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HAZIRA NOTIFIED AREA AUTHORITY

ONLINE TENDER PAPERS

E- Tender Notice No. 02 of 2019-20.Tender Sr. No. 1

	Name of work		Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High Mast Fitting & SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.
1	Estimated cost	:	**Rs. 48,50,979.00**
2	Tender fee	:	**Rs. 1770.00 (By D.D. Only)**
3	E.M.D.	:	**Rs. 48,510.00(By D.D. /F.D.R. Only)**
4	Last date of On-lin (Downloading/Submission)	:	**02-12-2019 to 24-12-2019 up to 17.00 hrs.**
5	Submission in Physical form	:	**26-12-2019 to 27-12-2019 up to 17.00 hrs.**
6	Opening of Technical Bid Submission in Physical form	:	**Dt. 03-01-2020 at 12.00 Noon (Tentative)**
7	Eligible class of Registered	:	**Having 'E -1' Class and above of Registration and above in R & B Electric wing and Experience of similar types.**

OFFICE OF THE CHIEF OFFICER

Hazira Notified Area Authority

30 - Ambica Nagar, Near to Hotel Excellency,
Surat – Hazira Road, Village – Ichhapore,
Post – Bhatha, Surat - 394 510.
E-Mail: nao.hazira@rediff.com
icxenme-vapi@gidcgujarat.org
Ph.No.(0261) 2840208

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I N D E X

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MEMORANDUM OF WORK IN BRIEF

SR. NO	PARTICULARS DETAILS	DETAILS
A	**INSTRUCTION TO BIDDERS**	
1)	**Name of work**	Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High MastFitting& SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.
2)	**Estimated cost**	**Rs.48,50,979.00**
3)	**Joint Venture (J.V.)**	**Joint Venture (J.V.) is not allowed.**
4)	**Earnest Money Deposit (EMD)** - 1% of the estimated cost. In the form of D.D./ F.D.R for the minimum period of 180 days in favor of " **Chief Officer, Notified Area Hazira, Surat**", payable at Hazira from any Nationalized /Scheduled bank/IDBI /AXIS /ICICI /HDFC/ as Narmada / Shrinidhi only except Co-Operative Bank having **Validity period not less than 180 days**. **Note:-Exception Certificate for EMD shall not be acceptable.**	**Rs. 48,510.00 (By D.D. /F.D.R. Only)**
5)	**Tender Fee**	**Rs.1,770.00 (By D.D. Only)**
6)	**Validity period of tender offer.**	120 daysfrom thedate of opening thePricebid oftender.

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7)	**Security Deposit (5%)**	**Rs. 2,42,548.00 (5.00%)**
(i)	In the form of National Small Saving(N.S.C.) Scheme or Narmada Bond of Sardar Sarovar Narmada Nigam Ltd. or F.D.R. of Nationalized or Scheduled bank of minimum Eighteen month time limit in favor of " **Chief Officer, Notified Area Hazira, Surat** " , payable at Hazira	**Rs. 1,21,274.00 (2.50%)**
(ii)	To be deducted from Current R.A. bills that become payable to the contactor from time to time.	**Rs. 1,21,274.00 (2.50%)**
	TOTAL(i + ii)	**Rs. 2,42,548.00 (5.00%)**
		Percentage if any to be deducted from bill so as to make up the total amount required S.D by the time half the work, as measured by the costisdone50%
8)	**Performance Bond (5%)** In the form of Nationalized Bank only or N.S.C. / F.D./S.S.N.N.L. in favor of "**Chief Officer, Notified Area Hazira, Surat**" payable at Hazira for validity period of Eighteen Months which to be paid along with initial security deposit with effect from date of Work order.	**Rs. 2,42,548.00 ((5.00%)** **Note :-** **1). Kindly refer Annexure – 3 of Form B1 - agreement regarding Performance bond format.**
9)	**Liquidated Damages for delay.**	As per **clause No.2 of B-1 Form** attached herewith.
10)	**Defect liability period**	**Twelve (12)** months from the certified date of completion of work / ARC of Repairing & Spares.
11)	**Workers Welfare Cess** Under The Building & Other Construction Workers Cess Act 1996 **(Labour Cess)**	**1%** of the value of work done shall be deducted from the all bills payable to the contractor as per norms of Govt.
12)	**Testing Charges**	**Not Applicable**
13)	**Goods & Service Tax (G.S.T.)**	Applicable as per prevailing rule & regulation of Govt.

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14)	**Time limit** for completion of work from the date of written order to commence.	**Twelve (12) Month. Bidder has to** submit total manpower details as per tender requirement and total maintenance including necessary repairing & replacement/ quality management program to execute the work on or before time limit in CPM / PERT chart &On letter head with Labour License& Insurance for the manpower engaged to carry out for this work.
15)	**Submission date & time of tender documents**	
i)	a) Date on (or before) which the tender with DD/FDR for Tender fee& EMD(by scanning)except required documents must upload on the website of www.gidc.nprocure.com	**From 02-12-2019 to 24-12-2019 up to 17.00 hours for work at Sr. No. 1 to 6**
	b) Submission in physical form:- Date on (or before) which DD/FDR in original for Tender fee & EMD and required documents must reach in the OFFICE OF THE Chief Officer, **30 - Ambica Nagar, Near to Hotel Excellency, Surat – Hazira Road, Village – Ichhapore, Post – Bhatha, Surat - 394 510. Ph. No.(0261) 2840208** (In sealed cover) by personally i.e. by Speed Post / Courier/ Hand delivery only.	**From 26-12-2019 to 27-12-2019 up to 17.00 hours for work at Sr. No. 1 to 6**
ii)	**Mode of sending the tender documents.**	
	a) The tender with DD / FDR/ BG for Tender fee & EMD (by scanning) except required documents	By Online through the– tendering process
	b) DD/FDR/BG in original for Tender fee & EMD and required documents	In sealed cover by personally i..e by Speed Post / Courier/ Hand delivery only to OFFICE OF THE Chief Officer, NAO, GIDC, HAZIRA, **30 - Ambica Nagar, Near to Hotel Excellency, Surat – Hazira Road, Village – Ichhapore, Post – Bhatha, Surat - 394 510. Ph. No. (0261) 2840208.**

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16)	**Opening of Technical bid**	**In the Office of Chief Officer, NAO, GIDC,Hazira,30 - Ambica Nagar, Near to Hotel Excellency, Surat – Hazira Road, Village – Ichhapore, Post – Bhatha, Surat - 394 510as under:-Approximate Dt. 18-02-2019at 12.00 hrs by E-Tendering process.**
17)	**Opening of Price Bid**	On evaluation of Technical Bid offer, Price Bid of pre-qualified bidders only shall be opened and Will be intimated later to pre-qualified bidders only.
18)	**Tender to be opened by**	In the Office of Chief Officer, NAO, GIDC, Hazira **30 - Ambica Nagar, Near to Hotel Excellency, Surat – Hazira Road, Village – Ichhapore, Post – Bhatha, Surat - 394 510.** as under:-
19)	Description essential to be made on sealed cover for documents to be submitted In sealed cover by REGISTERED POST A.D. / Speed post /Courier/ Hand Delivery ONLY	**(1)** Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High Mast Fitting & SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E. **(2)** Last Date of receiving the documents : From 26-12-2019 to 27-12-2019 up to 17.00 hours
20)	Mode of Tender	**Percentage Rate Tender (Form B-1 Agreement)**
21)	Mode of quoting the rate in Schedule "B" attached with Tender document.	In figures as well as in words. Any missed-outs, discrepancies it may attract rejection of tender.
22)	**Important Note:-** **Mode of payment:-**	❖ For any technical discrepancy, the latest version of **IS / IEC** CODE shall be applicable. ❖ Bills shall be prepared on Monthly/Bi-monthly basis.
23)	Price variation for cement and steel or copper etc. any material brought by contract.	Not Applicable

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24)	Mandatory Documents to be submitted online.	1) Registration Certificate of Approved contractor / Special category. 2) Bank solvency certificate- Current financial year(20% of Estimated cost). 3) Partnership deed / Power of Attorney with certificate of registration of Firm. 4) (In case of partnership Firm) Last 3 years Income Tax Return filed & PAN Card details. 5) GST Registration 6) R.P.F.C. registration certificate with latest Challan 7) Experience Certificate (Form -3A) of Similar type work completed within last five years and give information of all projects in progress in the prescribe format **(Schedule-E).** 8) C. A. Certified last five financial year Turn over for Electro-Mech Work. 9) Notarized undertaking on Rs.100/- stamp paper in prescribe format**(Appendix –B)** for deploying machinery/equipment for the work . 10) Bidder has to submit the **Annexure – D** of Street light fixture along with online bid. **Note :-**Non submission of above credentials / supporting documents shall be liable for rejection of the bid and treated as Non-responsive NAO, GIDC, Hazira reserves the right, without any obligation or liability, to accept or reject any or all the bid at any stage of the process, to cancel or modify the process or any part thereof or to vary any of the terms and conditions at any time, without assigning any reason
25)	Contact Person for Site Visit :	**1 Shri D.M.Patel** **Chief Officer, NAO,GIDC, Hazira** **Mo. No. 9879110080** **Office Phone No. : (0261) 2840208** **2. K.N.Shah** **I/c. Executive Engineer (M&E),** **NAA, GIDC, Hazira** **Mo. No. 9427892301**

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Notified Area Authority, Hazira, Surat.

Tender Notice No. 2/2019-20

TENDER NOTICE

E-Tenders for various works having estimated cost between Rs.25.00 lakh to Rs. 500.00 lakh invited by the Chief Officer, Hazira Notified Area, Surat Ph. 0261-2840208.

Online tender the procedure for bidding, relevant details viz. Last date of receipt, submission of documents and details, EMD, tender fee etc. & date of opening of Bid is given in the detailed tender notice on website www.gidc.govg.in and www.nproucre.com. The intending bidder is requested to kindly go through the detailed tender notice thoroughly before bidding and which will form a part of tender agreement.

Date of issue- 02.12.2019 to 24.12.2019 up to 17:00.

Date of physical documents receipt on 26.12.2019 and 27.12.2019 up to 17:00 Hrs.

The detailed tender notice can be seen from the office notice board as well as GIDC's Web Site: www.gidc.gov.in further additional details, kindly contact Chief Officer, Hazira Notified Area, Surat. Exemption certificate for Earnest Money Deposit shall not be acceptable.

Right to reject any or all the tenders without assigning any reasons thereof are reserved by Chief Officer, Hazira Notified Area, Surat. Please stay touring above web site for any corrigendum / addendum/ modification till last date of receipt.

Chief Officer
Notified Area Hazira
Surat.

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NOTIFIED AREA HAZIRA

Office of the Chief Officer

30- Ambica Nagar , Near to Hotel Excellency,
Surat Hazira Road , Village : Ichhapor, Post : Bhatha,
Surat - 394510, Ph. No. 0261-2840208
Email: - nao.hazira@rediffmail.com

E-TENDER NOTICE NO. 02 OF 2019 -20

E-tender for the following works of Notified Area Hazira are publically invited from the intending bidders, by the Chief Officer Notified Area Hazira,"Surat", 30- Ambica Nagar , Near to Hotel Excellency, Surat Hazira road , Village : Ichhapor, Post : Bhatha,Surat - 394510,by E-tendering only, on web site https://www.nprocure.com, www.statetenders.com (i) whose names are borne on the approved list of registered contractors in the required class & category with Gujarat State R&BD/W.R.D/GIDC & other State Governments equivalent AND (ii) and the intending bidders who are registered in appropriate category of C.P.W.D., M.E.S., Railways and Indian State Governments, can also bid provided the bidder produce such registration certificate at the time of bidding and obtain registration in required class & category from the Gujarat State R&BD/W.R.D/GIDC before issuing work order. Bidder will solely be responsible for obtaining the required registration.

The tender under Sr. No.01 to 06 is invited in Two Bid system (Technical Bid & Price Bid) with PQ application will be opened on schedule date, specified under schedule of E-tender.

GENERAL DETAILS OF WORKS:

Sr. No	Name of work	1. Estimated cost 2. Earnest Money Deposit 3. Non-refundable Tender Fee	Class of registration
ONLINE TENDER			
	NOTIFIED AREA HAZIRA		
1	**Annual Rate Contract (ARC) for Operation, Maintenance & Repairing of 150 watt HPSV type Street Light Fitting & High Mast with including special Repairs & HNA, GIDC, Surat.**	**1). 48,50,979.00** **2). 48,510.00** **3). 1,770.00**	**E-1 Class and above in R&B Electric Wing**
2	Strengthening, widening, Re-carpeting and Strom water Drain of Auro Uni. Road @ HNA Surat.	1). 3,91,40,299.58 2). 3,91,403.00 3). 7,080.00	A Class and above, Spl. Category of Road work

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3	Construction of Fire Station at 326,327, Icchapore 46 - Hector, GIDC Opposite O.N.G.C ,Hazira Notified Area , Surat	1). 2,67,96,023.29 2). 2,68,000.00 3). 4,248.00	B - Class and above
4.	Construction of Office Building at 326,327, Icchapore 46,Hector, GIDC Opposite O.N.G.C ,Hazira Notified Area , Surat.	1). 2,38,26,069.90 2). 2,38,300.00 3). 4,248.00	B - Class and above
5	Supply and Fabrication Foam Tender & Multipurpose Fire Tender as Fire Fighter including design, fabrication, providing chasses and necessary accessories at Hazira Notified Area 2019-20.	1). **----------** 2). 2,00,000.00 3). 4,248.00	Agency having five years experience in govt. & semi govt. department for such type of work.
6	Construction of Storm Water Drain including Pipe Culvert with Approach Road at IOCL Road for Hazira Notified Area (HNA) Surat for the year 2019-20.	1). 4,74,59,444.00 2). 4,74,594.00 3). 7,080.00	A -Class and above

(A) SCHEDULE OF E-TENDERING

(i)	Downloading of Tender Documents from Web site of www.gidc.nprocure.com**.** (The tender document for these work are available only in Electronic format which Bidder can download at free of cost)	**1) From 2-12-2019 to 24-12-2019 up to 17.00 hours for work at Sr. No. 1 to6**
(ii)	**SUBMISSION OF TENDER** **(A) Online submission** I) Online submission of bid documents. II) Scanned copies of DD for tender fee & EMD in electronic format only through online	**a) From 2-12-2019 to 24-12-2019 up to 17.00 hours for work at Sr. No. 1 to6**
	a) Other Documents required to be submitted by scanning in electronic format only through online **1) Required Class of registration** **2) Valid Bank Solvency**	**a) From 2-12-2019 to 24-12-2019 up to 17.00 hours for work at Sr. No. 1 to 6**
	(B) Submission in physical form I) D.D. / FDR in original (for Tender fee & EMD), class of registration, valid bank solvency & Other documents mentioned in para C, Sr. No. 5 for the	**a) From 26-12-2019 to 27-12-2019 up to 17.00 hours for work at Sr. No. 1 to 6**

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	purpose of verification only (in physical form) by personally i..e by Speed Post / Currier / Hand delivery. **(Kindly refer C-1,2 &3)**	
(iii)	**Opening of Technical Bid documents.**	**Office of the Chief Officer,30- Ambica Nagar , Near to Hotel Excellency, Surat Hazira Road , Village : Ichhapor, Post : Bhatha, Surat - 394510,Ph. No. 0261-2840208On dtd. a) 03-01-2020 at 12.00 noon**

(B) On line Submission of Tender

1) Bidders can prepare & edit their offers number of times before tender submission date & time. After tender submission date & time, bidder cannot edit their offer submitted in any case. No written or online request in this regard shall be granted.
2) Bidder shall submit their offer i.e. Pre-qualification document with Technical Bid & Price Bid in Electronic format on above mentioned website & Date shown above after digitally signing the same.
3) **For the purpose of verification**, the original documents for Pre-qualification submitted in electronic format for Sr. No. 01 to 06 should be submitted in physical form as under:-
   - For Sr. NO. 02 to 06 O/o Chief Officer 30- Ambica Nagar , Near to Hotel Excellency, Surat Hazira Road, Village : Ichhapor, Post : Bhatha, Surat-394510 (Phone-0261-2840208)
   - For Sr. NO. 1 O/o Executive Engineer, GIDC Vapi, Administrative Building, Plot No.C-5/101 New Telephone Exchange Road GIDC Char Rasta Vapi-396195

   By personally i.e. by hand delivery during office hours.

