital letters “JRA” exactly 600mm from bottom of pole. All welding shall be perfectly flat, free from hammer marks, burns and roughness. Bent or warped items shall be returned for replacement at the contractor’s expense. Only new material, free from defects and rust shall be used. No pole will be joined by means of welding to acquire a certain length
- 2.4. *Items related to timber poles*
 - 2.4.1. All Timber poles are standard lengths, CCA treated or creosote
- 2.5. *Items related to bolts and nuts*
 - 2.5.1. All bolts, nut and washers shall be electro plated and not galvanized dipped

3. WARRANTY

- 3.1. The durability of finished poles (Galvanized steel poles), must be warranted for 7 years
- 3.2. Any faulty material must be replaced within a period of three (3) working days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract at the discretion of the JRA

4. TECHNICAL SPECIFICATIONS

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- 4.1 The Poles must be in accordance with the latest edition of the South African Road Traffic Signs Manual and the Road Traffic Act No 29 of 1989 as amended and Regulations, unless specific instructions to the contrary are given on the official order form.

5. TESTING AND INSPECTION

- 6.1 Contractors shall inspect all poles prior to installation to ensure that the poles comply with the above technical standards.

TECHNICAL INFORMATION AND SPECIFICATIONS TRAFFIC SIGNS

1. REGULATORY SIGNS

Regulatory signs consist of the following:

- Item 1.1: Control signs
 - Item 1.2: Command signs
 - Item 1.3: Prohibition signs
 - Item 1.4: Reservation / comprehensive signs
 - Item 1.5: Signal signs
- The paint colours shall be in conformity with specification 1091 of the South African National Standards.
 - Selective restriction signs and or signs with supplementary boards must be manufactured from one piece of material.
 - Reflective signs will be manufactured from 3M or similar reflective material pieces or can be screen printed, according to the sheeting manufacturers recommended procedures over the application of (SANS 1519-1 2006 Class 1) Engineer Grade Prismatic (EPG), Class 3 High Intensity Prismatic, Class 4b Fluorescent Yellow or Class 4b.
 - Reflective material must be stored and applied according to the recommended requirements of the sheeting manufacturer.
 - All symbols, letter and numerals must be manufactured from a single piece of black, white, yellow or red vinyl material.
 - All finished signs shall be clearly marked with the sign manufacturer's name or logo and date of manufacture, as follows:
 - The address and telephone number of the sign manufacturer shall **NOT** appear on the sign.
 - The lettering height must not exceed 30 mm.
 - If the manufacturer put a logo on the back of a sign the logo shall not be bigger than 50 x 50 mm.
 - If the sign is made of a number of panels the required information marking must be on at least 2 panels.
 - The bidder must specify the method that will be used for information marking on double sided signs.
 - The required information must remain intact on the sign for the duration of the warranty.
 - Reflective material must be identifiable as to a specific **SANS 1519-1** class. The identification mark applicable to each class of material must be reflected in the Bid by the bidder.
 - All symbols, letter and numerals must be manufactured from a single piece of reflective material. Any overlap of materials must be kept to a minimum of 10mm.
 - All signs to be manufactured with 1.4 mm Chromadek plate. Signs without frame must have holes punched for erection purpose and hole sizes must be 12 mm diameter, positions will be furnished on request.
 - Reinforcement frames to be supplied with signs requiring, must be constructed of 25 mm x 25 mm x 3 mm powder coated battle ship grey paint, square tubing mild steel with two or more flat bar brackets to affix sign to pole with M10 x 100 mm bolts and nuts. Unistrut clamps can be fitted in place of square tubing frame on request. Signs to be affixed to frame with cadmium plate and colour coated rivets. Rivets to be placed no further than 12 cm apart.

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ITEM 1.1: Control signs

Consist of the following classes: Class 1: 7 year engineering Grade Prismatic

Class 3: 10 year High intensity Prismatic

Class 4b: 10 year Diamond Grade DG3

ITEM: 1.1	CONTROL SIGNS (Standard regulatory signs as per SADC RTSM)	
	RTSM Code.	SIZE (mm) Width x Height
1.1.1	R1	600
1.1.2	R1 (incl. frame)	900
1.1.3	R1.2	900
1.1.4	R2	900
1.1.5	R2.1	225 x 300
1.1.7	R3	600
1.1.8	R3 (incl. frame)	900
1.1.9	R4.1 to R4.3 (Single sided)	600 x 450
1.1.10	R4.1 to R4.3 (Double sided)	600 x 450
1.1.11	R5	450 x 450

ITEM 1.2: Command signs

Consist of the following classes: Class 1 : 7 year engineering Grade Prismatic

Class 3: 10 year High intensity Prismatic

Class 4b: 10 year Diamond Grade DG3

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ITEM: 1.2	COMMAND SIGNS (Standard regulatory signs as per SADC RTSM)	
	RTSM Code.	SIZE (mm) Width x Height
1.2.1	R101 to R140	600
1.2.2	R101 to R140 (incl. frame)	900

ITEM 1.3: Prohibition signs

Consist of the following classes:

Class 1: 7 year engineering Grade Prismatic

Class 3: 10 year High intensity Prismatic

ITEM: 1.3	PROHIBITION SIGNS (Standard regulatory signs as per SADC RTSM)	
	RTSM Code.	SIZE (mm) Width x Height
1.3.1	R201 to R241	600
1.3.2	R201 to R241 (incl. frame)	900

ITEM 1.4: Reservation/ comprehensive signs

Consist of the following class: Class1: 7 year engineering Grade Prismatic

ITEM: 1.4	RESERVATION / COMPREHENSIVE SIGNS (Standard regulatory signs as per SADC RTSM)	
	RTSM Code.	SIZE (mm) Width x Height
1.4.1	R301 to R354	340 x 450
1.4.2	R301 to R354	450 x 600

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ITEM 1.5: Signal signs

Consist of the following class: Class1: 7 year engineering Grade Prismatic

ITEM: 1.5	SIGNALS SIGNS	
	(Standard regulatory signs as per SADC RTSM) <u>Complete with signal housing units (JRA will supply and fit LED aspects)</u>	
	RTSM Code.	SIZE (mm) Width x Height
6.1	W(101-363)-WF+SS3 (incl. frame and Unistrut)	1200 x 1200
6.2	W(101-363)-WF+ IN(11.1-11.4)-SS3 (incl. frame and Unistrut)	1200x600

2. WARNING SIGNS

Warning signs consist of Road layout/ direction of movement/ symbolic signs, Hazard Marker signs and Information signs.

ITEM 2.1 : Road layout/Direction of movement / Symbolic signs

Consist of the following classes:

- Class 1: 7 year engineering Grade Prismatic
- Class 3: 10 year High intensity Prismatic
- Class 4b: 10 year Diamond Grade DG3

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ITEM:2.1	ROAD LAYOUT/DIRECTION OF MOVEMENT / SYMBOLIC SIGNS (Standard warning signs as per SADC RTSM)	
	RTSM Code.	SIZE (mm) Width x Height
2.1.1	W101 to W363	900
2.1.2	W101 to W363 (incl. frame)	1200
2.1.3	W101 – IN 11.1/2/3/4 to W363 –IN 11.1/2/3/4	900 x 1060

ITEM 2.2: ACCESSORIES

ITEM: 2.2	Accessories	Unit of measure
2.2.1	Unitstruts channel	Per meter length
2.2.2	Brackets (P1118) 76 mm dia (incl. bolt & nut (M8 x 50)	Pair
2.2.3	Brackets (P1121) 110 mm dia (incl. bolt & nut M10 x 50)	Pair
2.2.4	Brackets (P1124) 160 mm dia (incl. bolt & nut (M10 x 50)	Pair
2.2.5	Color coated rivets	Each
2.2.6	Stamark marking tape Series 270 ES	Per meter length x 10mm

3. STREET NAME SIGNS

- a) Street Name Sign for the purpose of this tender shall mean street name sign with bracket to be of either one piece or 2 piece construction including bolts and nuts

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- b) All signs must be in accordance with the latest edition of the South African Road Traffic Signs Manual SADC TRSM, SARTSM and the Road Traffic Act N0. 29 of 1989 as amended and Regulations, unless specific instructions to the contrary are given on the official order form

Item NO.	DESCRIPTION	UOM
3.1	Street names Name Signs (Up to 6 letters) Incl. St, Ave, Rd, etc.	EACH
3.2	Street names Name Signs (7 to 9 letters) Incl. St, Ave, Rd, etc.	EACH
3.3	Street names Name Signs (10 to 12 letters) Incl. St, Ave, Rd, etc.	EACH
3.4	Street names Name Signs (13 to 15 letters) Incl. St, Ave, Rd, etc.	EACH
3.5	Street names Name Signs (15 to 18 letters) Incl. St, Ave, Rd, etc.	EACH
3.6	Street names Name Signs (19 or more letters) Incl. St, Ave, Rd, etc.	EACH
3.7	Street name Round Pole cup bracket	EACH
3.8	Street name cross connector Bracket	EACH

4. MICRODOT

- 3.1 A microdot is text or an image substantially reduced in size onto a small disc to prevent detection by unintended recipients. Microdots are normally circular and around 500 microns (0.5 mm) in diameter but can be made into different shapes and sizes and made from various materials such as polyester or metal.
- 3.2 Pins can not fade. Must be fire resistant to temperatures up to 1200 C. Readability must be at least 60x magnification under microscope. Security features: highly advanced elements, graphics, micro and nano texts, DNA taggants in adhesive. UV wavelength must be at least 395nm flashlight. Must have asset management systems for audits and keeping record of which assets are marked/damaged/sold/scrapped etc
- 3.3 JRA will provide a list of equipment which are required to be micro-dotted.
- 3.4 JRA will provide the description on the microdot.

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UNINTERRUPTIBLE POWER SUPPLY (UPS) FOR TRAFFIC SIGNALS

SCOPE OF WORKS

G1.1 Project Scope

- 1.1.1 The supply and implementation of uninterrupted power for traffic signal installations entails different aspects of work, with the following making up the most important elements:
- (i) Supply and installation of Uninterruptible Power Supply (UPS) for traffic signals, including a system to monitor and report information automatically to the JRA server.
 - (ii) Installation of security measures to safeguard the UPS.
 - (iii) The Contract shall include the proposed scheduled maintenance of the installation for a period of twenty-four (24) months from commissioning date of the UPS. Firmware upgrades should be installed during this maintenance cycles. No additional payments will be made for scheduled maintenance.
 - (iv) Supply full operational and maintenance documentation applicable to both hardware and software, and where appropriate, software licences.
 - (v) Provide suitable staff training to JRA personnel for all equipment offered.
 - (vi) The service provider shall provide vandal proof enclosures for the installation of equipment with robust installations against vandalism, theft, lightning and environmental damage like excessive heat and provide details on what measures will be used.
 - (vii) A new cabinet design will be performed upon ordered as and when required by the JRA.
 - (viii) Security measures detailed in the response of the tender, which can include branding of the equipment, alarm systems and tracking of the equipment.
 - (ix) The tender should also include a proposed scheduled maintenance plan for a period of 24 months from UPS commissioning date, with a planned visit of at least every 6 months or as per manufacturer requirement, whichever is lesser.
 - (x) The JRA will require a Hardware Factory Acceptance Test (HFAT) to ensure equipment offered is fit for purpose.
- 1.1.2 The description of the work is merely a broad exposition of the functions required, and will not be limited to the work carried out by the Contractor under this contract.