4) Offers submitted without digitally signed will not be accepted.
5) Offers i.e. Pre-qualification document with Technical Bid & Price Bid in physical form will not be accepted in any case.
6) It is Bidder's responsibility to verify Online Corrigendum / Amendments until last submission date and time as well as before Final Submission of Bid.
7) Required documents for pre Pre-qualification document received later than the time specified will not be accepted in any case and the bid of that bidder shall be considered non-responsive.

(C) Submission of Tender Fees, EMD.

1) Interested Bidders can view these tender documents online, but bidders who are interested in bidding these tenders can download tender documents from web site as mentioned above and bidder who wish to submit their offer shall pay non-refundable **tender fee in the form of Account Payee Demand Draft payable at Surats under drawn on any Nationalized Bank in favour of**
   - **Chief Officer Notified Area Hazira,Surat for work at Sr. No. 01 to 06**
2) EMD in the form of Account Payee Demand Draft / F.D.R. payable at Surat drawn on any Scheduled / Nationalized Bank in favour of Hazira, Chief Officer Notified Area Surat. EMD in the form of Bank Guarantee of the Scheduled Bank or Nationalized Bank also acceptable as per the manner set out in the prevailing Form B1, Form B2 & Form C Agreement.
3) Demand Draft for E.M.D. & Tender Fee shall be submitted in Electronic Format only through Online (by scanning) while uploading the Bid. This submission shall mean that E.M.D. & Tender Fee are received. Accordingly, offer of those shall be opened whose E.M.D. & Tender Fee is received electronically. **However, for the purpose of realization of D.D., Bidder shall send the D.D. in original to Chief Officer**

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Notified Area Hazira, Surat for the works in the manner set out in above point (C -1 &, 2) by personally i.e. by Speed Post/ Currier /Hand delivery during office hours as per **point No. B-3.**

4) **Required Documents mentioned as under (a), (b) & (c) are mandatory for submitting scanned copies through ONLINE. Otherwise tender offer shall be treated as NON RESPONSIVE, without any further intimation.**
   a) Scanned copy of tender fee and EMD
   b) Required Class of registration, Latest Income Tax return filed, RPFC registration certificate with latest challan, GST Registration & Pan Card.
   c) Fresh Valid Bank Solvency- (Calendar Year) - (20% value of the estimated cost put to tender)

5) **For the purpose of verification,** the original documents submitted in electronic format should be submitted in physical form **for the works in the manner set out in above point (C-4)** by personally i.e. by hand delivery during office hours.

- **Chief Officer Notified Area Hazira, Surat for work at Sr. No. 01 to 06**

Tender fee, EMD in original and other required documents for verification received before or later than the time **specified (a) from 26-12-2019 to 27-12-2019 for work at Sr. No. 1 to 6** will not be accepted in any case and the bid of that bidder shall be considered non-responsive. HNA will not be responsible for delay in receipt of such documents due to any reasons by the postal department or any other agencies.

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(A) GENERAL :

(1) Intending bidders or their representative who wish to remain present at the time of tender opening can do so.

(2) The fees for on line tender document will not be refunded under any circumstances.

(3) EMD in the form specified in tender document only shall be accepted.

(4) **Exemption certificate for Earnest Money Deposit should not be acceptable.**

(5) Tenders without Registration Certificate, Special Category Certificate, Solvency Certificate, Tender document fees, Earnest Money Deposit (EMD) and which do not fulfill all or any of the condition or submitted incomplete in any respect will be rejected.

(6) This tender notice shall form a part of tender document.

(7) Conditional tender shall not be accepted.

(8) Rules of GIDC are binding to the Tenderer.

(9) Tenders without tender fee, Earnest Money Deposit (EMD) and other required documents specified above which do not fulfill all or any of the condition or submitted incomplete in any respect will be rejected.

10) Hazira Notified Area(HNA) reserves the rights to reject any or all tenders without assigning any reason thereof.

11) Please stay touring above web sites for any corrigendum / addendum/ modification till last date of receipt.

12) If any clarification / query regarding these tenders is required, do not hesitate to contact our concern Executive engineers through mobile.

For Notified Area Hazira-Shri D. M. Patel –Chief Officer - Ph. 0261-2840208 (Work at Sr. No. 2 to 6)

For Vapi Division (M&E) - Shri Kushal. Shah – Deputy Engfineer & i/c. Executive Engineer - Mo. 9427892301 (Work at Sr. No. 1)

For any further additional details, can be seen / available in the Office of the Chief Officer Notified Area Hazira, Surat for works under their jurisdiction as under:-

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PROFORMA FOR SUBMISSION OF LETTER

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To,
The Chief Officer,
Hazira Notified Area,
30 - Ambica Nagar, Near to Hotel Excellency,
Surat – Hazira Road, Village – Ichhapore,
Post – Bhatha, Surat - 394 510.
Ph. No. (0261) 2840208.

SUB : Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting & 250W HPSV type High Mast Fitting & SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.

Dear Sir,

1. With reference to the tender invited by you for the above mentioned work/s, I/We do hereby offer to perform, provide execute complete and maintain the work/s in conformity with the drawings, conditions of tender articles of agreement and conditions of contract, specifications, and bill of quantities for the sum of Rs._____ (Rupees _____Only) at the rate quoted in the bill of quantities.

2. I/We have satisfied ourselves as to the location of site, examined the drawings and read of Articles of Agreement, conditions of tender, conditions of contract and specifications etc. and I/We understand that the works are to be completed within _____ calendar months. I/We agree to finish the whole of the work/s within _____ calendar months from the date of commencement of the work fully understanding that the time is the essence of the contract.
3. We have independently considered the amount of liquidity damages as stated in the appendix and the general conditions of the contract and agree that it represents fair estimate of the loss likely to be suffered by Employer in the event of the works not being completed by us in time.
4. If our tender is accepted, we will, when required, furnish the security deposit for the sum named in the appendix to the general conditions of the contract for the due performance of the contract.
5. We agree to abide by this tender for the period of **120 days** **from the date of opening of tender**, which may be extended further by mutual agreement. It shall remain binding upon us. If the tender is withdrawn by ourselves, our earnest money will be forfeited.
6. Unless and until a formal agreement is prepared and executed this tender together with your written acceptance thereof shall constitute a binding contract between us.
7. We agree that at your sole discretion and without assigning any reason whatsoever, you reserve the right to accept and/or reject any or all tenders. The owner, does not bind itself to accept the lowest tender.

Yours faithfully,

(Signature of the tenderer with the seal of the firm)

WITNESS :

1. Signature :
   Name :
   Address :
2. Signature :
   Name :
   Address :

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INSTRUCTION TO THE BIDDERS

1. If the tender is taken in favor of a company, a "Power of Attorney" in favor of the person who can sign the tender for the company, must accompany the tender.

2. If the tenderer are firm, company or limited concerns, they shall mentioned the names of all the partners or the Directors, as the case may be in their forwarding letter and indicate the name of person who holds, the power of attorney, authorizing him to conduct all transactions on behalf of the firm, company or limited concerns. A true copy of partnership deed or the articles of Association and power of attorney shall be attached with the tender, in case the tender is finalized in favor of successful tenderer. The contractor shall have to enter into the agreement as per the rules.

3. EMD :

   a) Earnest money shall be paid in the form or demand draft or FDR from any nationalized bank/ Schedule bank/IDBI/AXIS/ICICI/HDFC Bank only, Earnest Money in cash or cheque or bank guarantee shall not be accepted EMD shall be valid for minimum period of 180 days. The EMD shall be drawn in favor of the **CHIEF OFFICER (NA),GIDC, HAZIRA.**

   b) Units registered with industries Dept. or with NSIC as a small scale Unit shall have also to pay prescribed tender fees and earnest money deposit Govt. exemption certificate for EMD shall not be valid for GIDC/NAA work.

   c) The amount of earnest money deposit to be paid in the form of DD/FDR in favor of **CHIEF OFFICER (NA),GIDC, HAZIRA** shall be attached along with the tender only, otherwise it will not be accepted at all.

   d) The earnest money deposit of the unsuccessful contractor(s) shall be returned without interest within reasonable time after final decision on the tenders and after entering into a contract with the Corporation by the contractor whose tender is accepted.

4. The contractor shall have to furnish labour license, insurance of engaged staffs, service tax No., R.P.F.C.,P.F code if applicable before his tender is accepted and intimate assessment number and ward under which is accessed copies of certificate as regards previous experience if any, must accompany the tender.

5. VALIDITY (120 days minimum)

   The tenders submitted by tenderer shall remain valid for acceptance for acceptance for a period of 120 days from the last date of reciept of tender on line out for the execution of the work in case accepted tender, will be given within a period of 120 days from the lastdate of receipt of online tender. The tenderer shall not be entitled during the said period of the 120 days without written consent of GIDC/NAO. To recover or cancel his tender to vary the rates given or any terms thereof. Incase of tenderer revoking or canceling or varying any terms of the tender without the written consent of

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GIDC/NAO shall forfeit EMD paid by him/ then along with the tender and take further necessary actions.

6. Declaration showing all works on hand with the contractor and the value of works of that remains to be executed in each must accompany the tender.

7. The rates for items in Schedule-B must be given in works and figures, amount of each item must also be entered in column of amount and the tenderer must strikes out grand total of the amount.

8. The contractor shall initial all pages of Schedule-B and specifications.

9. The contractor shall sign all corrections, erasures and overwriting and original tender papers shall be returned invariably.

10. The successful bidder has to enter in prescribed agreement **FORM-B – 1/,** if it is desired to study the same, it is available in the office of **CHIEF OFFICER (NA)GIDC, HAZIRA**.

11. Right is reserve to reject any or all tender without assigning any reason thereof.

12. The administrative prevailing rules of NAO/GIDC/Govt. are applicable to the tenderer.

13. The Contractor will be required to pay cess of 1% of construction cost and it will be deducted from RA Bill.

BIDDER'S SIGNATURE

CHIEF OFFICER (NA)
GIDC, HAZIRA

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BID EVALUATION CRITERIA / INSTRUCTIONS FOR PRE QUALIFICATION APPLICATION

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INSTRUCTIONS FOR

PRE-QUALIFICATION APPLICATION

1.0 Application for pre-qualification shall be submitted in prescribed format attached herewith.

2.0 The enclosed schedules should be filled in completely & if any particular query is not relevant. It should be stated as "NOT APPLICABLE". Financial data, project cost value of works etc. should be given in Indian Rupees only. Failure to provide information, which is essential to evaluate the applications & qualifications or to provide timely clarification or supplementation of the information supplied may result in the disqualification of applicant.

3.0 Letter of application is attached with technical bid.

4.0 Prequalification evaluation:

a) Initial screening
b) Detailed screening

5.0 <u>Qualification Criteria</u> :

(a) <u>Annual Turn Over</u>

i. Annual turnover of any one of the last five financial years i.e. from**2014-15 to 2019-20**updated to the current financial year shall be more than **Rs.48.50 Lacs.(x).**

ii. For arriving at updated value, turnover of any financial year shall be multiplied by the enhancement factor corresponding to that year. These enhancement factors shall be as given in Para 7.0 herein below.

[For guidance of deriving X : This value shall be derived by dividing amount put to tender by the time limit expressed in years for the proposed work.]

(b) <u>Successful Experience</u>

The Bidder must have as prime contractor successful experience of Annual Rate Contract (ARC) for Operation, Maintenance & Repairing of various types of Lights (i.e. Sodium Light, Tube Light, LED Lights and High Mast Street light) with man power and allied necessary **having valid registration in "E-1"class (Electrical Wing) & above** as below.

i. At least Three similar work (having updated completion cost not less than Rs. 19.40 Lacs (40% of the amount put to tender of the proposed work)

Or

i. At least Two similar work having updated completion cost not less than Rs. 24.25 Lacs (50% of the amount put to tender of the proposed work)

Or

i. At least One similar work having updated completion cost not less than Rs. 38.80 Lacs (80% of the amount put to tender of the proposed work)

1) Such work must have been completed within last five financial years i.e. from **01/04/2014** till the due date of bid for the proposed work.

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2) For updating completion cost of the work to the current financial year, procedure narrated in **5(a) ii** shall mutatis mutandis apply.

[c] Bid Capacity:

i. The bidder must have Available Bid Capacity (ABC) more than the amount put to tender.
ABC = 2 * A * N – B
Where
A is the maximum of updated total amount of works executed in any one year of the last five financial years i.e. from **2014-15 to 2019-20**
N is the number of years prescribed for completion of the proposed work.
Bis the amount of the existing commitments and ongoing works to be discharged during time interval of **N** years from the bid due date.
For the purpose of updating amount of works executed in any year, procedure narrated in para **5 (a) ii** shall mutatis mutandis apply.
Existing commitments shall include all such works for which letters of acceptance of the tenders have been received by bidder till the date on which bidder has submitted his bid for the proposed work.

6.0 Other Requirements:

a. Bidder's registration

i. Only those bidders "E-1" Class & above registered with R & B (Electric Wing)/ W.R.D. or equivalent shall bid whose names are in the approved list of registered contractors in the required class & category with Gujarat State R&BD/W.

ii. The contractors, who are registered in appropriate category of C.P.W.D., M.E.S., Railways and Indian State Governments, can also bid, provided the bidder produce such registration certificate at the time of bidding and obtain registration in required class & category from the Gujarat State R&BD/ W.R.D. before issuing Work Order. Bidder will solely be responsible for obtaining the required registration.

b. ~~if the prime bidder has not such kind of experience of operation & Routine maintenance of pumping stations at Drainage/STP/ETP/CETP than the prime bidder must have to produce MoU with the agency having valid registration in "E-1"class (Electrical Wing) & above and experience of operation & routine maintenance of pumping stations of Drainage/STP/ETP/CETP.~~

~~**Note:-**~~
~~**MoU must be executed for the said work on RS. 100/- stamp paper and duly notarized and to be submitted through On-Line, falling to which agency will be disqualified for opening of his price bid.**~~

b. Litigation history

The applicant should provide accurate information on litigation and /or arbitration resulting from Contracts completed or under execution by him over the last five years. A consistent history of

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arbitration awards/ judgments against the applicant or any partner of a joint ventures may result in disqualification for proposed work. If the details of Litigation History is hidden by the applicant and later on it comes to knowledge of the employer the bidder shall be disqualified for the proposed work and other appropriate actions shall be taken against the bidder.

Information of litigation history in following statement to be submitted, if any other wise Nil / Not Applicable statement to be submitted.

LITIGATION HISTORY

Sr. no	Name of contract	Work completed or under execution	Financial year	Brief Details of the arbitration/ litigation matter	Department in opposition	Whether awards/ Judgements is pending or made?	Details of Result of arbitration/ Judgement	Whether judgement in favor or in against.

C. Machinery/ Equipment

Bidder shall have to assure availability of machinery / equipments in working condition as per Appendix-B. If bidder fails to provide proof of assured availability of required machinery, he will be disqualified for the proposed work. Machinery ownership document or lease/ hire agreement for the work under tender shall be considered as valid proof for assured availability.

d. Bidding in E-tendering

i. Submission of application must be through e-tendering i.e. Electronic form

ii. Bidders shall have to submit the bid in E-Tendering form only.

ii. Bids of those bidders who have submitted all information, statistical details as required in the bid document through E-Tendering will only be considered. If the Employer desires any clarification, for verification/ clarification, ambiguity or difference found in the documents/ statistical details submitted online (by E-Tendering) by the bidder, the same shall be furnished within stipulated time, otherwise further processing wil be carried out in absence of above and the bidders shall be liable for any consequence.

iii. No bidder can participate in more than one bid for proposed work.

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e. Submission of documents

Following documents/ papers shall form part of the bid.

1. CA Certified & copy of Annual turnover certificate issued by chartered accountant for last five financial year from 2014-15 to 2019-20.
2. Tender fee (To be submitted online & physically in original)
3. EMD (To be submitted online & physically in original)
4. Registration Certificates
5. Valid Bank solvency certificate. (20% value of Estimated Cost put to Tender)
6. Partnership deed / Power of Attorney with certificate of registration of Firm

   (In case of partnership Firm)
7. Latest Income Tax Return filed
8. PAN Card details.
9. GST registration certificate.
10. R.P.F.C. registration certificate
11. R.P.F.C. latest Challan paid.
12. Copy of Form 3A issued by employer to substantial successful experience of similar work. When employer of similar work is not a government body, following need also to be furnished.

    a. Self-attested copy of Work Order.
    b. Self-attested copy of agreement
    c. Self-attested copy of Completion certificate.
    d. Self-attested copy of Final Bill
    e. Self-attested copy of TDS certificates
    f. Self-attested copy of letter of permission given by employer for subletting the work
13. Existing commitments and ongoing works as per schedule –E
14. Litigation/ Arbitration history

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15. Proof of assured availability of required Machinery/ equipment

16. An undertaking for truthfulness of information furnished.

ii. Any information data, statistics etc. which are not related to bid document will not be considered in evaluation even though furnished by the applicant.

iii. In accordance with stipulation of Para 11d (iii), Employer reserves the right to call any information/ document which is mandatory, essential and critical for the purpose of evaluation. Any information provided by the applicant after last date of Electronic submission will not be considered in evaluation, unless except the employer has specifically asked for any information/ document, which is mandatory, essential and critical for evaluation of PQ document. If required information is not furnished within stipulated time, proposal will be liable for rejection.

iv. If any of the information provided by the bidder is found false during scrutiny or at the later stage, his EMD shall be forfeited and he shall be disqualified for the proposed work. If any of the information provided by the bidder is found false after award of work, the performance security of the bidder shall be forfeited and the contract shall be terminated.

7.0 Escalation Factors

Following enhancement factors will be applied to annual turnover and completion cost of works to bring them to the base year. The current financial year in which bid is invited shall be considered as the base year.

Year	Financial Year	Enhancement factor
2019(year of inviting tender)	2019-20	1.0
2018	2018-19	1.1
2017	2017-18	1.21
2016	2016-17	1.33
2015	2015-16	1.46
2014	2014-15	1.61

8.0 The pre-qualification documents received from the CHIEF OFFICER (NA), GIDC, HAZIRA shall be considered by Evaluation committee of GIDC/NAO.

8.1 Committee shall ascertain whether the bidder

[i] Possess good track record of technical ability from his past completed works.

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[ii] Have experience of similar nature of work.

[iii] Have technical knowhow and expertise for the work under reference

[iv] Have financial resources, available loan facility and available construction machineries

8.2 DETAILED SCREENING:-

The committee will evolve a suitable methodology before opening of Price Bid for making final assessment of the Suitability of the firms who have applied for qualification which also include the following

I Structure & organization

II Financial Status of the firm including average annual turnover, work on hand, financial arrangement proposed, viz own resources, bank credit etc.

III Resources of the firm including Personnel & Equipment

IV Any other criteria which the committee may like to consider in any individual case.

8.3 Based on the above proposed broad principles, the committee shall make an assessment and finalize its recommendations indicating the firm, which are considered suitable for pre-qualification purpose.

(i) Employer reserves the right to accept any bid, and

(ii) Cancel the qualification process and reject all bid,

The employer shall neither be liable for any such actions nor be under any obligation to inform the applicant of the grounds for them. The Employer's decision shall be final and binding.

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(BidderMusthavefilltheAnnexure –D as below)

Annexure-D

LED FIXTURE STECHNICAL PARTICULARS

The LED Street Light system will have to meet the following Specifications:

Sr. No.	Description	GIDC Requirement	Bidder's Specification
1	LEDFixtureMake	BAJAJ/PHILLIPS/SCHREDER/LIGMAN/WIPRO/CROMPTON/HELONIX/ HAVELLS/SURYA/HPL (MentionedOnlyOneMake)	
2	LEDFixtureModelNo.	**Bidder has to specify as per Technicaldesign parameters.(As per DiLuX/ SoftwareLux Level Calculation)** (MentionedOnlyOneMake)	
3	WattageofFixtures	60W& 250 W	
4	Stated Lumens output ofFixture	>=7800 (for 60 Watt) >= 32500 (for 250 Watt)	
5	Lumenoutput(as per LM79 report, mentioningcurrent In mA)	**Bidderhastospecify**	
6	Lumen Depriciation (L70 mentioning temperaturein DegC andcurrentmA)	**Bidderhastospecify**	
7	Lighting Distribution Type	CutOff/SemiCutOfftypeas perIESNA Type II/III Lighting Distribution	

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8	MaintenanceFactor	0.8	
9	Correlated colour temperature(CCT)	>5700K±300K(CoolWhite)	
10	ProtectionClass	IP66,Class 1asperIEC 60529.	
11	Impact Resistance of completeluminarie	IK07	
12	Avg. Ambient Temperature(as per IEC)	35degC	
13	PowerFactor	>0.95	
14	HousingConstruction	Thebodyshallbe robust, corrosionresistant superiorin finish& withoutanycracksor throughholes,madein a singlepieceby highpressure die castLM6aluminium alloy.Theluminariesshall be monolithicconstruction totally enclosedusttight&water proof.The luminariesshallbe classI luminary.Degreeof protectionshallbe IP66as definedinAppendixA of	
15	HeatSink/Dissipation	Integratedwithin luminaire&Thedimensionsof luminaries shallbe adequateto permit sufficientheat dissipation throughthebodyitself,so as to preventabnormal temperaturerise insidethe lantern&consequential damageto cover&gasket materials ,LEDs, lenses &ElectronicDriver.	

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16	Covers	Toughenedglass.Itshallnot get dis coloured shall not suffer degradation due to heatand ageing.The cover shallpreferablybe secured with suitablemetallicor stainlesssteelhingesor with metallicstainlesssteel hinges at one end on the footpath sideandwith toggleat the other end. The toggleshall catchthe glass coverfirmly and shall not get released dueto shock,vibrationsand breeze.UV stabilizedglass cover shall not get cracked dueto frequentopeningand closingof hingesandtoggle. When the	
17	Gasket	A extruded silicon loop gasket shall be provided in the lanternbodyto ensurea weatherproofseal between the UVglasscoverandthe metalhousingtoexcludethe entryof dust,water,insects, etc.Whenthe luminariesis closed, should conform with IP67Class. Feltgasketwill	
18	Application	Outdooruse	
19	SystemEfficacy- Lm/W at 35 deg C Amb. Temp. (supportedby LM79 Test reportfrom government approved lab)	≥130	

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20	Warranty	5 YearsFreeon-site replacementwarrantyon the SITC of LEDs,Fixture&Driver whichcovering materialfixture,finish and workmanship.	
21	Protection	Over Heat,Over Load,Short Circuit,HVSurgeupto10 KV (InbuiltwithinFixture)	
21.1	ShortCircuitprotection	Recovers automatically after faultconditionisremoved	
21.2	OverVoltageprotection	Shouldbeabletowithstand 320Vforminimum24hours	
21.3	High – Low voltage cutoff	InsideLuminaryoradevice tobeinstalledonthepolein an IP protected box sustaining300Vfor Higher sidecutoff& 100V onlower sidecutoff-Beyond&belowit Shutdown& restorenormal working conditionwhen voltage	
22	Earthing	Driver Unit shall have provision forproper grounding	
23	Certification	LM79,LM80,RoHS,EMC, EMI,CE	
24	Marking	CompanyLOGO Engraving/ Embossingon Body, NAA,GIDC–EstateName (Hazira)Marking(Stickeringnot allowed)	
25	ElectricalConnector	LED Wire with Armoured 3core 2.5 Sq MM FRLS coppercableofMin.1meter longshouldbeprovided.	
26	UsageHours	DusktoDown(12Hrs.)	

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27	LEDlife-time(LM70)	>50000Hrs(withMin.70% LumenMaintenance@Ta= 35degC)	
28	DriverLifeRating	>50000	
29	Beamangle	135deg/80Deg	
		Horizontal Spread 135 Deg. &	
		VerticalSpread80Deg.	
30	LED	HighPowerWhiteLEDof1 Wattandabove	
30.1	Name of LED chip manufacturer	CREE/ OSRAM/PHILIPS Lumileds/NICHIA/SEOUL/ BridgeLux(U.S.A.) (MentionedOnlyOneMake)	
30.2	LED chip model name andnumber	**Bidder has to specify**	
30.3	LM 80 report from the LEDchipmanufacturer on the lumen depreciation characteristics of the specific LED chip employed in the proposed luminaire product	**Bidder has to specify**	
30.4	LED junction temp. in deg CTa=35degC	>75	
30.5	P/N junction temperature	<100DegreesCatJunction pointand<60atHeatSink.	
30.6	LensMaterial	Polycarbonate	

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30.7	OpticalSystem	The opticalsystemwill consistsof individual Penut/PC/PMMAlenses on high powerLEDsdesigned&tested to achieve typical street lighting distribution fromtheLEDlantern. Thisis to ensuremaximumutilisation of light flux on the carriagewayand minimum glareon the footpathsideof	
30.8	OpticalEfficiency	>95%	
30.9	WorkingHumdity	10%-90%RH	
30.10	WorkingTempindegC	05to50degC	
30.11	AudibleNoise	Shall haveClass-Asound ratingwith audiblenoisein powersupply	
31	LEDDriverType	ConstantCurrent	
		Driversshouldbe constant currentdriverswith separate compartment , alsodriver compartmentshould be IP66.Driver should have cut off protectionabove300VAC andshould work automaticallyat nominal voltage.Drivershould also have Double phase protection, noload, open circuitand short circuit protection	
32	Name of the manufacture	**Bidder has to specify** (MentionedOnlyOneMake)	
33	Model Name and Number	**Bidder has to specify**	

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34	DriverCurrent	≤750mA	
35	DriverEfficiency	>90%	
36	Expectedlifetimeofthe LED driver used in the proposedluminaire	**Bidder has to specify**	
37	Estimated cost of driver replacementby your company, including component andinstallationcost.	**Bidder has to specify**	
38	ControlGear	IntegralDesign (Tested&Certifiedfor Performance&Safety manadotoryfrom	
39	Total Harmonic Distortion(THD)Amp	<10%	
40	Total Harmonic Distortion (THD) Voltage	<5%	
41	Input Voltage Range (Vac)	90 to 300 V AC with Auto resettingSafetyCut-off.	
42	InputFrequency	50Hz +/-3% Hz	
43	CRI (Color Rendering Index)	>80	
44	Lumen Maintenance Factor	70%upto50000BurningHrs. LifeSpan	
45	UniformityRatio	>0.4	
46	IECCompliance	ConfirmingtoIEC-61347-1&IEC61347-2-13	
46.1		IEC61547,610-3-2,CISPR-15	
46.2		Electrical safety certification suchasISIandCII,BIS.	

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47	TestReports:-	Thetenderershallsubmitthe test reportsfromGovernment accreditedtest laboratoryof offered luminairesconfirming to all type test as per IS 10322 (Part5 Sec 3)/ IS 16105/1062012 and essentiallyLM79(For luminaireefficiency &performance)and LM80(For LEDSourcelife fromsource manufacturer)test reportas per InternationalEnginnering Societyof North America(IESNA) along with theoffer.Manufactrures shouldhaveValidISO-9001-2008or equivalentcertificate for theBidderforIn-House Design,Development, Testing, Manufacturing, Marketing and Lighting Application.	

Design for the GIDC–Estate Road

Sr.No	NAA/GIDC-Estate specification requirement		Bidderconfirmation	
	Equivalent LED Source (Input Power) Including driverpower in Watts	**AverageIllum. Levelreqd.on road carriageway with LED luminaire (Lux)**	**Equivalent LED Source (Input Power) Including driver power in Watts**	**AverageIllum. Level reqd. on road carriageway with LEDluminaire (Lux)**
1	60W	20orMore		
2	250W	25orMore		

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TESTINGANDDOCUMANTATION

Performance Characteristic	Methods of Measurement	Required Documentation	BiddertoConfirm
Integral LED Lamp Efficacy: Light Output InputPower	IESNA LM-79-2008 ANSI C82.2-2002	Laboratorytestresultsmust be producedusingthe specific modules/arraysand power supplycombinationthatwill be usedinproduction.	
PowerFactor	ANSI C82.77-2002	Laboratorytestresultsmust be producedusingthe specific modules/arraysand power supplycombinationthatwill be usedinproduction	
Lumen Maintenance (L70)forLEDs	IESNA LM-80-2008	LEDmanufacturertest results for Minimum6000hourlumen maintenancedatafor theLED packages/arrays/modules usedin the integralLED lamp.Lumen maintenancedata must meet at least the followingconditions: - Collected at LED case or solderpoint temperature(Ts) equalto orgreaterthanthe verified TMP temperature of the integralLEDlamp;and- Measuredata forwarddrive currentequalto or greaterthan thedrivecurrentappliedto the	
Colour RenderingIndex	ANSI C78.377-2008IESNALM-79- 2008 CIE 13.3-1995 IESNALM-58-94	Laboratorytestresultsmust be producedusingthe specific modules/arraysand power supplycombinationthatwill be usedinproduction	
Chromaticity & Correlated Colour	ANSI C78.377-2008IESNALM-79-2008CIE15	Laboratorytestresultsmust be producedusingthe specific modules/ arrays and power	

Temperature	:2004 IESNALM-58-94 IESNALM-16-93	supplycombinationthatwillbe usedinproduction	
ColourSpatial Uniformityand Colour Maintenance	IESNA LM-79-2008 CIE 15 : 2004IESNALM-58IESNALM-16 IESNALM-80	SelfCertification	
AudibleNoise	Class-A sound rating: Power supplynot to exceed24dB	SelfCertification	
IntegralLED lampWarranty		Provide copy of the actual Five-year manufacturer warrantyincludedin the packaging	
Safety of LED amps	UL8750	LEDmanufacturertestresults ofthesafetytestreportwitha generalcoveragestatement.	
Testcertificates	ERTL/ CPRI/MNRE	The biddershall furnishtest certificates certifying performanceof theintegral luminaries'for thetests mentionedas below:a) Insulation resistance test b) HVtestc) OverVoltage Protectiontestd) Surge Protectionteste) Reverse polarity test f) Temperature risetestg)FireRetardanttest h)Photometrictestsi) IPclass testj)PowerConsumption	

CHIEF OFFICER (NA)
GIDC, HAZIRA

General Conditions of contract

(1) All materials to be used shall conform to the relevant specifications as per latest edition of Indian Standard, unless otherwise stated in the detailed specifications of items of work.