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- 1.1.3 The successful Bidder will be required to undertake this work, as and when required, anywhere within the areas of supply covered by the Johannesburg Roads Agency in the Johannesburg Metropolitan Municipality area.
 - 1.1.4 The JRA reserves the right to extend / reduce the scope of the work at the rates supplied by the Bidder in the Schedule of Quantities.
 - 1.1.5 All labour and equipment must be supplied by the Contractor.
 - 1.2 **SAMPLES**
 - 1.2.1 Contractor will be required to submit samples to the JRA if ordered upon by the JRA. Upon order a sample of the equipment offered shall be submitted to the JRA's Traffic Signals Depot, 1 Henry Nxumalo Street, Corner of Main Rd, Newtown unless otherwise agreed upon.
 - 1.2.2 The Sample shall include an UPS compliant to the technical and load requirements and shall make use of an energy storage as per instruction.
 - 1.3 **Rates**
 - 1.3.1 Bidders are required to complete the Schedule of Rates in the Form of Bid section of this document.
 - 1.3.2 The rates submitted must **exclude VAT**.
 - 1.3.3 The Bidder must fill in a rate for each item in the Schedule of Rates. Items against which no rate is entered or where a word or phrase such as "included" or "provided elsewhere" has been entered, will be accepted as a rate of nil (R0,00) having been entered against such items.
 - 1.3.4 Any work executed to which such a pay item applies, shall be measured under the appropriate items in the Schedule of Rates and valued at a rate of nil (R0,00). The rate of nil shall be valid irrespective of the quantities during the execution of the Contract.
 - 1.3.5 The Bidder shall not group together a number of items and bid one rate for such group of items.
 - 1.3.6 All rates and sums of money quoted in the Schedule of Rates shall be in rands and whole cents. Fractions of a cent shall be discarded.
 - 1.3.7 The rate for items must be based on the Steel and Engineering Industries Federation of South Africa (SEIFSA) index. The SEIFSA base month used for the rates should be the same month as closing date of bid and a copy of the relevant SEIFSA index must be supplied.
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- 1.3.8 CPI price increase will be allowed after 12 months from date of award and will not exceed the CPI (Consumer Price Index). A further price increase will be allowed after a further 12 months and will not exceed the CPI.
- 1.3.9 In computing the final Contract Price, payments shall be based only on the actual quantities of authorised work done in accordance with the Specifications and the JRA Project Manager's instructions.
- 1.3.10 Where reference is made in this document to a Bid rate, price or lump sum, it shall be construed to mean the rate, price or lump sum accepted by the JRA by the acceptance of the Bid.
- 1.4 **Rates to be inclusive**
- 1.4.1 Bid rates in the Schedule of Quantities shall include in full for:
- (i) Supply, delivery, transport and installation of the equipment.
 - (ii) Executing, completing and maintaining the work as specified and described in the pay items, for procuring, furnishing, installing and maintenance of installations, labour, supervision, plant, tools and equipment and safety equipment, scheduled maintenance, testing, quality control including process control, overheads and profit, for all risks and related items not listed here.
 - (iii) All fees, levies and amounts in respect of patented and other protected rights shall be included.
 - (iv) All other incidentals necessary for the completion of the work and scheduled maintenance during the defects liability period as well as for any items of work listed in the pay item description.
 - (v) All firmware upgrades
 - (vi) All applicable security and armed response cost as detailed in bid document
 - (vii) All cost involved in the design of cabinet if such is ordered by the JRA.
- 1.4.2 This sub-clause shall fully apply to all pay items, except where the requirements may have been specifically amended in particular cases.
- 1.5 **Indemnity Insurance**
- 1.5.1 The Contractor(s)'s insurance should cover any damage caused by the Contractor(s) or his staff to electrical, water, sewer, gas, telephone or any other services or to private or JRA property.

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- 1.5.2 The Contractor(s) should have adequate insurance cover against theft and damage of the material and equipment.

1.6 Standard of Service

- 1.6.1 The Contractor shall ensure that the JRA Project Manager's and JRA's best interests are served at all times during the contract period. Recommendations and advice must be based on impartial observations, responsible opinions and pertinent facts. Any information gained by the Contractor during the course of the contract must be kept in strict confidence and may not be used without the written permission of the JRA Project Manager.

1.7 Warranty

- 1.7.1 All equipment, parts, materials, and workmanship supplied under these specifications shall have a warranty. All equipment shall have a warranty for a minimum of two (2) years from date of commissioning or as stated in the Technical Specifications, except the energy storage equipment. If any part of the equipment supplied fails to function as intended due to workmanship or material defects within 2 years from the date of installation, the Supplier shall replace the entire part free of charge. This warranty shall cover all parts and labour necessary or incidental to the repair of any defect in equipment, parts, materials, or workmanship and malfunctions that arise during the warranty period. Bidder shall confirm warranty periods as part of bid submission.
- 1.7.2 Energy storage equipment shall have a warranty as follows; super capacitor as well as Lithium Iron Phosphate (LiFePO₄) batteries as energy source shall have a warranty period of five (5) years.
- 1.7.3 The period of warranty coverage shall, in no case, be less than the manufacturer's usual and customary warranty period. All warranties that are customarily issued by the vendor and/or manufacturer shall be provided to the JRA unless it is less than specified in above paragraph.
- 1.7.4 The bidders shall provide a Maintenance and Response Plan for maintenance of the supplied equipment offered as part of the tender.
- 1.7.5 All installations shall be maintained at the cost of the contractor for a period of twenty-four (24) months after commissioning of installation. Any visits due to breakdown does not form part of the preventative maintenance visits and will be seen as over and above.
- 1.7.6 If a UPS, or any of its components, fails three times or more during the warranty period then the warranty period shall be extended with a further year.
- 1.7.7 Minor repairs may, at service providers discretion, be made by the JRA, or their appointed specialist contractors, with the consent of the service provider. All other required repairs under warranty will be made by the manufacturer. The manufacturer will bear all costs including labour, parts, and shipping charges.

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- 1.7.8 Unless otherwise specified, any faulty equipment must be replaced within a period of three (3) working days. Failure to comply with this requirement will, at the discretion of the JRA, be regarded as adequate grounds for the JRA to terminate the entire contract
 - 1.7.9 If at any time after delivery the JRA Project Manager shall be dissatisfied with the workmanship, the contractor shall immediately remedy the said defect to the specification provided by the JRA Project Manager.
 - 1.7.10 Should the Contractor delay remedial work in excess of the time stipulated by the JRA's representative, the JRA Project Manager may have such remedial work executed at the contractor's expense.
 - 1.7.11 The warranty period against faulty and poor workmanship or negligence on the side of the Contractor shall be three (3) months after the issuing of the final acceptance of the installation.
 - 1.7.12 Any faulty equipment must be replaced within a period of three (3) working days.
 - 1.7.13 Should, during the three (3) months defects liability period, the installations not function correctly or become damaged as a result of poor workmanship on the side of the Contractor or their employees (eg due to loose or incorrect connections), the Contractor shall be liable for repairing the damage or replacing the UPS at their own cost.
 - 1.7.14 Manufacturers shall provide a factory-repair warranty for parts and labour, for a period as stated in bid document on the UPS from date of acceptance by the JRA. The warranty shall be included in the total bid price of the UPS. The Bidder shall confirm this as part of bid submission.
 - 1.7.15 The bidders shall provide a Maintenance and Response Plan for maintenance and response times for fixing the supplied equipment offered as part of the tender.
 - 1.7.16 Preventative maintenance shall be done at least twice a year, at 6-month intervals or as per manufacturer's standard, whichever is lesser at the cost of the bidder for a period of 24 months after commissioning of UPS installation.
 - 1.8 **Information Required**
 - 1.8.1 Bidders shall supply complete Company Profiles which shall include details of proposed equipment, applications to traffic signals if applicable, previous installations, track record, technical support staff, etc.
 - 1.8.2 Comprehensive details, including manufacturer's catalogues, drawings and specifications must accompany the tender. A data sheet of equipment offered and a complete list of spares shall be included. Details of warranties, maintenance requirements, operating environment, etc must be provided.
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- 1.8.3 The bidders shall provide a Maintenance and Response Plan for maintenance and response times for fixing the supplied equipment offered.
- 1.8.4 Bidders shall provide a **statement of declaration** in respect of the operating environment of the equipment offered.

2 GENERAL TECHNICAL REQUIREMENTS

2.1 STANDARDS AND CODES

- 2.1.1 The following standards form an integral part of this contract. Contractors shall conform to the applicable sections of the specifications which will hereafter be referred to by the abbreviations shown in the relevant square brackets:
 - p) South African National Standard specifications SANS 62040-1, SANS 62040-2, SANS 62040-3 : Uninterruptible power systems;
 - q) South African National Standard specifications SANS 1507: Electric cables with extruded solid dielectric insulation for fixed installations [SANS 1507];
 - r) The National Electrical Code [NEC].
 - s) South African National Standard specifications SANS standards for electrical connection [SANS 10142]
 - t) South African National Standard specifications SANS standards for surge and lightning protection [SANS10313]
 - u) South African National Standard specifications SANS standards for earthing [SANS 10199]
 - v) Road Traffic Act (Act 29 of 1989) and its regulations [Road Traffic Act]
 - w) Occupational Health and Safety Act (Act 85 of 1993, updated June 2016) [OHS Act]
 - x) The Greater Johannesburg Metropolitan Council's By-Laws [By-Laws]
 - y) SANS 1200 Standardized specification for Civil Engineering Construction: Various applicable Sections [SANS 1200]
 - z) The "Codes of Practice for Work in the Road Reserve" as issued by the JRA. A copy of the "Code of Practice for work in the Road Reserve" will be available for viewing at JRA's Wayleave Department
 - aa) SANS ISO 9001: 1994 - Quality systems - model for quality assurance in design, development, production, installation and servicing [ISO 9001].

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- bb) NEM: Waste Act (59 of 2008): Definitions & Hazardous waste management
- cc) Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (MRHW); 2nd Ed.1998 (draft 3rd Ed. 2005)
- dd) SANS 10228:2006 (Ed.4): Identification & classification of dangerous goods for transport

2.2 DESIGN AND CONSTRUCTION

- 2.2.1 A high standard of construction is essential in all products offered and shall in all respects be suitable for the purpose intended and for all the environmental conditions specified.
- 2.2.2 All electronic equipment and systems offered should be able to operate in a temperature range of between including super capacitor -20°C and +50°C.
- 2.2.3 Lithium Iron Phosphate offered should be able to operate in a temperature range of between -10°C and +50°C.
- 2.2.4 The bidder shall ensure, if so required that the cabinet be designed in such a way, that it can control the environment inside the cabinet to meet the manufacturer's requirements.
- 2.2.5 The contractor shall accept responsibility for the satisfactory quality, design and workmanship of the products and every part whether manufactured by the bidder or supplied to the bidder by other manufacturers.
- 2.2.6 All equipment offered must be capable of operating in a demanding environment, e.g. high temperatures, unstable electrical supply, etc. Bidders shall provide a **statement of declaration** in respect of the operating environment of the equipment offered.
- 2.2.7 The products supplied must comply to the specification as set out in the bid.
- 2.2.8 All components and materials shall be subject to the approval of the JRA Project Manager.
- 2.2.9 The UPS shall communicate to the JRA JSENT server.
- 2.2.10 Shall be a Line-Interactive UPS
- 2.2.11 Shall use Super Capacitors as the energy storage equipment. Batteries that are listed in the pricing schedule are listed for in the event that JRA decide to install such at selected sites.