(2) Wherever a reference to any Indian Standard appears in the specification, it shall be taken to mean as a reference to the latest version of the standard.

(3) Tests for materials shall invariably be got carried out by the contractor, when the same are specified in the specifications. Tests shall also have to be carried out, even though the same are not specifically mentioned in the specifications, if in the opinion of the Engineer-in-charge, the same are required to be carried out. All such tests shall be got carried out in Government or at approved laboratories and cost thereof shall be entirely born by the contractor.

(4) No collection of materials shall be made before it is got approved from the Engineer-in-charge.

(5) Collection of approved materials shall be done at site of work in a systematic manner. Materials shall be stored in such a manner as to prevent deterioration or intrusion of foreign matter and to ensure the preservation of their quality and fitness for the work.

(6) Materials, if rejected by the Engineer-in-charge, shall be immediately removed from the site of work. If they are not removed within twenty four hours of receiving such intimation, Engineer-in-charge shall get the same removed at contractor's cost.

The Engineer-in-charge shall dispose off such materials in a manner as he chooses and the contractor shall not be entitled to any compensation for the cost of such materials.

(7) Approval to the samples of various materials given by the Engineer-in-charge will not absolve the contractor from the responsibility of replacing the defective material brought on site or used in the work found defective at a later date. The contractor shall have no claim to any payment or compensation whatsoever on account of any such materials being rejected by the Engineer-in-charge.

(8) The contractor shall be responsible for observing the law, rules, and regulations imposed under the 'Minor Mineral Acts' and such other laws and rules prescribed by Government from time to time.

(9) Necessary tools & tackles for Street Light work (hydraulic van/Tower ladder vehicle/ boom van etc. up to 10 Mtr.).

SIGNATURE OF CONTRACTOR

CHIEF OFFICER
NAO, GIDC, Hazira

kamanal ivagat : sana 2019-2020 naa vaYa maaT શેરી બત્તી AaprTIga Ana manTnansa krvaanaa kama Aganaa vaaiYak kanTakT Aapvaa baabat .

TnDr Barvaa maaTnaa sacanaa tmaj Sarta

01. TnDr Barnaar [jardar baanaanal rkma gajrat AaQaaigak ivakasa inagamanaa naama DImaanD DafT AqavaaKayapalak [jnarEal gajrat AaQaaigak ivakasa inagamanaa naama ka[pNa raYTIyakt baknal baaQal madtnal qaapNa Wara TnDr saaqa frijyaat saamala krvaanal rhSa. DImaanD DafT À baaQal madtnal qaapNa isavaaya TnDr gaahya raKvaamaa AavaSa nahI. DImaanD DafT À baaQal madtnal qaapNa Alaga pasTqal k rbar svalkarvaamaa AavaSa nahI.

02. j [jardarna TnDr majr qaaya tmaNa salkyaarITI DIpaJITnal rkma inayama pmaaNa Aa Agana krarKt krta phlaa Barvaanal C.

03. inagamanaa sadr kamanaa sabaQamaa vaKta vaKtnaa hkmaa [jardarna baQanakta rhSa.

04. **sadr TnDr fama Tkavaarl ha[** Aa TnDrmaa Aapla Baavaa]pr [jardar TnDrmaa kTlaa Tka vaQa k AaCa Tka la[na kamagalrl krl Aapvaa tyaar C t Tka AakDamaa Ana Sabdamaa laKvaanaa C. **Aa[Tma dIz Baava ka[pNa sajagaamaa Barvaanaa naqal**. Aa[Tma dIz Baavaa Barlaa hSa ta TnDr gaahya raKvaamaa AavaSa nahI. TnDrmaa Aapvaamaa Aavala Baavaa laaga pDta tmaama krvara jkat laval d.t. Aksaa[J DyaTI saivasa Txa AnTI Txa jkatvara vagar Qyaanamaa la[na Apla C. ATIa k Baavaa tmaama Txa saaqa gaNavaanaa C. tqal ka[pNa jatnaa krvara tmaj DyaTI Alagaqal Aapvaamaa AavaSa nahI jnal naaQa laval.

05. [jardar TnDrmaa Barla Baavaa TnDr Kalyaa tarIKqal 120 idvasa saQal Acala raKvaamaa AavaSa.

06. ka[pNa jatnal SartvaaL TnDr gaahya raKvaamaa AavaSa nahI.

07. Aa [jara naaNaaklya vaYa 201૯-20૨O maaTnal madtnaa C. ATIa k vak AaDr tarIKqal **12 (બાર)maasa**પૂરાથાયત્યાસુધીઅનેસદરઇજારાનીકામગીરીસંતોષપુર્વકનિહાળવામાંઆવશેતોસદરઇજારા નોસમયવધુંએકવર્ષલંબાવીઆપવામાંઆવશે. .

08. [jara naNaaklya vaYa **201૯-20**૨OmaaTnaa C prt inagamana sadr vaYa drmyaana ka[pNa jatna karણ jNaavyaa isavaaya sadr [jara rd krvaanaa sapNa AiQakar C Ana [jardarnal ka[pNa jatnal frlyaad Aa Aga saaBaLvaamaa AavaSa nahI.

09. TnDra j t nakkI krlal tarIK rŸsTD pasTqal svalkarvaamaa AavaSa Ana Sakya hSata TnDra j t nakkI krlal tarIK hajr rhlaa [jardaranal rbarmaa Kalavaamaa AavaSa. ka[pNa Ak

Aqavaa baQaa TnDra rd krvaanaa hkk TnDr majr krnaar AiQakarIEalA Anaamat raKla C Ana t Aga ka[pNa karma dSaavavaamaa AavaSa nahI tmaj [jardarna ka[pNa frIyaad krvaanaa hkk rhSa nahI.

10. [jardar patanaa TnDr saaqa nalcanaa dstavaja rj krvaanaa rhSa.

³ક્´ pZInal maalalkI Aganaa pravaa.

(ખ) પાનકાર્ડ & GST Registration Number

³ગ´ salsaTxa rŸsTSana saiTflkTnal pmaaNalt nakla.

³ઘ´ [nkmaTxa klalyarnsa saiTflkTnal pmaaNalt naklaગત વર્ષ નું.

³ચ´ saalavaSal saiTflkT)અંદાજીત રકમ ના ૨૦ (%na ka[pNa raŸTlyakt bakmaaqal

³છ´ pavar Aaf ATnalnaa p~nal nakla BaagaldarI pZImaa.

કોડનંબર. ફ.એે.પી

પ્રમાણપત્ર .સી.એફ.પી.આર (૮)

~~) ઠકામેસાખેલમાણસોનુંઇન્સ્યોરન્સ (~~

ઈજારદારનેસદરકામનોઅનુભવહોવોજોઈએઅનેલોકલઈજારદારનેપસંદગીઆપવામાં (ડ)

આવશે–જેહજીરાથીડ૦કી.મી .નીહદમાંહોવુંજોઈએ.

ઈજારદારેપમ્પઅનેમોટરોમાટેવપરાતીએનેક્ષરમુજબનીફાજલસાધનસામગ્રીઉપયોગકરવામાટેજેતેમુળભૂત સાધનોનુઉત્પાદનકરતા(OEM)પંપઅનેમોટરોનાઉત્પાદકોપાસેથીમેળવેલુતેણેપોતાનાનામનુ .પ્રમાણિતપ્રમાણપત્રરજુકરવાનુરહેશે (જારદારઈ)

મુખ્યઅધિકારી

હજીરાનોટીફાઇડએરીયાઓથોરીટી,
જીઆઇડીસી, હજીરા.

SCHEDULE – B

Name of Work: Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High Mast Fitting& SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.

Sr. No.	Item description	Qty.	Unit	Rate/unit (Rs.)	Amounts (Rs.)
PART - A (For NAA, GIDC, 46-Hector, Ichhapore, Bhatpore & Kawas Industrial Estate.)					
PART - I (FOR SPECIAL REPAIRS-STREET LIGHT)					
1	SITC of Swaged Type - 410 SP - 26: 9.00 Mtr. Streetlight Pole without Bracket & accessories but provided/ fitted with item no. (a) To (g) mentioned below with their specifications: Supplying Steel tubular pole (Swaged) confirming to IS - 2713 (Part-II) 1980. Manufacturing process of steel tubular pole should be as per IS specification. Basic steel tube should be ISI Marked. Pole should be painted by one coat of Zinc comet Primer and two coat of Aluminium /approved paint to be erected on / in existing Foundation. The length of poles is as below. (I) Pole as per IS code 410-SP-26 with 300 X 300 X 4 mm base plate. (Approximate weight 78 Kg) For burial erection, (ii) Add Extra for M.S. Base plate 300 X 300 X 16 mm for pole, Suitable for mounting on surface of foundation with foundation bolts, with required stiffeners welded with pole., (iii) Add Extra for PU base primer and PU Paint on pole: (a) Overall length of pole: 9.00 meters., (b) Planting depth: 01.50mtrs., (c) Height above ground level : 07.50 meters., (d) Length of section - Outside dia. & Wall thickness, Bottom: 5.00 meters. - 114.30 mm x 4.50 mm., Middle : 2.00 meters. - 88.90 mm x 4.05 mm. Top : 2.00 meters. - 76.10 mm x 3.25 mm., (e)	5.0	NO.	10857.50	54287.50

	Approximate Weight of Pole : 92 Kg.				
2	Providing M-20 / 1:2:4 cement concrete foundation & 70 % PCC from bottom including excavation for the pole of size 60 x 60 x 150 cms. Deep in below ground level with plinth of 45 cms x 45 cms (or 45 cms dia x 45 cms) high upper ground level with necessary curing and finishing in approved manner. (1 No. per St. light Pole.)	5.0	NO.	1666.50	8332.50
3	Providing street light pole bracket comprising main Light Class MS tube of 4.2 cms. Outside dia. Complete with suitable M.S. sleeve tubing of approx. 45cms. Length and suitable for 76.5mm. /80 mm or require size pole top having sufficient fasteners for fixing the brackets and having suitable rise as per site condition as directed and spread of 2 Mtr. with suitable welded stiffener reducer and with lock nut complete painted with one cost of Red oxide /PU paint . Suitable for side entry fitting brackets of following nos of arms. **(a) Single Arm brackets 2 Mtr.**	5.0	NO.	787.80	3939.00
4	SITC of **funnel type** pipe earthing having 150 cm Long and 2.5 cm dia. Medium Class Galvanized iron pipe with coupling and bunch buried in specially prepared earth pit with salt & charcoal complete with necessary double 8 SWG GI earth wire - 0.8 Kg (2 x 3.5 Mtr. = 7Mtr.) laid up to bolt fitted in pole for earthing . (Earthing at each poles) as per drawing **- (1 Job Per St. Light Pole)**	200.0	No.	709.02	141804.00
5	Providing, laying, testing & commissioning of 1 x 4.0 Core x 16 Sq. MM, XLPE (IS: 7088 (I) - 88), ISI Mark, Armoured, Multi stranded, Aluminium Conductor suitable for 1.1 kV grade to be laid 90 Cms underground or to be laid on wall with	1400.0	Mtr.	181.80	254520.00

	necessary clamps or in existing cable trench/ pipe at road crossing or on floor and making the ground as per original of the following cores and sizes of cables. - For Streetlight between two poles & Service Connections.(D) 4-core 16sq.mm				
6	Providing & laying mains with 1.1 kV grade FR PVC insulated ISI Marked Stranded Copper cable having Conductor 3-core 2.5 Sq. MM. in existing pipe/ in street light pole erected with 3-core 2.5 Sq. MM. copper conductor FR PVC insulated stranded wire of green colour for earth continuity. - (St. Light Fitting x 1 No. St. Light JB = 20 Mtr.)	500.0	Mtr.	75.75	37875.00
7	SITC of Solderless Crimping Type Aluminium Lugs(4 Nos. lugs per termination) suitable for 1x4.0 Core x 16 Sq.mm. XLPE Aluminium Armoured cable tail complete erected with insulating materials for each termination.	50.0	NO.	15.15	757.50
8	Providing Laying approved make Double walled corrugated pipes (DWC) of polyethylene (conforming to IS 14930 II) with necessary connecting accessories of same materials at required depth for laying of cable. Below ground / road surface for enclosing cable and back filling the same to make ground as per original.(A) 50 mm dia.	900.0	Mtr.	146.45	131805.00
9	Painting of street light pole with bracket complete with coats of Aluminium paint for following size of pole. [C] up to 9 Mtr.	220.0	NO.	393.90	86658.00
10	Supplying and erecting LED street light fittings with High power White LEDs wattage of 1Watt and above- per OEM Street light (IP 66) 60 W, 7800 Lumens, Surge - 10 KV and (1) i.e. max. LED/Emitting lamp wattage:1.76 Watt (2) Maximum Circuit Power consumption should be of 4 watt assembled on single MCPCB, efficiency	222.0	NO.	10746.40	2385700.80

	more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded Aluminum with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 90 to 300 V,(3) Operating Voltage range should be 90 V - 300 V, 50 Hz (4) AC Power Factor more than 0.95, (5) THD < 10 %, (6) CCT 5000 K to 5700K,(7) Coverage Area should be 24 to 26 Mtr X 10 Mtr. (8) LED Luminary should be comply the protection class of IP-66 Class. (9)Uniformity ratio >0.45, (10) Luminary efficiency>130 lumens/watt. (11) LED driver efficiency > 90 %. CREE / OSRAM / Lumileds / NICHIA make LED used for luminaries. (Each fittings required LM-79 & LM-80 certificates) The fitting should be suitable for side entry having suitable socket bore for clamping complete erected having IP-66 Protection Class (1 No. St. Light Fitting per Arm x 1 Single Arm = 1 No. LED Fitting- (Cat- III).				
11	Supplying and erecting LED street light fittings with High power White LEDs wattage of 1Watt and above- per OEM Street light (IP 66) 250 W, 32500 Lumens, Surge - 10 KV and (1) i.e. max. LED/Emitting lamp wattage:4.5 Watt (2) Maximum Circuit Power consumption should be of 5 watt assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded Aluminum with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 90 to 300 V,(3) Operating Voltage range should be 90 V - 300 V, 50 Hz (4) AC Power Factor more than 0.95, (5) THD < 10 %, (6) CCT 5000 K to 5700K,(7) Coverage Area should be 24 to 26 Mtr X 10 Mtr. (8) LED Luminary	8.0	NO.	23472.40	187779.20

	should be comply the protection class of IP-66 Class. (9)Uniformity ratio >0.45, (10) Luminary efficiency>130 lumens/watt. (11) LED driver efficiency > 90 %. CREE / OSRAM / Lumileds / NICHIA make LED used for luminaries. (Each fittings required LM-79 & LM-80 certificates) The fitting should be suitable for side entry having suitable socket bore for clamping complete erected having IP-66 Protection Class (1 No. St. Light Fitting per Arm x 1 Single Arm = 1 No. LED Fitting- (Cat- III).				
12	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete without going tails, insulating tape etc for following size of cables..- Size: 2 to 4 Core 16 sq. mm. (2 Nos. Glands Per Syntax Box on St. Light Pole)	40.0	NO.	50.50	2020.00
13	Supplying & erecting approved make SMC press molded composite FRP. loop-in, loop-out approx. 2mm thick box complete with backelite connector strip 4way & hinged doors having locking arrangements with mounting clamp with nuts, bolts & washers suitable for erection on pole with cable clamps& earth bolt of following size of box. Size: 300mm x 200 mm x 100 mm (deep) with Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. Confirming to IS 8828/1996 with ISI Mark - Cat -III (1 No. Per St. Light Pole)	50.0	NO.	1085.75	54287.50
14	Supplying & erecting MINI SECTION PILLAR 75 x 60 x 45 cms fabricated from 16 Gauge thick joint legs M.S. Sheet with angle iron legs 45 cms long made from 35 x 35 x 5 mm thick. Joint less M.S. Angle with cable clamps to be buried in ground to have	3.0	NO.	4242.00	12726.00

	appropriate erection to work Uniform Until erected with cement concrete foundation and 45 cms high bricks work finishing with plaster etc. hinged double door with 3" x 4" vision panel covered with Mesh & V. panel overlapping with flap for meter reading internally supported on both side, with internal and outside looking arrangement with look and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting backelite sheet. Painting the Section Pillar inside and outside with three tank powder coated paint.. Section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962				
15	Providing & fixing of backelite sheet 12mm thick HYLLAM make grade: P-100 on existing angle iron frame.	5.0	Kg.	131.30	656.50
16	Providing and erecting approved make Digital/Astronomical time switch having lithium cell 6 years operative and operate battery backup 1 channel day clock with 14 memory program, suitable to operate on 240V + 5%, 16A with, floating contacts minimum switching setup time 1 minimum & LCD display. Also comprised permanent ON/OFF switching programming switches & housed in fire proof thermoplastic enclosure & transparent cover erected as required with necessary connection erected as directed.	3.0	No.	3737.00	11211.00
17	Providing & Fixing of 3 pole power contactor with 2 NO & 2 NC having 40 Ampere rating of, having magnetic coil voltage of 230 V A.C.Supply. Make: L & T, BCH, Siemens.	4.0	No.	3282.50	13130.00
18	Providing & erecting 415V 63 A MCB Four Pole Switch for Lighting Load (B curve)	5.0	No.	757.50	3787.50

	having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity.(1 No. per Distribution Box) - CAT - III				
19	Approved make ELCBs / RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 6 KA and suitable for operation on 3 phase and neutral 415V. Having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component for following Max. rating erected as directed.- (III)- (iii) 63 Amps. FP , (100 mA Sensitivity)	3.0	No.	3585.50	10756.50
20	Providing & fixing of 4 pole 440V 40A power contactor for time switch complete as per direction CAT.III	3.0	No.	3282.50	9847.50
21	Supplying & erecting approved make Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. systems and having breaking capacity 10 kA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark - Cat -III	50.0	NO.	116.15	5807.50
22	Supplying & erecting in earthpit of minimum bore dia. 225mm size ASH or approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanizing, Inner pipe dia of 40 mm having 200-250 Micron galvanizing, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications. [A] For electrical installation up to 440 V, Length of Pipe - 1 Mtr, Back filling compound - 1 Nos. of Bag of 15 Kg. (Make approved by engineer in charge) duly tested by earth tester confirming to IS	3.0	NO.	9191.00	27573.00

	& as per drawing - (1 Job per Distribution Box)				
23	Drilling the road without breaking the road surface(asphalt)for laying of cable for feeding power supply by making up to 150mm dia. Size of holes at both ends complete including removing & fixing of Paver Block. (As Instructed by engineer in charge.)	50.0	Rmt.	505.00	25250.00
24	Making trench in hard murrum/ tar road of suitable width of cms or required depth for laying any size of cable or locating the fault all over the run and back filling the same and making the surface as normal ground.	900.0	Mtr.	60.60	54540.00
25	Supplying and erecting fancy bracket with decorative cylindrical shape and with chromium plated or anodized bracket to be erected (a) with complete lamp holder	20.0	NO.	202.00	4040.00
26	Supplying & erecting of following size of standard UPVC pipe column pipe with complete (G) 100mm dia.	100.0	Rmt.	757.50	75750.00
				TOTAL PART - I (Rs.)	**3604841.50**
27	Annual rate Contract of Operation & Maintenance of Street Light of 46-Hector, Ichhapore Estate. The Scope includes maintaining the street light throughout the contract period; this includes labour plus materials like replacement of chokes, starter, holders, capacitors, igniter etc in tube light fitting / sodium / mercury fitting. The quantities are as mentioned below. The agency has to provide sufficient wireman's, helpers & required labour for the work. The agency has to maintain average 90% OR above of the street lights during the month. The payment shall be made on efficiency basis. If any lamps or accessories required to be replaced in the above scope, the same shall be used of	12.0	220 No. Fitting/ Pole/Month	22167.20	266006.40

	approved brand only. The scope includes all labour charges, all street light materials cost & tools tackles etc complete., The agency has to carry out the work as per direction of Engineer in charge and / or as specified in the detailed scope of work. Efficiency of the street light shall be checked on weekly basis & agency has to attend the site during weekly checking of street light & all fittings. Agency has to arrange the vehicle for the engineer Car/ Bike or rickshaw as & when required or called for: Total Nos. of Pole = 212 Nos. (140-poles Icchapore + 1.0 Nos High Mast, 72-nos. IOC road) Nos. of pole having Single arm Bracket = 212 Nos. , 01-Nos.of High Mast Bracket = 08 Nos., Total Nos. Of Single Arm Fitting & High Mast fitting = 220 Nos. x 1.00 Nos. = 220 Fitting. **Total fitting = 220 Nos., Rate Rs. 100.76 above as ref. w.o. = Rs. 100.76, TOTAL FITTING X RATE / FITTING/MONTH = 220.00 X Rs.100.76 = 22167.20/month i.e. TOTAL FOR ONE YEAR (FOR 12 MONTH) IN Rs.= Rs.2,66,006.40**				
				TOTAL PART - II (Rs.)	**2,66,006.40**
				TOTAL PART - A - (I+II) (Rs.)	**38,70,847.90**
	PART - B (For NAA, GIDC, Hazira Industrial Estate.)				
	PART - I (FOR SPECIAL REPAIRS-STREET LIGHT)				
1	SITC of Swaged Type - 410 SP - 26: 9.00 Mtr. Streetlight Pole without Bracket & accessories but provided/ fitted with item no. (a) To (g) mentioned below with their specifications: Supplying Steel tubular pole (Swaged) confirming to IS - 2713 (Part-II) 1980. Manufacturing process of steel tubular pole should be as per IS specification. Basic steel tube should be ISI Marked. Pole should be painted by one	5.0	NO.	10857.50	54287.50

	coat of Zinc comet Primer and two coat of Aluminium /approved paint to be erected on / in existing Foundation. The length of poles is as below. (I) Pole as per IS code 410-SP-26 with 300 X 300 X 4 mm base plate. (Approximate weight 78 Kg) For burial erection, (ii) Add Extra for M.S. Base plate 300 X 300 X 16 mm for pole, Suitable for mounting on surface of foundation with foundation bolts, with required stiffeners welded with pole., (iii) Add Extra for PU base primer and PU Paint on pole: (a) Overall length of pole: 9.00 meters., (b) Planting depth: 01.50mtrs., (c) Height above ground level : 07.50 meters., (d) Length of section - Outside dia. & Wall thickness, Bottom: 5.00 meters. - 114.30 mm x 4.50 mm. Middle: 2.00 meters. - 88.90 mm x 4.05 mm. Top : 2.00 meters. - 76.10 mm x 3.25 mm., (e) Approximate Weight of Pole : 92 Kg.				
2	Providing M-20 / 1:2:4 cement concrete foundation & 70 % PCC from bottom including excavation for the pole of size 60 x 60 x 150 cms. Deep in below ground level with plinth of 45 cms x 45 cms (or 45 cms dia x 45 cms) high upper ground level with necessary curing and finishing in approved manner. (1 No. per St. light Pole.)	5.0	NO.	1666.50	8332.50
3	Providing street light pole bracket comprising main Light Class MS tube of 4.2 cms. Outside dia. Complete with suitable M.S. sleeve tubing of approx. 45cms. Length and suitable for 76.5mm. /80 mm or require size pole top having sufficient fasteners for fixing the brackets and having suitable rise as per site condition as directed and spread of 2 mtr. With suitable welded stiffener reducer and with lock nut complete painted with one cost of Red	5.0	NO.	787.80	3939.00

	oxide /PU paint . Suitable for side entry fitting brackets of following nos of arms. **(a) Single Arm brackets 2 Mtr.**				
4	SITC of **funnel type** pipe earthing having 150 cm Long and 2.5 cm dia. Medium Class Galvanized iron pipe with coupling and bunch buried in specially prepared earth pit with salt & charcoal complete with necessary double 8 SWG GI earth wire - 0.8 Kg (2 x 3.5 Mtr. = 7Mtr.) laid up to bolt fitted in pole for earthing . (Earthing at each poles) as per drawing **- (1 Job Per St. Light Pole)**	5.0	No.	709.02	3545.10
5	Providing, laying, testing & commissioning of 1 x 4.0 Core x 16 Sq. MM, XLPE (IS: 7088 (I) - 88), ISI Mark, Armoured, Multistranded, Aluminium Conductor suitable for 1.1 kV grade to be laid 90 Cms underground or to be laid on wall with necessary clamps or in existing cable trench/ pipe at road crossing or on floor and making the ground as per original of the following cores and sizes of cables. - For Streetlight between two poles & Service Connections.(D) 4-core 16sq.mm	900.0	Mtr.	181.80	163620.00
6	Providing & laying mains with 1.1 kV grade FR PVC insulated ISI Marked Stranded Copper cable having Conductor 3-core 2.5 Sq. MM. in existing pipe/ in street light pole erected with 3-core 2.5 Sq. MM. copper conductor FR PVC insulated stranded wire of green colour for earth continuity. - (St. Light Fitting x 1 No. St. Light JB = 20 Mtr.)	400.0	Mtr.	75.75	30300.00
7	SITC of Solderless Crimping Type Aluminium Lugs(4 Nos. lugs per termination) suitable for 1x4.0 Core x 16 Sq.mm. XLPE Aluminium Armoured cable tail complete erected with insulating materials for each termination.	50.0	NO.	15.15	757.50

8	Providing Laying approved make Double walled corrugated pipes (DWC) of polyethylene (conforming to IS 14930 II) with necessary connecting accessories of same materials at required depth for laying of cable. Below ground / road surface for enclosing cable and back filling the same to make ground as per original.(A) 50 mm dia.	700.0	Mtr.	146.45	102515.00
9	Painting of street light pole with bracket complete with coats of Aluminium paint for following size of pole. [C] up to 9 Mtr.	80.0	NO.	393.90	31512.00
10	Approved make street light luminaries with one no suitable for- HPSV / MH lamp complete with control gear and accessories, Single piece Die cast Aluminium housing with two compartments duly stove enameled painted side reflector protective Glass cover, synthetic felt gasket, necessary hardware. The fitting should be suitable for side entry having suitable socket bore for clamping complete erected. With 150 watt SVL. /Metal Halide lamp. Cat-III (1 No. St. Light Fitting per Arm x 1 Arm = 1 No. St. Light Fitting)	10.0	NO.	7171.00	71710.00
11	Supplying and erecting LED street light fittings with High power White LEDs wattage of 1Watt and above- per OEM Street light (IP 66) **60 W**, 7800 Lumens, Surge - 10 KV and (1) i.e max. LED/Emitting lamp wattage:1.76 Watt (2) Maximum Circuit Power consumption should be of 4 watt assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded Alluminium with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 90 to 300 V,(3) Operating Voltage range should	15.0	NO.	10746.40	161196.00

	be 90 V - 300 V, 50 Hz (4) AC Power Factor more than 0.95, (5) THD < 10 %, (6) CCT 5000 K to 5700K,(7) Coverage Area should be 24 to 26 Mtr X 10 Mtr. (8) LED Luminary should be comply the protection class of IP-66 Class. (9)Uniformity ratio >0.45, (10)Luminary efficiency>130 lumens/watt . (11) LED driver efficiency > 90 %. CREE / OSRAM / Lumileds / NICHIA make LED used for luminaries'. (Each fittings required LM-79 & LM-80 certificates) The fitting should be suitable for side entry having suitable socket bore for clamping complete erected having IP-66 Protection Class (1 No. St. Light Fitting per Arm x 1 Single Arm = 1 No. LED Fitting- (Cat- III).				
12	Providing High pressure sodium vapour lamp, tubular/Elliptical type 150W Cat.III	25.0	NO.	606.00	15150.00
13	Providing High pressure sodium vapour lamp, tubular/Elliptical type 400W Cat.III	4.0	NO.	909.00	3636.00
14	Supplying & erecting approved make igniter suitable for HPSV/ Metal Halide fittings 150W/400W.	40.0	NO.	333.30	13332.00
15	Supplying & erecting approved make heavy duty polyester filled ballast suitable for HPSV/ Metal Halide lamp 150W.	25.0	NO.	1090.80	27270.00
16	Supplying & erecting approved make heavy duty polyester filled ballast suitable for HPSV/ Metal Halide lamp 400W.	3.0	NO.	2171.50	6514.50
17	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete without going tails, insulating tape etc for following size of cables..- Size: 2 to 4 Core 16 sq. mm. (2 Nos. Glands Per Syntax Box on St. Light Pole)	40.0	NO.	50.50	2020.00
18	Supplying & erecting approved make SMC press molded composite FRP. loop-in,	30.0	NO.	1085.75	32572.50

	loop-out approx. 2mm thick box complete with backelite connector strip 4way & hinged doors having locking arrangements with mounting clamp with nuts, bolts & washers suitable for erection on pole with cable clamps& earth bolt of following size of box. Size: 300mm x 200 mm x 100 mm (deep) with Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. Confirming to IS 8828/1996 with ISI Mark - Cat -III (1 No. Per St. Light Pole)				
19	Supplying & erecting MINI SECTION PILLAR 75 x 60 x 45 cms fabricated from 16 Gauge thick joint legs M.S. Sheet with angle iron legs 45 cms long made from 35 x 35 x 5 mm thick. Joint less M.S. Angle with cable clamps to be buried in ground to have appropriate erection to work Uniform Until erected with cement concrete foundation and 45 cms high bricks work finishing with plaster etc. hinged double door with 3" x 4" vision panel covered with Mesh & V. panel overlapping with flap for meter reading internally supported on both side, with internal and outside looking arrangement with look and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting backelite sheet. Painting the Section Pillar inside and outside with three tank powder coated paint.. Section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962	2.0	NO.	4242.00	8484.00
20	Providing & fixing of backelite sheet 12mm thick HYLLAM make grade: P-100 on existing angle iron frame.	4.0	Kg.	131.30	525.20
21	Providing and erecting approved make	2.0	No.	3737.00	7474.00