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2.3 FAULTY WORKMANSHIP OR MATERIALS

- 2.3.1 If any materials supplied do not comply with the requirements of the JRA quality requirements or if any work of an unacceptable quality is carried out such material or work shall be removed, replaced or repaired as required by the JRA Quality Assurer at the Contractor's own cost.
- 2.3.2 The JRA Project Manager / Quality Assurer shall have authority to randomly inspect or test any equipment or material that is being installed on site to ensure that the quality is in accordance with the specifications.
- 2.3.3 Should any of the work carried out by the Contractor, become defective within this period as a result of poor workmanship or negligence on the side of the Contractor, the Contractor will be ordered to re-execute the work at no cost to the JRA. Should the Contractor fail to comply with this order, the JRA Project Manager shall have the right to remove and have the work reinstated by another contractor or the JRA and the cost will be recovered from the Contractor.

Local Content

Bidders should take note that selected items in this tender is required to have a local content component as identified in following table.

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Material / Equipment	% Local content required
Inverter	40%
Cable	90%
Cement	100%
Cabinet	100%
Posts for fencing	100%
Pole for Solar panel	100%
Wire mesh	100%
Gate	100%
Guardrails	100%

The local content declaration schedules should be completed by the bidder

The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

x is the imported content in Rand

y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as required below.

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PART B: PARTICULAR TECHNICAL SPECIFICATIONS

d) B1 General

- 1) The purpose of uninterruptible power supply traffic signals is the potential economic and safety benefits arising from reduced traffic signal outages which in turn result in maintained mobility. The long operating life warranty is therefore a firm requirement and the quality and robustness of the equipment offered shall meet the warranty requirements. The need to replace the equipment before or within the warranty period must be limited by ensuring that only highly reliable components are used. This goes hand in hand with the security and safekeeping of the equipment to prevent theft.
- 2) Bidders shall ensure that they are familiar with the JRA's traffic signal equipment standards and infrastructure, such as traffic signal controllers and heads, to ensure compatibility. It is the responsibility of the supplier to ensure the supplied equipment is completely compatible with existing JRA assets.
- 3) It is important to ensure integration with the JRA's UPS remote monitoring system to ensure proactive response to traffic signals UPS equipment failures.
- 4) Certain electrical information must appear on each module. The information on the factory-installed label shall include the following items:
 - **Polarity of output terminals or leads**
 - **Maximum series fuse for module protection**
 - **Rated open-circuit voltage**
 - **Rated operating voltage**
 - **Rated operating current**
 - **Rated short-circuit current**
 - **Rated maximum power**
 - **Maximum permissible system voltage**
- 5) This tender should meet the minimum requirements for a complete emergency power backup system for use with LED Traffic Signals in the event of a power failure. The UPS shall however make use of a line-interactive inverter. The UPS shall include, but not be limited to the following: Cabinet, Inverter/Charger, Power Transfer Relay, energy storage equipment (super capacitor, unless otherwise ordered upon), a separate manually operated non-electronic Bypass Switch and all necessary hardware and interconnect wiring. The UPS shall provide reliable emergency power to a traffic signal system (Vehicle and Pedestrian Traffic) in the event of a power failure or interruption.
- 6) The UPS shall be capable of providing power for full run-time operation for a "LED-only" intersection.
- 7) The Bidder must provide detailed information on the communication interface protocols and provide all assistance necessary.

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- 8) The Bidder shall submit a completed quality assurance document that is signed off by the JRA representative as well as pictures taken before and after the commencement of site works per site. This is a set condition on the contract payment terms whereby payment to the contractor will not be released before the completion thereof.
- 9) The Bidder shall submit electrical Certificates of Compliance (CoC) for each UPS installation before any completion certificate issuance and subsequent payment are done.

e) Operation and technical requirement of UPS

- 1) The bidder shall take note that the UPS will be installed in a harsh environment exposed to very low and very high temperatures. Therefore, it is required that the equipment used shall be of industrial quality.
- 2) The UPS shall provide a minimum eight (8) hours of full autonomy per day, for a 550W load, this load include the traffic signal LED lights, traffic signal controller as well as the UPS, which must be achievable after a two (2) year period, therefore allowance must be catered for, for degradation of the UPS components especially the energy storage equipment.
- 3) The UPS shall be of Line-interactive mode, with output voltage between 220 VAC and 250 VAC, pure sine wave output = 3% THD, 50 Hz $\pm$ 0.1 Hz, at a minimum efficiency of 90%. (output power factor of 0.9).
- 4) The UPS shall be capable to be connected to a Solar system and therefore should be programmable to switch between the different power options as required.
- 5) The UPS shall make use of Super Capacitors unless otherwise ordered upon by JRA.
- 6) The recharging system must be able to recharge the super capacitors (or battery rack) within reasonable time (preferably at less than a $\frac{1}{4}$ of the time it takes to discharge) so as to maintain a charge that can cover a minimum of 8 hours of autonomy, when the grid network is off.
- 7) Operating temperatures for the inverter, charger, power transfer relay, super capacitor and manual bypass switch shall be -20°C and +50°C.
- 8) Both the Power Transfer Relay and Manual Bypass Switch shall be rated at 240VAC/30 amps, minimum.
- 9) Manual Bypass Switch shall be inside the traffic signal controller. This switch shall be capable of allowing the RMS to send a message once the UPS are bypassed.
- 10) The temperature sensor shall be inside the UPS cabinet. Ventilation within the secure cabinet must be developed in such a way to get rid of excessive heat built up inside the cabinet.

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- 11) UPS shall be equipped to prevent a malfunction feedback to the cabinet or from feeding back to the utility service.
- 12) In the event of inverter/charger failure, super capacitor failure or complete energy storage discharge, the UPS shall automatically switch to grid network.
- 13) The status of the UPS system will be monitored remotely and any failure will be automatically reported to the JRA JSent server.
- 14) The UPS communications unit shall be of TCP/IP, with RJ 45 port and shall be able to use the SNMP protocol as a minimum. Other protocols can be considered if the minimum spec is met. Therefore, the unit shall conform to the open communications protocol(s) and need to provide the NTCIP based interface and shall include a connection with the Monitoring Control Unit (MCU) for remote monitoring purposes.
- 15) The UPS shall provide the MCU with information related to the state of the super capacitor capacity, whether the system is running from the UPS or from utility power, etc.
- 16) The UPS shall be able to withstand over voltage periods of voltages up to 400V.
- 17) The UPS shall have an Isolation Transformer installed fit for the power requirements of the UPS.
- 18) The UPS must be fitted with a Class 1 surge protection.

f) UPS secure cabinet

- 1) The UPS Cabinet shall be used for housing energy storage (super capacitor) equipment and the UPS, which includes inverter/charger unit, power transfer relay, any other control panels and all wiring
- 2) Service provider shall propose a design and drawings for the cabinet to house the UPS which according to the bidder shall meet the requirements of the UPS, Super Capacitor and battery options. It further needs to meet following requirements:

5.f.2.1 It shall provide adequate protection against theft. Cabinet shall have no known history of theft of equipment it is designed to protect.

5.f.2.2 It shall be galvanised, powder coated or thermal coated, in order to withstand corrosions.

5.f.2.3 The colour of the cabinet shall be such to dissipate heat in order to protect the equipment within the cabinet.

5.f.2.4 The cabinet shall be equipped with a tamper detection (Vibration sensor) and remote warning system. If a cabinet is tampered with, the system shall send a warning signal to the control system.

5.f.2.5 The cabinet should be root mounted.

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- 3) Service provider shall be required (upon receiving order from JRA) to design a cabinet to house the UPS which shall meet the following minimal requirements:
- The cabinet is envisaged to have an IP 65 rating.
 - The cabinet shall be made of 3CR12 stainless steel with a minimum plate thickness of 3 mm.
 - The cabinet shall be powder coated to a colour determined after award of tender.
 - The UPS secure cabinet will be roof mounted.
 - The supply and feeder cable to and from the UPS secure cabinet will come through the roof, which would mean that they are fed in from the bottom of the housing through built in channels. Additional access must be available for communications and other requirements.
 - The cabinet shall be of a double skinned type so that the outer layer provides resistance to heat generated by direct sunlight. The outer layer will be perforated on the side panels to allow for natural air flow.
 - Ventilation within the secure cabinet must be developed in such a way as to comply with the actual working specification of the UPS tendered with a proper environmental control system to be considered.
 - The cabinet shall have a 3-point mechanical locking system that uses a unique key as well as electronic lock. The electronic lock will be remotely activated once the unique key is inserted within the mechanical lock.
 - The number of keys supplied shall be agreed with the Project manager.
 - The cabinet shall be equipped with a tamper detection (both vibration and door monitoring) and remote warning system. If a cabinet is tampered with the system, it shall send a warning signal to the control system.
 - The UPS electrical /electronic equipment shall be housed apart in the cabinet.
 - The pricing schedule allows for a mark-up % to be quoted for this cabinet. The final price to be paid will be the actual cost from the manufacturer of the cabinet plus a percentage mark-up which shall not exceed 10%.
- The design and manufacturing shall include the full cabinet solution, which includes all security features.

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- 4) The UPS secure cabinets should be robust, corrosion resistant and generally of high quality.
- 5) An option for an underground chamber for the installation of the UPS are also included.
- 6) All necessary hardware for mounting (shelf angles, rack, etc), all bolts, washers, nuts and gaskets provided, necessary for mounting shall be included in the bid price of the UPS.

g) UPS Anti-Theft Security

- 1) UPS devices as well as the energy storage equipment is high in demand currently in South Africa and therefore is at risk of being stolen. Therefore, it is required to ensure that UPS installations are safeguarded against theft.
- 2) It will be required that the UPS cabinet have vibration sensors installed to alert against tampering, which can be from various methods which may include amongst others grinding of the cabinet and brutal force trying to open cabinet door. The sensor should however not pick up vibration from passing vehicles especially heavy vehicles. Therefore, it is recommended to utilise a sensor with a microprocessor that can perform digital signal processing and that also have sensitivity settings to avoid false alarms.
- 3) The UPS cabinet shall also have door monitoring to provide an alert if the door is opened.
- 4) The JRA will require the following options if ordered upon:

5.g.4.1 The UPS is installed in close proximity of the Controller and will require that the area around the UPS and Traffic Signal controller (if so specified) be fenced in.

The fence will be galvanized high-tensile wire mesh with anti-climb and anti-cut properties and have around 75mm(vert) x 12.5mm(horiz) apertures with a height of 2,4 meter. The wire mesh shall have v-bends for increased rigidity.

A gate should be provided to provide access to the UPS and shall have door monitoring connected to the UPS remote monitoring. The gate should have a lock installed that will prevent unauthorised access.

Strip beams shall be installed to alert unauthorised entry within the fenced-in area.

The gate door monitoring as well as the strip beams must be able to be activated and de-activated if so required to provide authorised access.