	Digital/Astronomical time switch having lithium cell 6 years operative and operate battery backup 1 channel day clock with 14 memory program , suitable to operate on 240V + 5%, 16A with, floating contacts minimum switching setup time 1 minimum & LCD display. Also comprised permanent ON/OFF switching programming switches & housed in fire proof thermoplastic enclosure & transparent cover erected as required with necessary connection erected as directed.				
22	Providing & Fixing of 3 pole power contactor with 2 NO & 2 NC having 40 Ampere rating of, having magnetic coil voltage of 230 V A.C.Supply. Make: L & T, BCH, Siemens.	3.0	No.	3282.50	9847.50
23	Providing & erecting 415V 63 A MCB Four Pole Switch for Lighting Load (B curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity.(**1 No. per Distribution Box**) - CAT -III	3.0	No.	757.50	2272.50
24	Approved make ELCBs / RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 6 KA and suitable for operation on 3 phase and neutral 415V. Having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component for following Max. Rating erected as directed.- (III)- (iii) 63 Amps. FP , (100 mA Sensitivity)	2.0	No.	3585.50	7171.00
25	Providing & fixing of 4 pole 440V 40A power contactor for time switch complete as per direction CAT.III	2.0	No.	3282.50	6565.00
26	Supplying & erecting approved make Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C.	30.0	NO.	116.15	3484.50

	systems and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark - Cat -III				
27	Supplying & erecting in earthpit of minimum bore dia. 225mm size ASH or approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanizing, Inner pipe dia of 40 mm having 200-250 Micron galvanizing, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications. [A] For electrical installation up to 440 V, Length of Pipe - 1 Mtr, Back filling compound - 1 Nos. of Bag of 15 Kg. (Make approved by engineer in charge) duly tested by earth tester confirming to IS & as per drawing - (**1 Job per Distribution Box**)	2.0	NO.	9191.00	18382.00
28	Drilling the road without breaking the road surface(asphalt)for laying of cable for feeding power supply by making up to 150mm dia.size of holes at both ends complete including removing & fixing of Paver Block. (As Instructed by engineer in charge.)	50.0	Rmt.	505.00	25250.00
29	Making trench in hard murrum/ tar road of suitable width of cms or required depth for laying any size of cable or locating the fault all over the run and back filling the same and making the surface as normal ground.	500.0	Mtr.	60.60	30300.00
30	Supplying and erecting fancy bracket with decorative cylindrical shape and with chromium plated or anodized bracket to be erected (a) with complete lamp holder	5.0	NO.	202.00	1010.00
				TOTAL PART - I (RS.)	**890850.30**

PART -II (FOR ARC WORK OF O & M & R)					
31	Annual rate Contract of Operation & Maintenance of Street Light of 46-Hector, Ichhapore Estate. The Scope includes maintaining the street light throughout the contract period; this includes labour plus materials like replacement of chokes, starter, holders, capacitors, igniter etc in tube light fitting / sodium / mercury fitting. The quantities are as mentioned below.The agency has to provide sufficient wireman's, helpers & required labour for the work. The agency has to maintain average 90% OR above of the street lights during the month. The payment shall be made on efficiency basis. If any lamps or accessories required to be replaced in the above scope, the same shall be used of approved brand only. The scope includes all labour charges, all street light materials cost & tools tackles etc complete. The agency has to carry out the work as per direction of Engineer in charge and / or as specified in the detailed scope of work. Efficiency of the street light shall be checked on weekly basis & agency has to attend the site during weekly checking of street light & all fittings. Agency has to arrange the vehicle for the engineer either Car/ Bike or rickshaw as & when required or called for: **Total Nos. of Pole = 80 Nos.**(22-pole Reliance Gas - P-7 Road, 58-poles L&T) Nos. of pole having Single arm Bracket= 80 Nos., Total Nos. Of Single Arm Fitting = 80 Nos. x 1.00 Nos. = 80 Fitting. Total fitting = 80 Nos., Rate Rs. 93.00 above as ref. w.o. = Rs. 93.00, **TOTAL FITTING X RATE/FITTING/MONTH = 80.00 X 93.00 = 7,440.00/Month i.e. TOTAL FOR ONE YEAR (FOR 12 MONTH) IN RS. = Rs.89,280.00**	12.00	80 No. Fitting/ Pole/Month	7440.00	89280.00
				TOTAL PART - II (Rs.)	**89,280.00**
				TOTAL PART -B - (I+II) (Rs.)	**9,80,130.30**
				TOTAL PART (A+B) Rs.	**48,50,978.20**
				Say, Grand Total (Rs.)	**48,50,979.00**

Note :-

1. The rates offered should be inclusive of all taxes, GST, duties, service tax, VAT levies, wages, incidental charges, if any & up to the site as per the prevailing rates and considering the period of the contract. No extra charges shall be paid. The rates should be firm during period of the contract.
2. Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High MastFitting& SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.

I/We agree to carry out above work at _____ % above the estimated Rate put to tender percentage in words (_____)

I/We agree to carry out above work at _____ % Below the estimated Rate put to tender percentage in words (_____)

Estimated Amount put to	Estimated Amount put to
Tender **Rs.48,50,979.00**	Tender **Rs.48,50,979.00**
Add % Above Rs._____.	Deduct % Below Rs._____
Net Amount Rs._____ (In figures).	Net Amount Rs._____(In figures)
Rs._____(In Words).	Rs._____(In Words)

I/we have read the condition mentioned in this tender and agree to abide by the same

BIDDER'S SIGNATURE

CHIEF OFFICER (NA)
GIDC, HAZIRA

Important Note:

1	I/ We agree to carry out the above work at the rate offered in column No. 4 and corresponding amount in column No.6.
2.	I/We have read the conditions mentioned in this tender & agree to abide by the same.
3.	Please note that the agency in whose favor the tender is finalized by the competent authority should have to submit the document like insurance of the staff engaged RPFC No. Labour license etc. and similar documents for vehicle.
4	This is a O&M work, the agency has to operate & maintain the system as per instructions of engineer-in-charge during the contract period. Hence during the contract period the wages & facilities to be provided to the staff engaged by the agency as per labour laws & accordingly rate may please be quoted.
5	The successful bidder in whose favor the tender is finalize by the competent authority has to enter in to an agreement with NAO in B-1 agreement form, the conditions & clauses of the agreement shall be binding to the agency. If the bidder desires to study the same, the same is available in the office of the Chief Officer, Notified Area Haziraduring office hours of the working days.
6.	The rates offered shall be inclusive of all applicable taxes/GST, facilities, tools etc. to be provided to the persons engaged by the agency as well as 1% cess on total amount for which agency have to offer his rates accordingly.
7.	1% labour welfare cess on the bill amount will be deducted from the each RA bill as per Govt. norms.

SIGNATURE OF CONTRACTOR

CHIEF OFFICER (NA)
GIDC, HAZIRA

કામનું નામ : હજીરા નિર્દિષ્ટ વિસ્તાર ખાતે આવેલ શેરીબત્તીના મેઈન્ટેનન્સ, રીપેરીંગ, રીપ્લેસમેન્ટ તથા મટીરીયલ્સ સપ્લાય કરવા બાબત.....

:શીડ્યુલ-બીનાં કામગીરી માટેની શરતો:

(૧) ઇજારદારને આ કામની જ્યારે સોંપણી કરવામાં આવે ત્યારે ઇજારદારે આ કામનો ચાર્જનાયબ કાર્યપાલક ઈજનેર (યાંત્રિક અને વિજળી), જી.આઈ.ડી.સી., હજીરા/સુરત પાસેથી સંભાળવાનો રહેશે. ચાર્જ સંભાળતી વખતે નિગમ દ્વારા ઉભી કરવામાં આવેલ વિવિધ પ્રકારની (Tube, LED & CFL) શેરીબત્તિનું સંચાલન અને નીભાવનું કામ સમજી લેવાનું રહેશે. ચાર્જ લેતા પહેલા ઇજારદારે સૌ પ્રથમ તમામ સ્ટીલ ટ્યુબલર પોલ તથા બ્રેકેટને એશિયન અથવા સમકક્ષ કંપનીનો એલ્યુમિનિયમ પેઈન્ટ માન્ય પધ્ધતિ દ્વારા કરી, રોડ અને ડીસ્ટ્રીબ્યુશન બોક્ષ વાઈઝ , પોલ નંબરીંગ, નાં.કા.ઈ.(યાં/વિ)ની સૂચના મુજબ, સ્વ-ખર્ચકરી આપવાનું રહેશે. ત્યારબાદ લગાડેલ ફીટીગોનું ચાલુ કે બંધ હોય તેનું પોલ નંબરવાઈઝ લીસ્ટ તૈયાર કરવાનું રહેશે.

(૨) બનાવેલ લિસ્ટ મુજબ જે ફીટીગો બંધ હોય તેનું રીપેરીંગ કામ હાથ ધરવાનું રહેશે અને રીપેરીંગ માટે જરૂરી માલ-સામાન, એનેક્ષર-બી મુજબની બનાવટના પુરા પાડવાના રહેશે. માલ સામાન સપ્લાય કરતા પહેલા આ માલ સામાનની નાં.કા.ઈ.(યાં,વિ) દ્વારા ચકાસણી કરાવી લેવાની રહેશે. રીપેરીંગ માટે જે કોઈ કામ કે આઈટમની જરૂરીયાત હોય અને તેનો પાર્ટ-અમાં સમાવેશ ન કરેલ હોય, તો તે સામાન અને પણ પૂરો પાડી રીપેરીંગ કામ હાથ ધરવાનું રહેશે,. નિગમ દ્વારા એનેક્ષર-બી માં સમાવિષ્ટ ન કરેલ હોય તે સામાનનું કે કામગીરીનું અલગથી કોઈ ચુકવણું કરવામાં આવશે નહિ.

(૩) બંધ ફીટીગોનું રીપેરીંગ કામ તાકીદે જાથ ધરી તેવા ફીટીગો, દિન-૭ માં ચાલુ કરી આપવાના રહેશે. ત્યારબાદ જ પાર્ટ = બ (વાર્ષિક પધ્ધતિ) મુજબનું કામ હાથ ધરવાનુંરહેશે.

(૪) આ કામ વાર્ષિક પધ્ધતિ થી કરવાનું હોઈ જેની સમય મર્યાદા ૧ વર્ષ ની રહેશે. પરંતુ જો ઇજારદારની કામગીરી સંતોષકારક જણાશે તો વધુ એક વર્ષ માટે લંબાવવામાં આવશે. પરંતુ જો ઇજારદારની કામગીરી સંતોષકારક જણાશે નહિ તો કોઈ પણ સમયે તેમનોઇજારો બંધ કરવાની સંપૂર્ણ સત્તા નિગમને રહેશે, અને તે બાબતે ઈજ્જરદારને કોઇપણ પ્રકારનું વળતર ચૂકવવામાં આવશે નહિ.

(૫) આ કામ હેઠળ **HAJIRA & ICHHAPOR** ખાતે આવેલ રસ્તાઓ ઉપર લગાડવામાં આવેલ વિવિધ પ્રકારની (Tube, LED & Sodium) શેરીબત્તિનું સંચાલન ઉપરાંત જો જરૂર જણાયે નિગમનીઅન્ય વસાહતોનું પણ કામ આપવામાં આવે તો ઇજારદારે કરવાનું રહેશે.

(૬) આ કામના ઇજારદારને ઈજારાનો સમય મર્યાદા સુધી શેરી બત્તીના વિવિધ ભાગો અથવા પૂર્જાઓ જેમકે, બલ્બ,ચોક, કેપેસીટીર તથા ઈગ્નેટર, હોલ્ડર, ટાઈમર, સ્વીચ, ફ્યુઝ, વાયર જેવી વસ્તુઓની જાળવણી તથા મરામત કરવાની રહેશે. તેમજ ઈજારાના સમય દરમ્યાન જો ઉપરોક્ત વસ્તુઓ બદલવાની થાય તો તે પણ બદલવાની રહેશે. જે માટે જોઈ વધારાની રકમ ચુકવવામાં આવશે નહિ.

(૭) આ કામ પેટે ઇજારદારે સમયસર નિગમ તરફથી આપવામાં આવેલ સમયમર્યાદામાં ચાલુ બંધ કરવાની જવાબદારી ઈજારદારની રહેશે, જો તેમ કરવામાં ચૂક થશે તો પ્રતિ કલાક પ્રમાણે રૂ ૫૦૦.૦૦/- અને મોડી ચાલુ કરવા બદલ તથા રૂ.૫૦૦.૦૦/- પ્રતિ કલાક અથવા યુનિટ ચાર્જ બે માંથી જે વધારે હશે તે મોડી બંધ કરવા બદલ ઇજારદારના માસિક બિલમાંથી વસુલ કરવામાં આવશે.

(૮) આ કામ માટે ઈજારદારે એક વાયરમેન, હેલ્પર તથા જરૂરીયાત મુજબ મજુર પુરા પાડવાના રહેશે. જો જરૂરીયાત મુજબના માણસો ફરજ પર હાજર નહિ હોય તો વાયરમેનની ગેરહાજરી બદલ રૂ. ૩૨૦.૦૦ પ્રતિ દિન, હેલ્પર તથા મજુર પેટે રૂ ૩૦૪.૦૦ પ્રતિ માણસ લેખે ઇજારદારના માસિક બિલમાંથી વસુલ કરવામાં આવશે.

(૯) ઈજ્જર્દારે પોતાના માણસોને જરૂરી ટ્રાન્સપોર્ટેશન અને મોબાઈલની સુવિધા આપવાની રહેશે જેનો નંબર તથા નામ નિગમની કચેરીને આપવાના રહેશે.

(૧૦) ઇજારદારે આ કામ માટે રોકેલ માણસોના નિયમ મુજબના પગાર વિગેરે ચૂકવવાના રહેશે. જે બાબતે નિગમ તરગથી વધારાનો કોઈ ચાર્જ ચૂકવવામાં આવશે નહિ.

(૧૧) ઇજારદારે આ કામ માટે રોકેલ માણસોને જરૂરી મરામત કરવા માટેના સાધનો, લેડર તથા સેફટી બેલ્ટ, હેન્ડ ગ્લોઝ,ગમ બુટ વિગેરે પુરા પાડવાના રહેશે. નિગમ દ્વારા આ માટે જોઈ સાધન સામાગ્રી પૂરી પાડવામાં આવશે નહિ.

(૧૨) આ કામના બીલની ચુકવણી કાર્યક્ષમતાના આધારે કરવામાં આવશે.

(૧૩) ઈજારદારે તેમને આપવામાં આવેલ શેરી-બત્તીઓ ઓછામાં ઓછી ૯૦% શેરીબત્તી નિયમિત રીતે ચાલુ રાખવાની રહેશે અને જેની ચકાસણી માટે અઠવાડિક ધોરણે ચકાસવામાં આવશે અને તે પ્રમાણે કાર્યક્ષમતાની ગણતરી એનેક્ષર – એ મુજબ કરી માસિક બિલનું ચુકવણું કરવામાં આવશે.