- 5.g.4.2 CCTV camera to be installed. The camera shall be a static camera with human activity detection, therefore the camera shall be a camera with build-in intelligence. The camera shall be connected to a DVR with a router to allow remote monitoring.

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- 5.g.4.3 A tracking device should be installed on equipment as requirement from the JRA. The device should be located in such a way that it is out of sight and not easily removed. It should trigger an alert once it is moved out of a perimeter.
- 5.g.4.4 Armed response will be required if ordered by the JRA and should be connected to all alerts that has been selected in above sections. Response time shall be within 15 minutes as per guideline from The South African Intruder Detection Services Association (SAIDSA).
- 5.g.4.5 Siren to be installed on site and JRA will advise upon order at what stage the alarm should be activated to avoid false alarms.
- 5) The pricing schedule requires the bidder to fill in a price for epoxy. This epoxy will be utilized where the JRA need to increase the mitigation of theft where the equipment will be epoxied to a section of the cabinet to prevent removal.

h) Maintenance, Displays, Controls and Diagnostics

- 1) The UPS shall have Class 1 surge protection.
- 2) The UPS shall be equipped with an integral system to prevent super capacitor or batteries from destructive discharge and overcharge.
- 3) The supplier shall include a set of equipment lists, operation and maintenance manuals, schematic and wiring diagrams of the UPS and the energy storage equipment data sheets.

i) Energy Storage Equipment

- 1) The energy storage equipment to be used shall be super capacitors or Lithium Iron Phosphate batteries depending on JRA's order.
- 2) Bidders must note that a line-interactive UPS is required and therefore must ensure that the energy storage equipment supplied is fit for this purpose.
- 3) The JRA has allowed for different capacity storage devices in the pricing schedule, to allow for cost effectiveness based on the need.
- 4) The recharge rate requirements of the super capacitor shall not exceed the available capacity of the charger of the UPS or the electricity supply current rating.
- 5) Energy storage equipment disposal shall be done in accordance with the applicable standards and codes.
- 6) The scrap resale value of the super capacitor should be negligible.

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- 7) UPS equipment shall have "property of JRA" imprinted with the relevant Logo's, which includes the inverter/charger, cabinet, super capacitor, and Lithium Iron Phosphate battery rack. This shall be imprinted utilising UV printing.
- 8) The Super Capacitor and Lithium Iron Phosphate equipment shall have tilt monitoring as well as Geo-fencing/tracking fitted. The JRA will confirm whether Geo-fencing or tracking should be installed.
- 9) Lithium Iron Phosphate products shall not be a packaged as batteries but shall be supplied in a rack.
- 10) The design life of Lithium Iron Phosphate products shall be 10 years and/or over 3000 cycles.
- 11) Lithium Iron Phosphate battery racks should be able to withstand an environmental temperature of -10°C to +50°C

j) Remote Monitoring

- 1) The Remote Monitoring Systems (RMS) shall be capable to communicate with J-Sent, the server already available in JRA, with the capability to report on all requirements listed below . Further to this

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it will be required that the RMS system including all software associated to the manufactures of the equipment be supplied to the JRA to enable JRA to access additional information not listed below.

- 2) The Remote Monitoring Systems (RMS) must notify the JRA UPS in station that the power utility went off.
- 3) RMS must be able to send notifications to a number of devices
- 4) RMS must notify the in-station of temperature in the cabinet
- 5) RMS must notify the in-station of Grid supply voltage
- 6) RMS must notify the in-station of UPS output voltage to the intersection
- 7) RMS must notify the in-station of the super capacitor status in voltage and amp-hour measurements (available capacity)
- 8) RMS must notify the in station if the UPS is bypassed (by technician using the bypass switch)
- 9) RMS must notify of cabinet tampering with clear details-
- 10) Notification or events must be adjustable for alarms
- 11) The remote monitoring system shall integrate into the existing system, with multi-user access functionality.
- 12) Additional RMS software as option that is available from the equipment manufacturers

k) Solar option

- 1) The JRA may require that solar panels be installed to enable prolonged uninterrupted power supplied to the traffic signal.
- 2) Solar panels shall be installed on a pole designed to handle the load generated from the solar panels, keeping in mind that the number of panels will be determined after award.
- 3) The brackets on the poles shall allow for scalability, and should be theft-resistant.
- 4) Each panel shall be at least 230W and it is envisaged that there will be at least two panels expandable to 9 panels.

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l) Barrier against accidents

- 1) Due to the high cost of the equipment it will be required to protect the UPS against vehicle accidents in high risk locations.
- 2) The bidder will be required to install guard rails upon order from JRA.

m) Quality Assurance

- 1) Each UPS or its assembled components shall be tested for compliance to the bid specification.
- 2) QA process and test results documentation shall be kept on file for a minimum period of five (5) years.
- 3) Uninterruptible Power Supply designs not satisfying Design QA Testing and Production QA Testing requirements shall not be labelled, advertised, or sold as conforming to this specification.

n) Hardware Factory Acceptance Testing (HFAT)

- 1) Hardware factory test shall take place upon order from the JRA as and when required, at the Supplier's works. UPS shall have successfully passed these tests prior to delivery or as determined by the JRA.
- 2) These tests are to ensure that the UPS to be supplied is fit for purpose.
- 3) The UPS selected for the test shall be fully equipped and connected back to a control computer for monitoring purposes.
- 4) The Supplier shall produce a test schedule and methodology for these Hardware Factory Acceptance Tests and submit this for approval at least 4 weeks before these tests are due to take place. The tests shall not take place until the documents have been approved.
- 5) The hardware factory acceptance tests shall be witnessed by a maximum of four (4) JRA officials and priced for a period of one (1) week. The cost of transport, accommodation and S&Ts for JRA officials, if the tests are to be conducted outside the Johannesburg area, as well as all other expenses pertaining to the tests, shall be to the Supplier's account. The Supplier shall assist with making the travel and accommodation arrangements if called upon to do so. The Supplier shall arrange for these tests to be conducted at a mutually agreed site in South Africa.
- 6) Suppliers shall note that in the event of the hardware factory acceptance tests at the Supplier's works having to be repeated due to unsatisfactory performance, all expenses including travel, accommodation and S&Ts involved in repeat tests shall be borne by the Supplier.

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- 7) The following tests shall be performed on a complete and assembled UPS, fully powered and connected to the appropriate electrical loads. The results of the tests shall be fully documented and delivered to the JRA at the time the UPS and related equipment is installed:
 - 5.n.7.1 A functionality test in which the UPS is operated and cycled continuously for minimum of 3 days.
 - 5.n.7.2 A test monitoring the charge and discharge time frames
 - 5.n.7.3 An Environmental test
- 8) Failure to successfully execute HFAT will render the UPS supplier none compliant and a new HFAT will be undertaken on a different UPS. All costs associated with the re-test will be to the supplier's account.

o) Design Qualification Testing

- 1) The manufacturer, or an independent testing lab hired by the manufacturer, shall perform Design Qualification Testing on new UPS system(s) offered, and when any major design change has been implemented on an existing design. A major design change is defined as any modification, either material, electrical, physical or theoretical, that changes any performance characteristics of the system, or results in a different circuit configuration. Where a dispute arises in determining if a system is a new design or if the system has had a major design change, JRA project manager will make the final determination if Design Qualification Testing is required prior to production consideration.
- 2) A quantity of two units for each design shall be submitted for Design Qualification Testing.
- 3) Test units shall be submitted to JRA Traffic Signals Depot after the manufacturer's testing is complete. Submitted units shall be identified with the project name, project number and Contractor's name.
- 4) Manufacturer's testing data shall be submitted with test units for JRA's verification Design Qualification Testing.
- 5) Burn In - The sample systems shall be energized for a minimum of 5 hours, with full load of 550 watts, at temperatures of -20°C and +50°C, including super capacitor, before performing any design qualification testing.
- 6) For Design Qualification Testing, the following specifications shall be measured by the supplier:
 - Run time while in energy source super capacitor backup mode, at full load.
 - Inverter output voltage, frequency, harmonic distortion, and efficiency, when in energy source (super capacitor) backed inverter mode.

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- All power transfer voltage levels.
- Back feed voltage to utility when in super capacitor backed inverter mode.
- Super capacitor charging time.
- Event counter and runtime meter accuracy.

p) Production Quality Control Testing

- 1) Production Quality Control tests shall consist of all of the above listed tests and shall be performed on a sample prior to delivery. The manufacturer shall retain test results for five years.
- 2) Each UPS shall be given a minimum 100-hour burn-in period to eliminate any premature failures.
- 3) Each system shall be visually inspected for any exterior physical damage or assembly anomalies. Any defects shall be cause for rejection.

q) Type testing

- 1) Full documentary evidence of this shall be provided with the submission.
- 2) Must include full environmental testing in line with the requirements in environmental requirements.

r) Site Acceptance Testing (SAT)

- | | |
|---------|---|
| 5.r.1.1 | Site testing shall involve the following: |
| 5.r.1.2 | a thirty (30) day test after installation |
| 5.r.1.3 | ongoing monitoring of the UPS during the warranty period and for the remainder of the supply contract. |
| 5.r.1.4 | The fault rate of the Supplier's controllers will be monitored on site after installation and no payment will be made, for 30 days, until the rate specified below has been attained. |
| 5.r.1.5 | The Supplier shall provide the warranty against the fault rate for his UPS in a covering letter with his reply. Each UPS shall have no more than: |
| 5.r.1.6 | One (1) fault in the first thirty (30) days after installation |

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- 5.r.1.7 No more than three faults per UPS in the first twelve (12) months after installation.
- 5.r.1.8 Maximum of two (2) per year thereafter.
- 5.r.1.9 Failure to satisfactorily resolve the excessive fault rate in either of the stages above (30 day / 1 year / 2 years) will require the affected UPS to re-commence SAT and for the warranty period to re-start. A second failure of SAT (within 2 years from the new commissioning date) will require that particular UPS to be replaced and SAT will commence from scratch.

s) Test results

5.s.1.1 Test results documentation shall be kept on file for a minimum period of two years after the UPS was commissioned or installed at the JRA. The JRA may request copies of the test and inspection records from the Suppliers during the warranty period.

t) JRA Quality Assurance Testing

- 1) The JRA may perform random sample testing on all equipment received.
- 2) All parameters of the specification may be tested on the sample.
- 3) The number of units tested (sample size) shall be determined by the quantity in the order.

6. TRAINING

a) General

- 1) The contractor shall ensure that skills transfer are conducted as required by the JRA.
- 2) The Contractor shall provide training to people nominated by the JRA as part of the Contract. The Contractor shall supply all necessary manuals, instructional notes, drawings, training aids, hand-outs, and any other materials in sufficient quantities required to train all appropriate personnel. Such material shall remain the property of the JRA.
 - 3) Training shall be provided to JRA personnel (estimated at 20 people). Training shall include in class and "hands-on" training which shall consist of working with the actual equipment.
 - 4) Training shall be conducted prior to the installation of the UPS system, depending on the availability of the personnel nominated by the JRA.
 - 5) Training will be structured and divided up so that signal personnel can be assigned to receive the blocks of instruction that are relevant to the performance of their specific job duties.

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- 6) The training shall be designed to ensure that nominated personnel can program, operate, install, maintain, and troubleshoot in the field to the defective unit and make effective and reliable repairs, to all equipment provided under the terms of this bid proposal.
- 7) The contractor shall provide an outline training programme with their bids and shall demonstrate that the training will be adequate to bring the nominated JRA staff to the requisite levels of skill. This shall include course content, timing and the level of previous training and experience that will be assumed for the staff.
- 8) The training provider shall test the trainees and provide accreditation to the trainees that passed, to perform maintenance on the UPS systems.

b) Operational Staff

- 1) The operational staff will be trained partly in the classroom and partly “hands-on”.
- 2) The number of training sessions, their duration and the maximum number of trainees per session shall be proposed by the Bidders.
- 3) The Contractor shall submit the syllabus to the project manager for approval and shall agree the dates of the proposed training.

c) Technical Personnel

- 1) The Contractor shall train the Employer’s technical personnel to maintain the equipment and undertake normal activities associated with its operation and use.
- 2) The technical training shall be split into two parts for technical operational staff and maintenance staff.
- 3) The training for technical operational staff shall include all technical operation issues, including the configuration of the UPS.
- 4) The training of Maintenance staff shall cover all aspects of routine and first line maintenance and configuration of the equipment including the use of test equipment and diagnostics provided through to management of a spares parts inventory.

d) Measurement and Payment

- 1) Training will be measured as a Lump Sum which shall cover all preparation of course materials and as well as the time and human resources to provide and run the course.

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- 2) The rate for providing the training shall be based on the training being conducted in Johannesburg, unless otherwise specified by the Bidder.
- 3) Bidders can assume that the training venue shall be at a venue supplied by the bidder.
- 4) Training, measured as provided above, will be paid for at the contract unit price Lump Sum, which price shall be full compensation for furnishing instructors and training materials; for providing the training sessions; and for all labour, equipment, transportation, and incidentals necessary to complete this item of work.

INSTALLATION OF UPS

- i) Installation cost should include all trenching, cabling, sleeves, foundation, earthing, reinstatements, way leaves, etc.
- ii) Usually, the UPS will be installed within two (2) meters from the controller, but can vary depending on site conditions with Project manager approval.

7. INSTALLATION OF CABLES / SLEEVES / PIPES

- a) All cables installed shall be covered with concrete, where applicable.
- b) All sleeves / pipes shall be installed at a minimum depth of 500 mm from the top of the sleeve or pipe to the surface.
- c) The sleeves must be installed complete with 1,5 mm galvanised steel draw wire.
- d) The ends of all sleeves / pipes must be blanked or sealed off by means of end caps to suit the sleeves / pipes.

8. TECHNICAL OPERATIONS MANUALS

- a) All traffic signal equipment supplied shall be furnished with a complete operator's manual which shall comprise a concise set of procedures that the JRA requires in order to operate the equipment.
- b) The technical operations manual shall provide specific procedures to be followed for both hardware and software operations. Instructions shall be detailed but easily understandable. The manual shall include descriptions of all procedures for starting up and shutting down the equipment, modifying the operation, diagnosing faults, etc.
- c) A hardware manual that provides complete technical descriptions of all modules, their servicing and maintenance.

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- d) The manufacturers' recommended procedures for preventative maintenance shall be given. This shall include a chart showing what shall be undertaken at what frequencies.
- e) Procedures for fault diagnosis, testing, location and repair of faults shall be comprehensively covered.
- f) Instructions shall be provided for the maintenance of equipment by specialised trained technicians.
- g) A detailed list of spares and parts shall be provided detailing the desirable stock levels for each item and the typical frequency at which spares need to be replaced.

If applicable, a software manual describing the operation of the software shall be provided and shall be written in such a way that a competent person would be able to understand the functions of the program and be able to configure the UPS and develop the firmware.

9. PRICES

The Bidder will be required to complete the Pricing Schedule attached to this Bid document.

Price increases will only be allowed if all specified details have been provided together with the offer submitted.

Failure to provide the necessary information will result in no price increase be considered. Refer to clause related to SEIFSA index

10. PAYMENT

An official purchase order will be issued for all work and no work should be undertaken without an official purchase order.

11. BIDDER'S PREMISE VISIT

A selected team from the JRA will visit the premises of shortlisted bidder(s) to establish if the bidder:-

Owns a workshop or have access to a workshop.

That the workshop is fully equipped, suitable for UPS equipment and has the capacity to perform preparations for installation, as well as for repairs and maintenance as the need arises.

The JRA team will then share their findings of above and any other observations amongst each other and make a decision if bidder can be recommended for further evaluation. If it is decided not to recommend, then elaborate details must be provided regarding the decision not to recommend further evaluation.

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EXPANDED PUBLIC WORKS PROGRAMME (EPWP) And SMALL, MEDIUM AND MICRO-SIZED ENTERPRISES (SMMES)

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

General SMME

1. The City of Johannesburg has identified job creation and access to procurement opportunities by Start-ups, Small and Micro Enterprises (SMMEs) as an essential requirement towards building an economically viable City. This is at the core of the COJ's service delivery agenda. For the purpose of this tender SMMEs are defined as locally based Emerging Enterprises / Contractors with CIDB grading designation of 1 to 4.
2. "Locally based SMMEs" means enterprises / contractors that have their operational base in the Ward and/or Region in which the project is to be executed or, alternatively, the members of the enterprise are residents in the particular Ward / Region. Should suitable locally based SMME Contractors as defined above not be available in the particular Ward / Region, then they shall be sourced from adjacent Wards / Regions.
3. The form of contract to be used with SMMEs is the SAFCEC General Conditions of Sub-Contract for Civil Works and/or a JRA approved form of contract. The JRA reserves the right to review and comment on any contract documents between local SMMEs and Main Contractor before the contracts are signed. The Contract Data to be issued to SMMEs must record the specific requirements in respect of scope of works, estimated value, duration of the works, penalties, retention and payment terms. The JRA requirement that an owner / director of the SMME company must be present on site at all times must be included in the above contract.
4. The appointed contractor shall appoint local sub-contractors (SMMEs) through an appropriate tendering process to undertake certain activities as identified in this bid to complete the project.
5. This process will be explained during the project inception meeting.
6. Due to the nature of the works it will be more feasible to appoint per region and not per ward.
7. If, however there are not a SMME available for the required works in the specific region then a SMME can be sourced from another area.
- 8.
9. Subcontracting the work to local SMMEs Sub-contractors does not relieve the Contractor from any liability or obligation under the contract.
- 10.
11. The percentage of the work to be subcontracted to local SMME's will be agreed upon as feasible for the different project activities.
- 12.
13. The development of SMME contractors will be undertaken in accordance with JRA procedures and policies.
- 14.
15. Community Retained Earnings must be promoted as far as possible and include
16. Local labour
17. Material purchases (where applicable)
18. Local transport from SMME to pick up EPWP workers and transport to sites
- 19.
20. The local SMMEs subcontractors should be paid by the Contractor within seven (07) days following the submission and approval of their invoices.
21. The local SMMEs subcontractors should be paid every second week.
22. The contractor should attach a copy of invoice/s received from local SMMEs subcontractors including proof of payment to their invoices to JRA.

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23. No payment certificate shall be processed by the JRA if there is an outstanding payment due to local SMMEs subcontractors unless otherwise agreed by the two parties.
 24. JRA requires the Main Contractor to provide assistance in the form of Plant and Equipment; and materials to the SMMEs wherever it is necessary as part of the support system to develop the SMMEs. Provision should be made for this support by the main contractor when compiling this bid.
 25. In order to achieve the goals of this policy and to ensure that the SMMEs are treated fairly and given every opportunity to advance their business whilst delivering a successful project, the Contractor is to note the following and provide for any cost that may be associated therewith.
 - a. The Main Contractor will be expected to have clearly specified the programme dates for work to be executed by local SMME Contractors and these dates are to be included in the contract of agreement between the two parties. It is expected that there is clear congruence between the SMME programme and the overall project programme. It is the responsibility of the Main Contractor to ensure that local SMMEs are issued with a detailed Bill of Quantities (BoQ), Specification, Construction drawings, expected resource plan and planned daily production rates per activity before commencing with works.
 - b. The BoQ shall be broken down to indicate all the cost allowables for each pay item and clear resource allocation per activity shall be indicated.
 - c. The Main Contractor to produce a detailed SMME management and monitoring plan for JRA approval within 14 days of appointment by JRA. The SMME management plan shall entail breakdown of the scope of works to be executed by local SMMEs, SMME selection approach, management and skills transfer approach, number of local SMMEs to be engaged on the project, detailed CVs of the personnel responsible for the supervision of the local SMMEs, and potential training requirements.
 - d. The Main Contractor shall be responsible to monitor and ensure that local SMME Contractors execute works as per the approved scope, specification and programme. The Main Contractor shall provide the JRA with weekly progress reports clearly indicating progress and challenges affecting local SMMEs. The Main Contractor shall hold weekly production meetings with the local SMME Contractors where minutes are to be kept and signed off by both parties.
 - e. The Contractor is to assess the skills of the SMME Contractor and provide the relevant support and training where it is necessary in order for the local SMME Contractors to complete the works to programme, according to budget and specification. The Main Contractor will be expected to provide on-site training to the SMME Contractors that will ensure that the SMME Contractor's staff is suitably trained to execute the works and that they receive sufficient relevant experience on the project.
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- f. The Contractor is responsible for safety compliance on the project and will assist the SMME Contractors in all aspects to achieve safety compliance, that will include:
 - g. Assisting the local SMME Contractors with developing their safety files, legal appointments, etc
 - h. Assisting the local SMME Contractors with achieving safety on site.
 - i. Having tool box talks with the local SMME Contractor's employees on a daily basis.
 - j. Providing all safety equipment and signage.
 - k. Providing safety training where necessary.
 - l. The Main Contractor shall delegate competent and experienced key resource to assist and supervise the local SMME Contractors on full time basis throughout the duration of the works by the local SMME Contractors.
 - m. The Contractor is to provide all the necessary equipment for the timeous monitoring and the checking of the quality of works as carried out by the SMME Contractors.
 - n. The Contractor is to ensure that the SMMEs have allowance within their tendered rates for, provision of necessary plant and tools, or that there is agreement on which of these will be supplied by the Main Contractor and whether there will be charges therefore.
 - o. The Managing Contractor will be expected to monitor the local SMME Contractor's works for quality compliance and provide all the necessary support to local SMME Contractors in order to achieve quality requirements. The Main Contractor is to ensure that if the local SMME Contractor's quality of works does not achieve specification the necessary corrective measures are developed and implemented to assist the SMME Contractors to achieve specification and shall not allow the works to continue until the quality requirements are achieved.
 - p. The Managing Contractor is to generate monthly reports for the JRA that includes the following:
 - i. SMME Contractor resources on the site, i.e. supervisors, labour (as per EPWP reporting requirements), plant, tools and equipment
 - ii. SMME Contractor progress of works on site.
 - iii. SMME Contractor quality control on site.
 - iv. SMME Contractor expenditure on the project versus target expenditure.
 - v. Copies of minutes of the SMME Contractor and Main Contractor progress meetings.
 - vi. Concerns and improvements to be made.
 - vii. The report shall be signed by both the Main Contractor and the local SMME Contractors.
 - q. The tenderers rates shall be deemed to include all labour, plant and materials to achieve full compliance with the above requirements. Failure of the Main Contractor to achieve these requirements may result in the JRA enforcing compliance by appointing 3rd parties if necessary to assist and deducting all reasonable costs for achieving compliance from money due to the Main Contractor.
 - r. Failure of the Main Contractor to achieve the above requirements shall be deemed to be a breach of contract between the JRA and the Main Contractor. The JRA reserves the right to terminate the Contract, should the appointed Main Contractor fail to satisfactorily address the above requirements within 14 days of the commencement date of the contract. Approved documentation will form part of the contract.
 - s. JRA reserves the right to request the Main Contractor to replace any key personnel on site who is deemed performing unsatisfactory.
 - t. A provisional sum has been included in the Schedule of Quantities for the development of SMMEs in terms of the above. The Contractor is required to tender a mark-up on the payments made as part of the developments of SMMEs. The mark-
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SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

up shall be regarded as full compensation for overheads, charges and profits as provided for in clause 6.6 of the General Conditions of the Contract (GCC 2015). The mark up shall not exceed 10%.