(૧૪) ઇજારદારે આ કામ માટે એનેક્ષર–બી માં જણાવ્યા મુજબની ગુણવત્તા તથા બનાવટનો જ સામાન વાપરવાનો રહેશે.

(૧૫) ઇજારદારને આપવામાં આવેલ શેરીબત્તી ચલાવવા માટે લેવામાં આવેલ પાવર સપ્લાય નિયમિત રીતે મળે છે કે કેમ તે પણ ચકાવાના રહેશે. તથા સ્થાનિક વિદ્યુત કંપની સાથે જરૂરી સંપર્ક કરી જો પાવર સપ્લાયમાં વિક્ષેપ હોઈ તો તે સમયસર ચાલુ કરાવવાની જવાબદારી ઇજારદારની રહેશે.

(૧૬) ઇજારદારે વિદ્યુત કંપની તરફથી પુરા પાડવામાં આવતા પાવરમાં વિક્ષેપ હોઈ અથવા કોઈ ક્ષતિહોય તો તે બાબતની લેખિત જાન સ્થાનિક વિદ્યુત ઓંપ્નીની ક્ષતિ ને લીધે શેરી બત્તી આખા વિસ્તારની/ જોઈ એક શેડની બંધ રહેશે તો વધુમાં વધુ ૧ દિવસનો સમય વિક્ષેપ દુર કરવા માટે આપવામાં આવશે. પછીના દિવસથી તેને કાર્યક્ષમતાની ગણતરી મુજબ ગણવામાં આવશે.

(૧૭) ઇજારદારે નિગમ તરફથી આપવામાં આવેલ નમુના મુજબ દૈનિક રીપોર્ટ સ્થાનિક કચેરીમાં જમા કરાવવાનો રહેશે જે માટે જરૂરી સ્ટેશનરી ઇજારદારે પોતાના ખર્ચે છપાવવાની તથા પૂરી પાડવાની રહેશે.

(૧૮) અઠવાડિક ચકાસણી માટે જ્યારે પણ નિગમના અધિકૃત ઈજનેર દ્વારા સુચના આપવામાં આવે ત્યારે ઇજારદારે પોતે અથવા તેમના અધિકૃત કર્મચારીને કાર અથવા રીક્ષાનીસગવડ સાથેનિગમની કચેરી ખાતે પૂરૂ પાડવાનું રહેશે. અને તેમના વાહનમાંઅધિકૃત ઈજનેર ને જે તે સ્થળેની ચકાસણી કરવા માંગતા હોઈ તે સ્થળ ખાતે મુલાકાત કરાવવાની રહેશે. જે બાબતે નિગમ તરફથી કોઈ વધારાની રકમ ચુકવવામાં આવશે નહિ. જો સમયસર ઇજારદાર અથવા તેમના કર્મચારી આ કાર્ય માટે વાહન સાથે ઉપસ્થિતનહિ થાય તો ચકાસણી કરવાની સતા ધરાવતા ઈજનેર નિગમના વાહનનો ઉપયોગ કરશે અને તેમો કિલોમીટર પ્રમાણે ચાર્જ થતો હશે તે ઇજારદારના માસિક બિલમાંથી વસુલ કરવામાં આવશે.

(૧૯) ઇજારદારે રાત્રી દરમ્યાન શેરી બત્તીઓ વિષે કોઈ ફરિયાદ હોય તો નિવારણ માટે જરૂરી સ્ટાફ સાથે ફરીઆવ્દનું નિવારણ કરવાનું રહેશે. આ માટે રાખેલ સ્ટાફનો સમ્પર્ક નંબર નિગમને આપવાનો રહેશે.

(૨૦) ઇજારદારે દરરોજ સવારે સ્થાનિક કચેરી ખાતેથી શેરી બત્તીને લગતી ફરિયાદો મેળવી લેવાની રહેશે. તથા ફરિયાદનું નિવારણ કર્યા બાદ ફરિયાદ કરનાર વ્યક્તિની સહી સાથેનું કાગળ સ્થાનિક કચેરીમાં જમા કરાવવાનો રહેશે. ફરિયાદનું નિવારણ તે જ દિવસે કરવાનું રહેશે અને જો ફરિયાદનું નિવારણ તે જ દિવસે નહિ થાય તો તે બંધ લાઈટોને કાર્યક્ષમતાની ગણતરીમાં લેવામાં આવશે.

(૨૧) આ કાર્યમાં શિડયુલ-બી- માં જણાવેલ પોલ/ફીટીગની સંખ્યામાં વધારો અથવા ઘટાડો થવાની શક્યતા છે . જો કોઇ કારણસર પોલ/ફીટીગની સંખ્યામાં નિગમ તરફથી ઘટાડો કરવામાં આવશે તો તે બાબતે કોઇપણ જાતનું વળતર ચુકવવામાં આવશે નહિ તેમજ પોલ/ફીટીગની સંખ્યામાં વધારો થાય કે કરવામાં આવે તો ઇજારદારે ભરેલ ભાવો મુજબ આ કાર્ય કરવાનું રહેશે.

(૨૨) આ કામ દરમ્યાન નિગમ દ્વારા જો કોઈ શેરીબત્તી બદલવામાં આવશે તો તેની સંખ્યા આ કામના માસિક ચૂકવણા માટે ઓછી કરવામાં આવશે કેમ કે આ કામ જે તે ઇજારદારને ૧ વર્ષની ફ્રી ગેરેંટી સાથે આપવાના આવેક હોઈ તેનું ચુકવણું કરવામાં આવશે નહિ પરંતુ તેને ચાલુ-બંધ કરવાની જવાબદારી ઇજારદારની રહેશે/ અને કોઈ કારણસર નવા લગાવેલ ફીટીગ બંધ પડે તો તેની જાણ સ્થાનિક કચેરીએ કરવાની રહેશે તથા બદલવા જોગ સમાન નિગમ દ્વારા આપવામાં આવશે ઇજારદારે તેને બદલવાનું રહેશે, અને આ બાબતનું કોઈ વધારાનું ચુકવણું કરવામાં આવશે નહિ.

(૨૩) ઇજારદારે વિદ્યુત કંપની દ્વારા બેસાડવામાં આવેલ શેરીબત્તિના મીટરોનું રીડીંગ દર મહિનાની ૨૫ તારીખે લઇ સ્થાનિક કચેરીમાં આપવાનું રહેશે. જેથી આ રીડીંગ સ્થાનિક વિદ્યુત કંપનીને સમયસરઆપી શકાય. જો સમયમર્યાદામાં આ કાર્ય નહિ કરવામાં આવે તો ઇજારદારના માસિક બિલમાંથી આ માટે રૂ. ૨૫૦.૦૦ પ્રતિ વીજ-મીટર વસુલ કરવામાં આવશે.

(૨૪) ઇજારદારને સોંપવામાં આવેલ શેરીબત્તી ને લગતા કામની સંપૂર્ણ જવાબદારી ઇજારદારની રહેશે. તથા જે સંખ્યામાં ઇજારદારને હવાલો સોપવામાં આવેલ હોઈ એ સંખ્યા ઇજારદારે જાળવવાની રહેશે તથા ઈજારો પૂર્ણ થવાના સમયે એ જ સંખ્યામાં હવાલો સુપ્રત કરવાનો રહેશે. જો તેમાં જોઈ ચૂક હશે તો તે ઇજારદારની જમા રકમમાંથી બજાર કિંમત પ્રમાણે કપાત કરી ચુંકવણું કરવામાં આવશે.

(૨૫) ઇજારદારને સોંપવામાં આવેલ શેરીબત્તીને કોઈ નુકશાન ન પહોચાડે તેની જવાબદારી ઇજારદારની રહેશે.

(૨૬) ઇજારદારને સોંપવામાં આવેલ શેરીબત્તી અને ઔદ્યોગિક વસાહતમાં ઉભી કરવામાં આવે હોઈ ઔદ્યોગિક વસાહતમાંથી કોઇપણ કંપની /કામદાર, ઇજારદારને સીધી જ ફરિયાદ કરે તો તેનું નિવારણ કરવાની જવાબદારી ઇજારદારે નિભાવવાની રહેશે. ઇજારદારે તથા તેમના સ્ટાફે, સીધી ફરિયાદ કરનાર સાથે સભ્ય વર્તન રાખવાનું રહેશે.

(૨૭) આ કામ માટેનું ચુકવણું કાર્યક્ષમતાના આધારે એનેક્ષર – એ માં દર્શાવ્યા મુજબ દર માસે આપવામાં આવશે કુલ ચુકવણા પાત્ર રકમમાંથી ૧૦% રકમ અનામત તરીકે રાખવામાં આવશે અને આ રકમનું ચુકવણું ઇજારદારનો ઈજારો પૂર્ણ થયા બાદ સોંપેલ શેરીબત્તિઓ તથા સંલગ્ન સામગ્રી નિગમની પૂર્ણ સંખ્યામાં ચાલુ અને સારી હાલતમાં સંપૂર્ણપણે સંતોષકારક રીતે પરત સોંપણી કર્યા બાદ ચુકવવામાં આવશે, પરંતુ જો સોંપણી કરતી વખતે કોઈ પણ ક્ષતિ જણાશે તો તે ઇજારદારે વધુમાં વધુ દિન સાતમાં દુરસ્ત કરવાની રહેશે. આમ કરવામાં નિષ્ફળ જશે તો આ કાર્ય નિગમ તરફથી કરાવી લેવામાં આવશે અને જેની રકમ ઇજારદારની અનામત રકમમાંથી વસુલ લેવામાં આવશે.

(૨૮) આ કાર્ય નો હવાલો લેતિ વખતે ઇજારદારે પોતાને ફાળવેલ શેરીબત્તી ચાલુ હાલતમાં છે કેમ તે ચકાસી લેવાનું રહેશે તથા ડીસ્ટીબ્યુશન નેટવર્ક સમજી લેવાનું રહેશે તદુઉપરાંત ડીસ્ટીબ્યુશન બોક્ષ ખાતે લગાડવામાં આવેલ પૂર્જાઓ જેમકે મેઈન સ્વીચ ફ્યુજ કોન્ટેકટર, ટાઇમર વગેરે ચાલુ હાલતમાં છે કેમ તે પણ ચકાસી લેવાનું રહેશે . આ હવાલો લીધા બાદ ઇજારદારની કોઈ પણ ફરિયાદ ધ્યાને લેવામાં આવશે નહિ, અને બધીજ વસ્તુ ઓ બરાબર અને ચાલુ હાલત માં સોપણી કરવામાં આવે છે તેમ સમજી ક્ષતિ યુક્ત શેરી બત્તી અને પુર્જાઓ ઈજારદરે પોતાના સ્વખર્ચે બદલાના રહેશે.

(૨૯) ઇજારદારે હવાલો લીધા બાબતને અથવા તેમાં કોઇપણ ક્ષતિ હોય તો તે બાબતની જાણ હવાલો લેતા પહેલા લેખિતમાં કરવાની રહેશે.

(૩૦) ઇજારદારે આ કાર્યમાં રોકેલ પોતાના તમામ કામદારોને જરૂર પડે ઓળખ પત્ર આપવાનું રહેશે. જ્યારે પણ કોઈ કામદાર બદલવામાં આવે તો તે બાબતની જાણ સ્થાનિક કચેરીને કરવાની રહેશે.

(૩૧) ઇજારદારે આ કાર્ય માટે રોકેલ પોતાના ત્તામામ કામદારોની સંપૂર્ણ જવાબદારી નિભાવવાની રહેશે. તથા કોઈ કામદાર અથવા કામદરોને અક્સ્માતને કારણે કોઈ નુશાન થાય અથવા અવશાન થાય તો તે બાબતની આર્થિક અને કાયદાકીય જવાબદારી ઇજારદારની જ રહેશે.

(૩૨). સ્પેશિય રીપેરીંગની કામગીરી હુકમ મળ્યેથી એક મહિનામાં પૂરી કરવાની રહેશે તેમજ મટીરીયલસ એનેક્ષર–બી મુજબ આપવાની રહેશે.

ઇજારદારની સહી

ચીફ ઓફિસર

નોટીફાઇડવિસ્તાર,જીઆઇડીસી,હજીરા.

NAME OF WORK: Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High MastFitting& SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.

SCHEDULE - A

Schedule showing (approximately) the materials to be supplied from the NAA/GIDC store for work contracted to be executed and the rates at which they are to be charged for:

Particulars	Rate at which the material will be charged to the contractor.			Place of Delivery.
	Unit	Rate in		
		Figures	Words	
1	2	3	4	5
Nil	Nil	Nil	Nil	Nil

BIDDER'S SIGNATURE

CHIEF OFFICER (NA)
GIDC, HAZIRA

SCHEDULE – E

"EXPERIENCEALLPROJECTSINPROGRESS"

Give information about all projects which are in progress including the company has received a letter of intent/ acceptance but a formal contract has not yet been awarded.

Employer	Engineer responsible for supervision	Location & Description of works	Value of contract	Cost of work executed as on date of this bid	Remaining work to be executed as on date of this bid	Percentage of practical completion	Date of work order	Stipulated date of completion of work	Likely date of completion	Reasons for slow progress if any.
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
	Total									

Note: -Non-disclosure of any information m the schedule willresult in disqualification of the bidder.

Signature of Contractor

STATEMENT NO.-1

LIST OF WORK ALL READY COMPLETED BY THE TENDERER

Sr. No.	Name of Work	Name of Dept.	Approx. Cost Rs.	Time Taken	Remarks

Signature of contractor

Note: - If statement is not filled in, it will be considered that the renderer has not carried out of any work.

APPENDIX – B

- **Machinery/ Equipment :-**

  Bidder shall have to submit a prescribed notarized undertaking on Rs.300/- stamp paper for deploying machinery/equipment for the work under tender as per below.

Undertaking for deploying Machineries/ Equipments/ Tools
(To be submitted on Rs.300/- stamp paper & notarized.)

Name of Work:

Tender ID:-

List of minimum Plant & Equipment to be deployed on Contract Work

Sr. No.	Type of Equipment	Minimum Nos. of Equipment required
1	Necessary tools & tackles for Street Light work (hydraulic van/Tower ladder vehicle/ boom van etc. up to 10mtr.).	

I/We hereby undertake that if I/we awarded the above said work then I/we shall deploy all Machineries/Equipments/Tools & Plants etc. as shown in the Appendix-B in fully working condition and utilize the same while execution of the work. We also undertake that I/we shall deploy other Machineries/Equipments/Tools & Plants etc. over & above shown in Appendix-B in working condition and utilize the same as perinstruction of Engineer-In-Charge. Failing to above we shall not object any action taken against us within the tender provision.In case of any dispute, Superintendent Engineer's decision shall be final.

Date: - Authorized signatory of Bidder

Place:-

STATEMENT OF MACHINERY

LIST OF PLANT & MACHINERY IN GOOD WORKING ORDER AVAILABLE WITH THE TENDERER

Sr. No.	Plant or machinery & Location	Age of Machinery	Make & capacity	Approx. Value	Remarks
1					

Signature of contractor

Annexure - A

NAME OF WORK: Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High MastFitting& SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.