26. Supervisor for SMMEs
- a. The successful tenderer shall have a supervisor, which will be required to supervise all the SMMEs employed on the project as part of JRA's mandatory requirements. The Supervisor is expected to have the required expertise for the activities that will be undertaken by the SMME's.

SMME activities

1. The appointed contractor shall utilise Local SMME's for identified activities as per bid document where feasible.
2. The extend of the work for SMMEs sub-contractors shall include and be limited to the following:
 - a. Excavations and backfilling
 - b. Reinstatements. (including supply of material where required)
 - i. Paving
 - ii. Concrete
 - iii. Asphalt
 - iv. Grass
 - c. Road crossing cutting, excavation, sleeve installation re-instatement
 - d. Kerb supply and installations
 - e. Pedestrian ramps supply and installations
 - f. Guardrail installations
 - g. Painting of poles including supply of materials
 - h. Installation of reflective tape
 - i. Installation of traffic sign poles including supply of materials
3. This scope will be limited to the following project activities
 - a. Recabling
 - b. New signals

General EPWP

1. The appointed contractor shall appoint EPWP participants with the guidance from the introductory meeting and EPWP Guide lines.
2. The contractor shall take note that for identified project activities where EPWP participants are used that the contractor will only supply the Skilled and Semi-skilled labourers where the remainder of the labour component required must be EPWP participants.
3. The Contractor shall be required to submit employment data on a monthly basis to the Project Manager and no invoice will be processed by the JRA without the monthly labour data.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

4. Tenderers are to also note that it is an explicit condition of this tender that all EPWP participants (unskilled labourers) on the identified project activities are to be employed from the local community in the region. The Contractor shall in general, maximise the involvement of the local community, including relevant local suppliers.
5. The Contractor shall make all necessary allowances in his programme of work to accommodate and facilitate the delivery training, it may be on the job training with a certificate issued at the end of the employment
6. The Contractor shall be fully responsible for the recruitment and selection of workers to constitute the temporary workforce (EPWP participants).

The Contractor shall advise the Employer's Agent in writing of the numbers of each category of temporary worker which he requires, together with the personal attributes which he considers desirable that each category of worker shall possess (taking due cognisance of the provisions of the Contract relating to training).

The Contractor shall record in writing, the details of all persons applying for employment, including inter alia:

- (i) Name, address, age and gender
- (ii) Marital status and number of dependants
- (iii) Qualifications and previous work experience (whether substantiated or not)
- (iv) Period since last economically active
- (v) Preference for type of work or task.

The Contractor shall make his selection of workers from amongst the applicants, taking due cognisance of his requirements for the workforce and the provisions of the contract in regard to the provision of training to the workforce and in accordance with the following principles:

- (i) No potential temporary worker shall be precluded from being employed by the Contractor on the execution of the Works, by virtue of his lack of skill in any suitable operation forming part of the Works, unless –
 - All available vacancies have been or can be filled by temporary workers who already possess suitable skills, or
 - The Time for Completion allowed in the Contract, or the remaining portion of the Contract Period (as the case may be) is insufficient to facilitate the creation of the necessary skills.

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- (ii) Preference shall be given to the unemployed and single heads of households.
- (iii) The Contractor shall, in so far as is reasonably practicable, give priority to accommodating the applicants' expressed preferences regarding the types of work for which they are selected.
- (iv) The selection process shall not be prejudicial to youth (over the age of fifteen years) and women.

After making his selection, the Contractor shall advise the Employer's Agent thereof, in writing and the Employer's Agent shall, without undue delay, ratify the Contractor's selection.

The provisions of this clause shall apply mutatis mutandis in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time during the Contract.

Terms and conditions pertaining to the employment of the temporary workforce (EPWP participants)

- a. All temporary workers engaged in accordance with the provisions of the Construction Specifications, shall be employed on the terms and conditions of employment as are consistent with those as set out in this Contract.
- b. The Contractor shall implement and adhere strictly to such terms and conditions relating to the employment of the temporary workforce, and subject only to the provisions of this Contract, shall not employ any temporary worker on terms and conditions which are less favourable to the worker or inconsistent with the standards and norms generally applicable to temporary workers in the Civil Engineering Industry and applicable to the particular area.
- c. The Contractor shall pay to all temporary workers engaged in terms of Part A of the Construction Specifications, an amount stipulated by JRA, per hour. Which will be increase annually, with the first adjustment in September 2024.

Labour relations and worker grievance procedures

- d. The Contractor, as the Employer of the workforce, shall be fully responsible for the establishment and maintenance at his own cost, of satisfactory labour relations on site and the resolution of all grievances of temporary workers as may occur.
- e. The Contractor shall at all times adhere to the accepted norms and standards of labour relations prevailing generally in the Civil Engineering Construction Industry and shall conduct himself in a fair and reasonable manner, within the constraints as may be imposed upon him by the terms of the Contract.
- f. In the event of any (EPWP participants) temporary worker engaged by the Contractor in terms of the Contract, being aggrieved with regard to his terms of employment, working conditions and training, he shall have the right, at his discretion, to be supported in any inquiry or disciplinary hearing or investigation instituted by the Contractor by one member of the temporary workforce and one member of the Project Committee, which persons shall be nominated by the worker.
- g. In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures, then either the Contractor or the worker concerned may require that the matter be referred to the Project Committee for further consideration, with a view to facilitate the resolution thereof.

The subcontractors' workforces (EPWP participants)

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- h. The provisions of this Part F shall apply mutatis mutandis to the workforces employed by all Subcontractors engaged by the Contractor and the Contractor shall be fully responsible for ensuring, at his own cost, that the terms of every subcontract agreement entered into are such as to facilitate the application of these provisions in respect of the workforces of all Subcontractors.
- i. The Contractor shall at his own cost and to the extent necessary, assist and monitor all Subcontractors in the application of the provisions of this Specification, and shall, in terms of the Conditions of Contract, remain fully liable in respect of the acts, omissions and neglects of all Subcontractors, in respect of the application of the provisions of this Specification.

Measurement and payment

- j. The Contractor will not be separately reimbursed or compensated in respect of the provision of the workforce and creation of temporary employment opportunities and all the Contractor's costs associated with compliance with the provisions of this part of the Construction Specifications shall be deemed to be included in the rates bided for the various items of work listed in the Bill of Quantities, except where otherwise stated.

EPWP activities

- 1. The appointed contractor shall utilise EPWP workers for identified activities as per bid document where feasible.
- 2. The extend of the work for EPWP workers sub-contractors shall include and be limited to the following:
 - a. Excavations
 - b. Backfilling.
- 3. This scope will be limited to the following project activities
 - a. Recabling
 - b. New signals

EPWP rates

- 1. The rates to be used must be the approved SAFCEC rates.

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CHAPTER 8 : EVALUATION PROCESS AND PRICING SCHEDULE

JRA/25/26

FOR

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

1. PHASE 1: PRE-COMPLIANCE

STAGE 1: SUPPLY CHAIN MANAGEMENT PRE-COMPLIANCE

Bidders will have to complete and submit returnable documents requested in the bidding document to determine their eligibility to participate in the bid. Only those bidders that are responsive to the submission requirements at this stage will be further evaluated at phase 2.

Mandatory requirements:

- a) Bidders must complete and submit the following documents:
 - I. Completion of MBD forms (MBD 4, MDB 5 (where applicable), MBD 6.2 (where applicable), MBD 8, and MBD 9).
 - II. **This bid is subject to a compulsory briefing attendance and failure to comply will lead to an automatic disqualification.**
 - ii. **Bidders are encouraged to pay attention to section 3.12 and 3.13 of MBD4. The verification on CIPC will be done on directors that have interest in other companies. Bidders are required to declare all the companies that they have directorship on.**
 - iii. Registered with Central Supplier Database (CSD).
 - iv. Joint Venture Agreement, in case of Joint Ventures and Consortium (if applicable), clearly indicating the lead partner and percentage (%) sharing/contribution to the JV.
 - v. Latest three-year set of Annual financial statements (e.g. 2023; 2024 & 2025) for the company. It must be three consecutive years and reports to be fully signed by the Director / Managing member. If not consecutive, a letter explaining otherwise must be submitted.
 - vi. Current municipal rates for the Entity and all Directors of the entity not older than 90 days and not more than 3 months in arrears (submit proof of lease agreement where premises are rented and latest invoice) – ***This requirement will not disqualify bidders at this stage, but prior to recommendation stage as per MSCM reg 28(c).***

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

- i. Bidders must have a proof of registration with Department of Labour as an Electrical Contractor; this applies individual companies that are part of JV's
- ii. The bidder must have a CIDB level of at least 6EP.
- iii. Bidder must a proof of a person in employment with a wireman's, the proof must be a valid certified copy of wireman's license. This applies individual companies that are part of JVs.
- iv. Bidders must submit a current Electrical Contractor registration (valid at Official bid closing date). ***Failure to provide these will render the bid non-responsive."***

FAILURE TO COMPLETE AND SUBMIT ALL THE MBD DOCUMENTS WILL RESULT IN THE BIDDER BEING DISQUALIFIED.

Other additional non-mandatory requirements to be submitted with tender document

- MBD 1 Invitation to bid
- MBD 2: Tax Clearance Compliance Requirements Form
- MBD 3: Pricing Schedule (where applicable),
- MBD 6.1: Preference Points Claim Form
- MBD 7 Contract Form
- Originally Certified Copy of Identity Documentation and share certificate (as requested on MBD 6.1) not a copy of a certified copy.
- Originally certified copy of B-BBEE Certificate issued by SANAS accredited verification agent (MBD 6.1) OR a Sworn Affidavit issued in a Dti format.
- A print out of the full CSD Registration report
- Bank Ratings Letter.
- The completed tender document that is scanned page by page and saved in a pdf format on a USB and be submitted together with the documents (Soft Copy).

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

2. PHASE 2: FUNCTIONAL EVALUATION

Bidders who pass through the Pre-compliance evaluation will then be assessed for Functional Evaluation which is discussed in detail in the following sections. **The minimum threshold to qualify a bidder is 70%.** If no bidder scores 70% then the JRA reserves the right to cancel the bid and re-advertise.

The weighting for scoring will be as follows

Criteria				Form of Evidence
Company Experience	Experience in the supply and installation, maintenance and commissioning of traffic signals	5 years and more experience	30	Signed appointment letter(s)/ contract(s) for projects completed for traffic signal bid related projects indicating timeframes And bidder must submit bid related, signed copies of completion certificates for those appointments or signed close out report for those projects that are bid related. Bidders to complete form H in full, failure to comply will lead to 0 points allocation
		Less than 5 years BUT not below 3 years' experience	21	
		Less than 3 years' experience	0	
Project manager Experience	Experience in the installation, maintenance and commissioning of traffic signals	5 years and more experience	20	Comprehensive CV with a progressive career movement (start date and end date on each position (s) held) with contactable referees.
		Less than 5 years BUT NOT below 3 years' experience	14	
		Less than 3 years' experience	0	
Transport	Number of vehicles (light duty vehicles/trucks)	6 vehicles (ldv's/trucks) or more	10	In case of the ownership attached a proof of existing specialised vehicles / trailers available by means of copies of registration certificates in the name of the bidder, OR
		4 vehicles (ldv's/trucks) and more but less than 6 vehicles (ldv's/trucks)	7	

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

		less than 4 vehicles (ldv's/trucks)	0	Proof of lease arrangement with a Fleet lease company listed or verified on the Central Supplier Database (CSD)
Specialised vehicle / trailer	Number of vehicles or trailers with an elevated work platform(bucket) for lifting staff	2 or more specialised vehicles/trailers	10	- In case of the ownership attached a proof of existing specialised vehicles / trailers available by means of copies of registration certificates in the name of the bidder, or, - Proof of lease arrangement with a Fleet lease company listed or verified on the Central Supplier Database (CSD)
		1 specialised vehicles/trailers	7	
		No specialised vehicles/trailers	0	
Staff	Number of Technicians with trade test having at least three years experience in electrical / electronics. (A technician with less than three years experience will not be considered)	6 Electrical / Electronic technicians or more	10	- Original certified copies with a date stamp not older than 6 months from bid closing of trade test certificates in electrical or electronic background. - A comprehensive CV with a progressive career movement (start date and end date on each position (s) held) must be attached for each technician highlighting the years of experience in Electrical/Electronic field. Career progression must indicate start and end date of employment.
		4 Electrical / Electronic technicians	7	
		Less than 4 technicians	0	
Road Markings (Thermo Plastic)	Ability to perform Road markings (thermo plastic) as per bid requirements	Bidder currently has the ability to perform road markings (thermo plastic) or has an agreement with a subcontractor to perform such work	20	- Proof of ability to perform road markings (thermo plastic) indicating completed projects as evidence for evaluation, including registration with CIDB for this activity (code SK) or, - Proof of arrangement with a subcontractor with ability to perform road markings (thermo plastic) indicating completed projects as evidence for evaluation, including registration with CIDB for this activity (code SK). - Signed reference letters from previous clients must be attached in submission.
		No proof submitted of ability required as above	0	
			100%	

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

3. PRICE AND PREFERENTIAL POINTS EVALUATION

The **third phase** is to perform an evaluation of Price and Preferential Points on the bidders that successful qualified on the technical functionality evaluation, i.e. bidders who achieved a minimum score of 70%.

3.1 THE 80/20 or 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price depending on total bid value on the following basis: The financial offer will be scored using appropriate formula, depending on whether Contract amount is Less than or more than R50 000 000 as follows:

80/20

OR

90/10

$$Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$$

$$Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$$

Where

Ps = Points scored for price of bid under consideration
 Pt = Price of bid under consideration
 P_{min} = Price of lowest acceptable bid

4. PRICING SCHEDULE

Prices must be exclusive of VAT, on the pricing schedule.

Rates shall be subject to rise and fall (SEIFSA) where applicable, and the base date is the date of the tender closure. The bidder must provide the price for the non-firm items for the base date or month. Annual escalations will be based on CPA/CPI after 12 months of the contract award and again after a further 12 months.

The quantities set out in the pricing schedule are for evaluation purposes only. It is to be noted by the supplier that the JRA will not be bound by any minimum quantities specified in the pricing schedule.

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5. THE JRA RESERVE THE RIGHTS TO BENCHMARK AND NEGOTIATE PRICE
Upon negotiation the:
 - a. Prices submitted will be compared to the benchmark completed by the JRA.
 - b. Only bidders whose price is within 30%, above or below, of benchmarked price will be taken into consideration for further evaluation.
 - c. Bidders that are above benchmarked total cost but not exceeding 30% of benchmarked price, will be approached to negotiate rates that are within 5% of the benchmark.
 - d. Only bidders that are within 30% of benchmark below or up to 5% above of benchmark, after negotiation will be considered for further evaluation.
 - e. If no bidder is within 30% of benchmark, then JRA reserves the right to consider the bidder with the highest points for appointment.
 - i. The B-BBEE Preference Benefit and Financial Plans of the Bidders who fulfilled all the Functionality Criteria will be evaluated for award of the contract.

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PART 3 SCHEDULE OF RATES

PREAMBLE TO THE SCHEDULE OF RATES

1. GENERAL

- (a) This preamble to the Schedule of Rates provides the Bidder(s) with guidelines and requirements with regard to the completion of the Schedule of Rates. The Schedule has to be completed in black ink.
- (b) The Schedule of Rates shall be read with all the documents which form part of this Contract.
- (c) The following words shall have the meanings hereby assigned to them:

Unit: The unit of measurement for each item of work.

Rate: The payment per unit of work at which the Bidder(s) bids to do the work.

Lump sum: An amount bidden for an item, the extent of which is described in the Schedule of Quantities and the Special Conditions and Specifications, but the quantity of work of which is not measured in any units.

- (d) Where Provisional Costs Sums are specified, the Contractor(s) will be required to submit a quotation from the service provider for the cost and indicate the handling fee that he will be charge on this amount.
- (e) No separate amount is allowed for establishment on site. The rates shall make provision for establishment on site at each location / installation.
- (f) The schedule of Rates makes provision for a typical traffic light intersection and includes sections for reconstruction and maintenance. The total of the summary is not the contract value - the total value of the contract will depend on the number of new traffic signal installations, the layout of each intersection, the number of intersections reconstructed/altered and the extent of routine maintenance required by the Employer.

2. PAY ITEMS

- (a) The abbreviated descriptions of the payment items given in the Schedule of Rates are only for the purposes of identifying the items and providing specific details. Reference shall be made, inter alia, to the Special Conditions and Specifications, General Conditions of Contract and Conditions of Bid for more detailed information regarding the extent of the work entailed under each item.

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- (b) The item numbers appearing in the Schedule of Rates do not correspond to the item numbers in the Special Conditions and Specifications.
- (c) The units of measurement indicated in the Schedule of Rates are metric units. The following abbreviations are used in the pay items of the Schedule of Rates:
- | | | |
|----------------|---|--------------------------|
| lm | = | Linear metre |
| m ² | = | square metre |
| m ³ | = | cubic metre |
| l | = | litre |
| h | = | hour |
| No | = | number |
| % | = | percent |
| prov sum | = | provisional sum |
| The Lot | = | all equipment on TS pole |

3. RATES

- (a) Bidder shall submit a rate for each item and sub-item, failure will lead to bid not being considered for further evaluation.
- (b) The Bidder(s) must fill in a rate for each item in the Schedule of Rates. Items against which no rate is entered or where a word or phrase such as "included" or "provided elsewhere" has been entered, will be accepted as a rate of nil (R0,00) having been entered against such items. Any work executed to which such a pay item applies, shall be measured under the appropriate items in the Schedule of Rates and valued at a rate of nil (R0,00). The rate of nil shall be valid irrespective of the quantities during the execution of the Contract.
- (c) The Bidder(s) shall not group together a number of items and bid one rate for such group of items.
- (d) All rates and sums of money quoted in the Schedule of Rates shall be in rands and whole cents. Fractions of a cent shall be discarded.
- (e) The rates submitted must exclude VAT
- (f) Rates to be inclusive of all transport costs.
- (g) The pricing schedule allows for some items to be linked to SEIFSA price adjustments. The bidder however need to state the percentage of the rate quoted that are linked to SEIFSA. If the bidder fails to state the percentage then it will be taken that the bidder does not require price adjustments for the specific item.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

4. METHOD OF MEASUREMENT

- (a) The work shall be measured in accordance with the methods described in the documents which form part of this Contract. Attention is directed to the provisions of the Special Conditions and Specifications regarding the measurement of quantities.
- (b) Unless otherwise stated, items are measured nett in accordance with the JRA drawings and Project Specifications and no allowance is made for waste or work in excess of that specified.

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

FORM H: COMPANY REFERENCES FORM

THIS FORM IS TO BE COMPLETED BY THE BIDDER'S REFEREES / CLIENT AND NOT THE BIDDER.

Client / Referee:					
Contract Number:					
Contract Description:					
Contract Value: (e.g. R0.5m)					
Start Date: (dd/mm/yyyy)					
Completion Date: (dd/mm/yyyy)					
Duration					
Was their performance satisfactory?	YES / NO				
Was the quality / specification complied with?	YES / NO If No, please furnish details:				
Please rate the service provider out of 5, with 5 being excellent and 1 score being unacceptable	1	2	3	4	5
Client Contact Person: (e.g. D. Dakolo 011 000.0000)					
Duly Authorised 'Personnel signature confirming that: Form is completed in full and that the information provided is a true reflection. (please use a company stamp as well should you have one)					

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

COMPANY REFERENCES FORM

THIS FORM IS TO BE COMPLETED BY THE BIDDER'S REFEREES / CLIENT AND NOT THE BIDDER.

Client / Referee:					
Contract Number:					
Contract Description:					
Contract Value: (e.g. R0.5m)					
Start Date: (dd/mm/yyyy)					
Completion Date: (dd/mm/yyyy)					
Duration					
Was their performance satisfactory?	YES / NO				
Was the quality / specification complied with?	YES / NO If No, please furnish details:				
Please rate the service provider out of 5, with 5 being excellent and 1 score being unacceptable	1	2	3	4	5
Client Contact Person: (e.g. D. Dakolo 011 000.0000)					
Duly Authorised 'Personnel signature confirming that: Form is completed in full and that the information provided is a true reflection. (please use a company stamp as well should you have one)					

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

COMPANY REFERENCES FORM

THIS FORM IS TO BE COMPLETED BY THE BIDDER'S REFEREES / CLIENT AND NOT THE BIDDER.

Client / Referee:					
Contract Number:					
Contract Description:					
Contract Value: (e.g. R0.5m)					
Start Date: (dd/mm/yyyy)					
Completion Date: (dd/mm/yyyy)					
Duration					
Was their performance satisfactory?	YES / NO				
Was the quality / specification complied with?	YES / NO If No, please furnish details:				
Please rate the service provider out of 5, with 5 being excellent and 1 score being unacceptable	1	2	3	4	5
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SCHEDULE OF CONSTRUCTIONAL PLANT AND EQUIPMENT

(To be completed by the Bidder(s))

The Bidder(s) shall state below the constructional plant and equipment which will be immediately available for this Contract, the constructional plant which will become available by virtue of outstanding orders, and further constructional plant which will be purchased or hired for the work should he be awarded the Contract.

(a) CONSTRUCTIONAL PLANT AND EQUIPMENT IMMEDIATELY AVAILABLE

[illegible]

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

(b) CONSTRUCTIONAL PLANT AND EQUIPMENT ON ORDER, WHICH WILL BECOME AVAILABLE

Give details of arrangements made, with date of delivery

DESCRIPTION, SIZE, CAPACITY	NUMBER

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

(c) CONSTRUCTIONAL PLANT AND EQUIPMENT WHICH WILL BE ACQUIRED OR HIRED

DESCRIPTION, SIZE, CAPACITY	NUMBER

Bidder(s)'s authorized Signatory

.....
(BLOCK LETTERS)

.....
SIGNATURE)

Full name of Bidder(s)

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

DETAILS OF SUBCONTRACTOR(S) WHICH WILL BE USED

Subcontractor(s)'s company name	Contact persons	Contact details	Purpose of subcontracting(i.e. electrical, civil, drilling, road marking, etc)

***Note a letter of agreement should be attached to this bid document.**

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

SCHEDULE OF WORK CARRIED OUT BY THE BIDDER(S)

(To be completed by the Bidder(s))

The Bidder(s) shall insert in the spaces provided below a complete list of the last five (5) Traffic Signal and/or Civil Engineering contracts awarded to him.

EMPLOYER (name, tel no. and e-mail)	NATURE OF WORK	VALUE OF WORK	YEAR COMPLETED

Bidder(s)'s authorized Signatory

.....
(BLOCK LETTERS)

.....
SIGNATURE)

Full name of Bidder(s)

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

DETAILS OF ELECTRICIANS

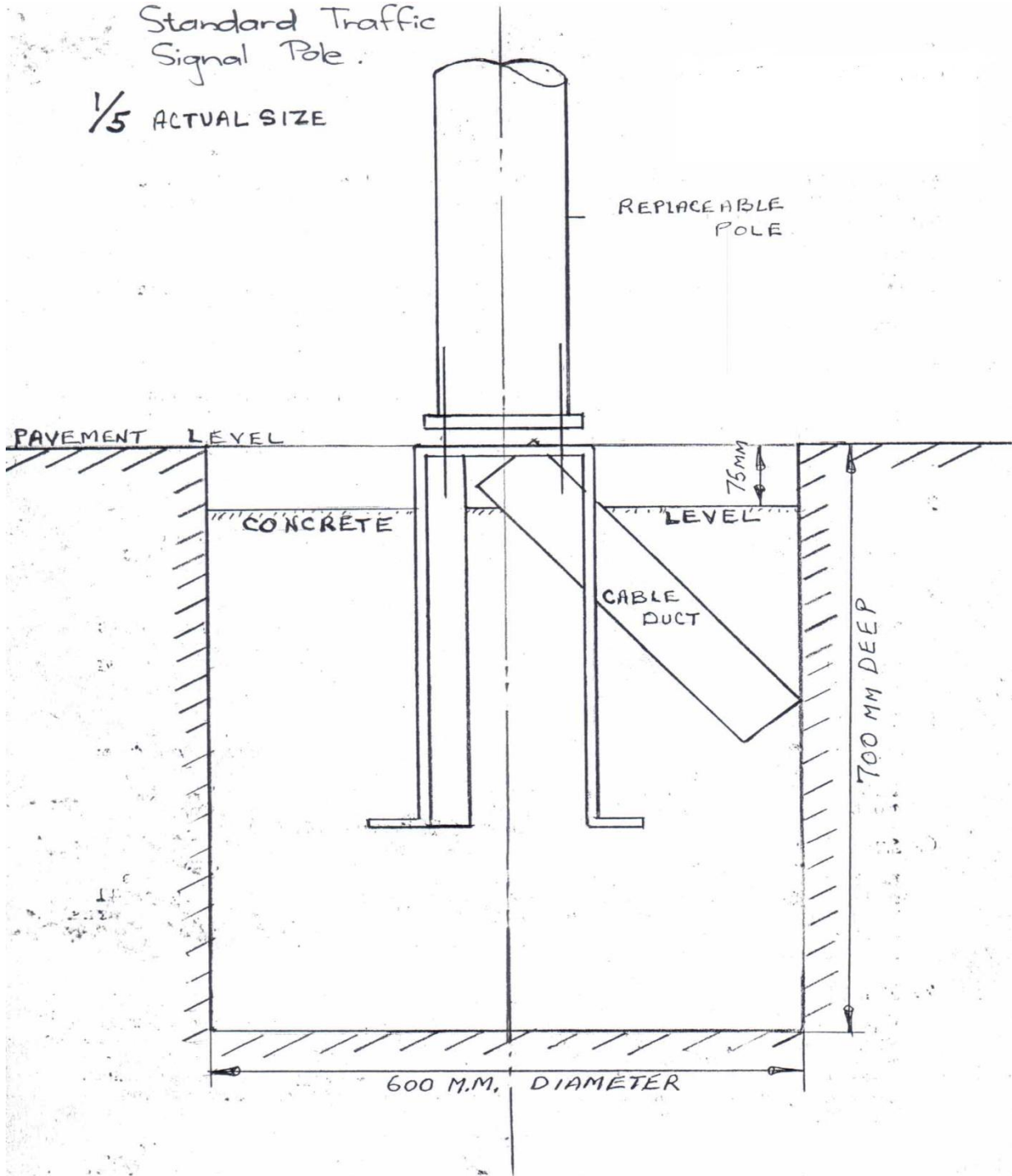
(To be completed by the Bidder(s))

NAME	ID No.	QUALIFICATIONS	KEY EXPERIENCE

ATTACH COPY OF REGISTRATION / CERTIFICATION

Standard Traffic
Signal Pole.

$\frac{1}{5}$ ACTUAL SIZE

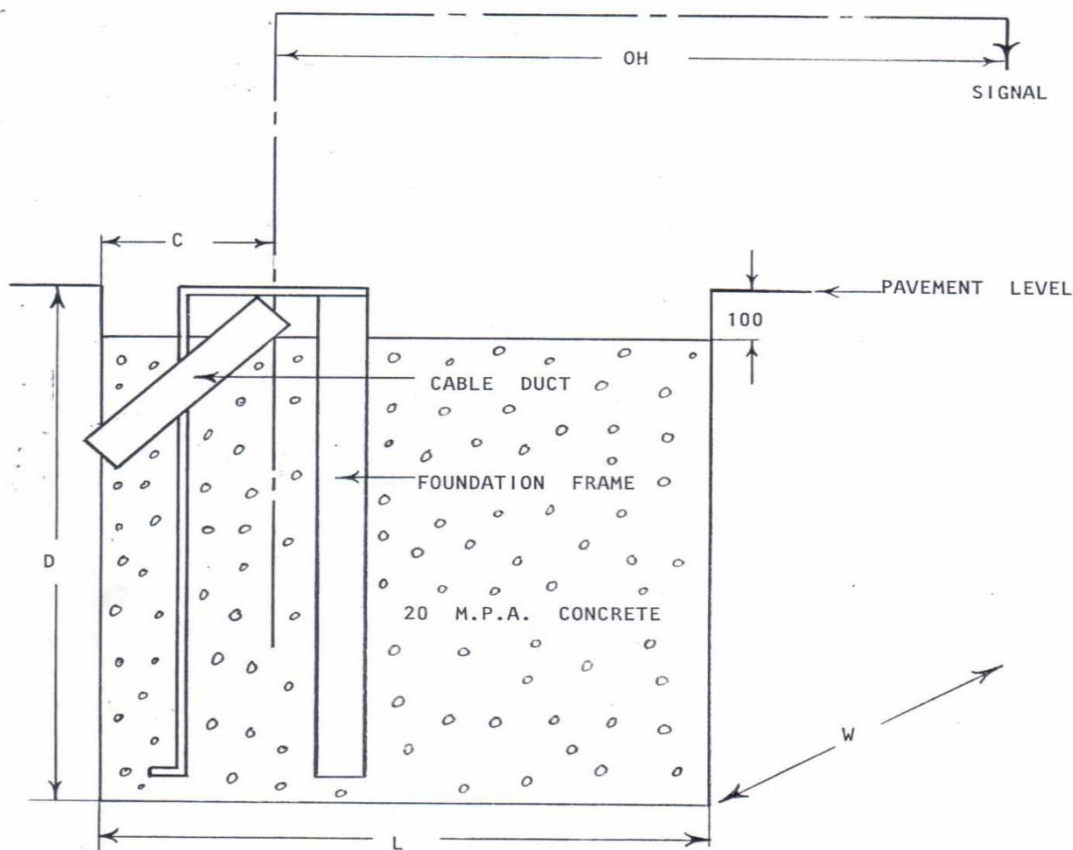


FORM OF BID AND BIDDER(S)'S INFORMATION

JRA 25/26

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

AUTOMOTOR TYPE 5m CANTILEVER POLE FOUNDATION



DIMENSIONS IN M.M.

OH -- 5000

L -- 1000

D -- 1000

W -- 800

C -- 250

JRA 25/26

**SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)
CONTRACT PRICE ADJUSTMENT**

1 Is this a firm price bid?

*YES/NO

***Delete inapplicable word**

NB If neither word is deleted the bid price will be taken to be firm and no adjustment will be allowed, notwithstanding anything to the contrary elsewhere contained.

- b) If answer is "NO", details of adjustment to be stated here (refer to the Conditions of Bid.):
- c) **Note** that the adjustments will be in-line with the SEIFSA tables and proof must be submitted of any adjustment claims.
- d) The bidder however need to state the percentage of the rate quoted that are linked to SEIFSA.
- e) Bidders to note below which tables from SEIFSA will be applicable.

.....

.....

.....

.....

Bidder(s)'s authorised signatory
(NAME IN BLOCK LETTERS)

Full name of Bidder(s) :

SIGNATURE

OMISSIONS AND VARIATIONS

FORM OF BID AND BIDDER(S)'S INFORMATION

JRA 25/26

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

(To be completed by the Bidder(s))

Bids will be held to be entirely in accordance with Johannesburg Roads Agency's specification except in the respects stated hereunder and the goods/services will be subject to rejection if it is found on delivery/implementation that they do not/ it does not comply with the JRA's specification on additional points, which have not been approved in writing:

.....

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If the Bid is in accordance with the JRA's specification in all respects, the Bidder(s) must state so here

.....

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.....

.....

Bidder(s)'s authorized Signatory

JRA 25/26

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

.....
(BLOCK LETTERS)

.....
SIGNATURE)

Full name of Bidder(s)

TRADE REFERENCES

Please provide at least three (3) trade references:

Client	Contact person	Contact number	Account number

PHYSICAL ADDRESS:

.....

POSTAL ADDRESS:

.....

I hereby declare the information provided is correct and true

.....

FOR AND ON BEHALF OF THE COMPANY

.....

DATE

FORM OF BID AND BIDDER(S)'S INFORMATION

JRA 25/26

SUPPLEMENTARY PANEL FOR APPOINTMENT OF CONTRACTORS FOR ALL TRAFFIC SIGNAL ACTIVITY FUNCTIONS SUCH AS ELECTRICAL, ROAD MARKING AND DRILLING AND CONSTRUCTION ACTIVITIES SUCH AS INSTALLATIONS, MODIFICATIONS AND MAINTENANCE OF TRAFFIC SIGNALS INCLUDING THE SUPPLY OF REQUIRED MATERIALS ON THE JRA ROAD INFRASTRUCTURE AS AND WHEN REQUIRED FOR THE PERIOD OF 36 MONTHS (CIDB GRADING 6EP OR HIGHER)

.....
CAPACITY OF SIGNATORY (POSITION HELD IN COMPANY)