Calculation for the Efficiencyfor Month of Billing :

Street light Efficiency = Total No of Light - Out off order light X 100
Total No of Light

Note : No of complain not attended within one day incl. street light off due to power problem more than one day will also be consider as out of order light.

Efficiency Report

Sr. No.		**Date**	**Street Light**
1	Efficiency as per inspection on dated :		
2	Efficiency as per inspection on dated :		
3	Efficiency as per inspection on dated :		
4	Efficiency as per inspection on dated :		
		Total :	

Average Efficiency = Total Efficiency / 4

Say :

Mode of Payment	
Efficiency	**Payment**
Average Efficiency 90%	100%
Average Efficiency 80%	80 %
Average Efficiency 70 %	70%
Average Efficiency Below 70 %	50%
Average Efficiency Below 50 %	25%
Average Efficiency Below 25 %	Nil

SIGNATURE OF CONTRACTOR

CHIEF OFFICER (NA)
GIDC, HAZIRA

ANNEXURE - B

STREET LIGHT

FOR ARC OFSTREETLIGHT WITH STREETLIGHT FITTING & ACCESSORIES

LIST OF APPROVED VENDOR OF ITEMS / EQUIPMENTS FOR STREETLIGHT

SR. NO.	LIST OF ITEMS	APPROVED MAKES
1	~~STREETLIGHT SWAGED TYPE POLE (9.0 Mtr Height)~~	~~VALMOUNT/ SURYA/TRANSRAIL/WIPRO/ ASIAN OR AS APPROVED BY R&B DEPARTMENT.~~
2	STREET LIGHT BRACKET	FABRICATED FROM & M.S. ERW "B" CLASS PIPE MANUFACTUREDD AS PER IS: 2713: 1980
3	STREET LIGHT FIXTURE HPSV/LED/CFL LAMPS	BAJAJ,CROMPTON,PHILLIPS or As Approved by Engineer – In Charge
4	XLPE ARMOURED CABLE	POLYCAB, RR CABLE,HAVELLS
5	LUG	DOWELL'S / ISMAIL/ 3 – D/ JAINSON
6	GLAND	COMET/ HMI/ SIEMENS
7	MCB /MCCB/ELCB	L &T/SIEMENS/ABB/C & S/Havells
8	FR PVC INSULATED WIRE/CABLE	POLYCAB/ RR CABLE/HAVELLS
9	G.I. PIPE / Cable entry pipe.	Medium Class – 'B' ISI heavy duty
10	DOUBLE WALL CORRUGATED (DWC) POLYTHINE PIPE As PER IS 14930/ Par 2: 2001	DURAGUARD / GEMINI
11	Energy Saving /MSP Panel with Canopy	CPRI /ERDA Approved
12	Digital Time Switch	L & T or Eq.
13	Power Contactor	L &T/SIEMENS/ABB/C & S/Havells
14	PLASTIC JUNCTION BOX	SINTEX/ ELECON –CLIPSER or equivalent
15	PVC TAPE	STEEL GRIP

16	HPSV/LED/CFL LAMPS	PHILLIPS/BAJAJ/CROMPTON or as approved by Engineer In Charge.
17	EARTHING	OBO/RAPID/ASHLOK

Note: Wherever the make is not specified then the materials used for ARC & special repairto be get approved from Executive Engineer (M&E)/Engineer In-Charge.

SIGNATURE OF CONTRACTOR

CHIEF OFFICER (NA)
GIDC, HAZIRA

NOTE-1: All work shall be carried out as per Public Works Department Handbook and Other specifications of Division or as directed.

NOTE-2: All the communes are Schedule should be filled in ink and the total of the entries

Inthe last column should be struck by the contractor under his signature.

NOTE-3: Rates quoted include clearance of site(prior commencement of work, and at its close) in all respects and hold good for work under all conditions, site, moisture, whether etc.

NOTE-4: To be continued on additional sheets, if found necessary.

NOTE-5: The contractor shall exhibit the details of work, tender amount, name of agency, agreement number and specification of items of works as directed by the Engineer-in-charge on board @ site of work for which contractor is not AnyExtra payments.

NOTE-6: No advance payment on material shall be made unless so tested in ERDA.

NOTE-7: Testing of material shall be done as statement attached with specification, the material shall be tested in ERDA by Executive Engineer Vadodara and bill for existing charges shall be paid by Executive Engineer 1% of amount put to tender after deducted.

NOTE-8: 1 % of construction cost shall be deducted from bill amount of contract as per the building and other construction works welfare cess at 1996 (Labour and Employment department letter n. CWA – 2004 – 1831-M(3) date: 09-12-05 notification of labour act cost of deference of cement consumption shall be added or deducted from the rate of original items at the rate mentioned in the tender.

NOTE-9: The Rates are inclusive of all taxes, GST, Transport charges, Octroi duty and storage Charges up to date.

NOTE-10: The material covered for wiring should be got approved from the Ex. Engineer / Dy. Executive Engineer (M & E) in charge of the work.

NOTE-11: The material on work shall have to be used and carried out as specified in technical note

NOTE-12: All works shall be carried out as per Public Works Department hand book and Other.

1) I/We hereby declare that I/We have visited the site and fully exquisite myself/ourselves with the local situation regarding materials, labour and other factors pertaining to work before submitting tender.

2) I /We hereby declare that I/We have carefully studied the conditions of contracts, Detailedspecification and other tender document of this work and agree toexecute the same accordingly

BIDDER'S SIGNATURE

CHIEF OFFICER (NA)
GIDC, HAZIRA

SPECIFICATION OF SPARES/PARTS MATERIALS::

1.0 GENERAL

The scope of works covers Design, manufacture, factory testing, supply, delivery to site, unloading, handling and storage at site, complete installation including cement concrete foundation and supporting steel structure wherever necessary, final checkup, painting, performance testing and commissioning of pumping machinery and related electrical equipments, Instrumentation system and other required accessories to be supplied under these specifications on turnkey basis. Scope also includes first filling of consumables and satisfactory performance of all equipments provided in price Schedule, Vol-III.

All piping works includes suction, delivery bypass, header pipes, rising main, pipe manifold system including specials, eccentric reducers, concentric reducers, Y connections, tees, bends, puddle flanges, thrust blocks, chambers, required civil works, spectacle blinds, gaskets, nuts bolts, washers, etc complete. Scope also includes connections to CI delivery pipelines with HDPE pipes in all respect at his own cost.

The contractor shall be fully responsible for the electrical, mechanical, instrumentation equipments & other installations for storage, theft, fire natural calamity etc. till the entire work covered by this contract is satisfactorily completed by his and handed over to the owner.

If any discrepancy is noticed between conditions of contract, specifications, Schedule – B and Drawings, the most stringent of the above shall apply.
All electrical & mechanical installations shall be of high quality, safe durable, complete and fully operational including all necessary items, spares and accessories whether or not specified in detail. All electrical & mechanical work shall be completed in accordance with the regulations and standards to the satisfaction of the owners.

Any item of work, either supply and / or erection of material/ machinery which have not been specifically mentioned in this specification and drawing but are at most necessary to complete the work for trouble free, efficient operation and guaranteed performance of the entire plant offered shall be deemed as included within the scope of this specification and shall be provided by contractor without any extra cost to the Owner.
The contractor will have to submit data sheets and constructional drawings after award of contract of work and before manufacture of equipments. The same shall be got approved from the owner.

Equipment and accessories shall be manufactures as per the regulations, relevant standards, and specifications. The material of construction of pumps, valves and pipe work shall be non corrosive and tested in laboratory. Equipments shall be selected and procured from the approved vendors only.

The contractor will have to arrange factory inspection and testing of equipments as per the Indian Standard Specification or equivalent standards at his own cost. During inspection tenderers shall provide traceable certificates (of authorized bodies) of test and calibration

instruments/ equipments that are used for testing of instruments. Following Test Certificates shall be provided.

- Certificates of calibration with its accuracy and uncertainty
- Certificates of standards and classification
- MOC certificates of instruments and its parts

The equipments shall be installed as per the instructions of the respective manufacturer of equipments and verification of various process parameters including behavior of equipment in abnormal conditions.
The contractor shall submit required copies of instructions and maintenance manuals of all equipments in English/Gujarati on operation, preventive and regular maintenance and repair.

On completion of work, the contractor will have to submit as built drawings indicating the complete mechanical and electrical system.
The tenderer shall provide technical catalogues & any reference for standards along with his tender documents. The tenderer shall also mention detail model No. of instrument or software with its types and sub types along with its accessories, if any. The separate sheet shall be provided of all instruments for each service.

Latest Standards, software versions and classifications to be ensured as per the specifications wherever applicable and mentioned. The tenderer shall indicate any deviation to given specifications shall be indicated in tender Performa.
Each instrument shall be supplied with riveted and easily visible (after installations) SS complete. The nameplate shall be as manufacturer standard with following details.

A, Model No.
B, Tag No.
C, Range with its engineering unit.
D, Approval of any standards, if any
E, Serial No.

The tenderer shall provide test certificates for instruments and its material wherever applicable and calibration certificates within specified accuracy level. The tenderer shall provide certificates, which ensures standards, classifications, etc. from recognized manufacturer by government authorities.

Packing & forwarding: Each instrument shall be suitably protected with suitable packing material and shall be marked its project identification in BLUE colour for easy scrutiny.

2.0 Regulations and Standards

All material and equipment shall conform to the relevant Indian Standards and shall be of the approved make and design. The material of construction of all components, which are in direct with liquid, shall be non – corrosive. The contractor shall be responsible for the safe custody of all the materials and shall insure them against theft, damage by fire, earthquake etc. Any item, which is proposed as a substitute, shall be accompanied by all technical detail

giving sizes, particulars of materials and the manufacturer's name and shall be submitted along with the bid offer. At the time of the submission of proposed substitute the contractor shall state the credit, if any due to the Owner's. In the event, the substitution is approval all changes and substitutions shall be requested in writing and approvals obtained in writing from the Owner. Decision of Owner in the matter shall be final.

All materials of the same kind of service shall be identical and made by the same manufactures. Any deviation to this rule shall be approved by the Owner. Top priority shall be given to the products that have a permanent agent providing spare parts and maintenance facilities in the same city where the project is situated.

The installation shall conform in all respects to Indian Standard Code of Practice for pumping machinery and electrical equipment installations. It shall also be in conformity with the current Indian Electricity rules, Indian Electricity Act, National Electrical code and regulations of the local Electrical Supply Authority in so far as these become applicable to the installation. Wherever these specifications call for a higher standard of material and / or workmanship than those required by act of the above regulations, then these specifications shall take precedence over the said regulations and standard. In general, the material, equipment and workmanship not covered by the above shall conform to the relevant Indian Standards.

The electrical installation work shall be executed by licensed electrical contractor and shall follow codes, Indian standard specifications and Rules (within the best meaning of the same) under this contract.

3.0 Operation Methodology

Operation methodology shall be by instrumentation. The intending tenderer shall quote rates with fill justification for other items that are required in his opinion over and above the items provided in the price schedule.

4.0 Inspection and Testing

Owner reserves the right to inspect and test at manufacturer's works at all reasonable times during manufacture of items included in this contract. Tests on site of completed works shall demonstrate among other things.

4.1 That the equipment installed complete with specifications in all particulars and is of the correct rating for the duty and site conditions.

4.2 That all items operate efficiently and quietly to meet the specified requirements.

4.3 That all circuits are correctly fused and protected and that all protective devices are properly coordinated.

4.4 That all non-current carrying metal work is properly and safely grounded in accordance with the specifications.

4.5 While testing any machineries / equipments at manufacturer's / contractor's place the Owner shall reserve the right to check / calibrate all the measuring devices.

The contractor shall provide all necessary instruments and labour for testing and shall make adequate records of test procedures and readings and shall repeat any tests requested by the Owner and shall provide test certificates signed by a properly authorized person. Such test certificates shall cover all works.

If tests fail to demonstrate the satisfactory nature of the installation or any part thereof then no claims for the extra cost of modifications, replacements or retesting will be considered. The Owner decision as to what constitutes a satisfactory test shall be final.

The above general requirements as to testing shall be read in conjunction with any particular requirements specified elsewhere.

4.6 All materials, components and equipments covered in this specification shall be procured, manufactured, erected, commissioned and tested at all the stage as per comprehensive quality assurance programme drawn in with ISO-9000A.

This is however, not intended to form a comprehensive programme as it is the contractor's responsibility to draw up and implement such programme duly approved by the Owner. The detailed quality plans for manufacture and field activities should be drawn up by the tenderers separately in the prescribed format and will be submitted to Owner for his approval.

4.7 Manufacturing quality plan will detail out for all components and equipments, various test/inspection be carried out as per the requirements of specification and standard mentioned there in quality practices and procedures followed. Contractor's quality control organization, the relevant reference documents and standards, acceptance norms, inspection documents raised etc. during all stages of material procurement manufacture, assembly and final testing / performance testing.

4.8 Field quality plans will detail out for all the equipments the quality practices and procedure etc to be followed by contractor's site quality control organization, during various stages of site activities from receipt of materials / equipments at site.

4.9 The tenderer shall also furnish along with the quality plan copies of the reference documents/ plant standards/ acceptance norms/test and inspection procedure etc as referred in them. These quality plans and reference documents/standards etc will be subject to Owner approval, without which manufacture shall not proceed. These approved documents shall form a part of the contract. In these approved quality plans Owner shall identify customer hold points (CHP) test/checks which shall be carried out in presence of the .Owner which work will not proceed without Owner in writing.

All deviations to this specification, approved quality plan and applicable standards must be documented and referred to Owner representative along with technical justification for approval.

4.10 No materials/equipments in required quantity shall be dispatched from the manufacturer's works until & unless the same is either accepted subsequent to pre dispatch final inspection (including verification records of all previous test/inspection) by Owner representative or such pre dispatch final inspection is waived by the Owner.

All material used or supplied shall be backed up by valid material certificate and test reports. These certificates and reports shall indicate the hit number or other such acceptable identification number of the material they purport to certify. The material certified should also have the identification details stamped on it.

4.11 All material used for equipment construction including casting and forging etc shall be of tested quality as per relevant codes/standards. Details of results of the test conducted to determine the main properties, chemical analysis and details of treatment procedure recommended and actually it shall be recorded on certificates. Tests shall be carried out as per applicable materials standard agreed details.

4.12 No welding shall be carried out on iron component for repair or whatsoever purposes.

All the sub vendors proposed by the contractor for procurement of major bought out items including castings, forging, semi finished and finished components/equipment

(list of which shall be drawn by the contractor, submitted to and finalize by the Owner) shall be subject to Owner approval.

4.13 The contractor shall undertake an inspection, testing program during manufacture in his work that of his sub contractor's to ensure the mechanical accuracy of components, compliance with drawing conformance to functional and performance requirements acceptability of all materials, parts and equipments correlation of its identity with test certificate shall carry out all test/ inspection required establish that the items/equipments conform requirements of this specification and the relay codes/standards specified in this specification addition to carrying out tests as per the approval.

5.0 Painting

Equipments shall first be cleaned and given two coats of Zinc base primer and then it shall be coated with three coats of approved shade of paints. The coating shall be uniform and smooth and shall adhere to the entire surface.

6.0 Packing and Preservation

6.1 Each spares shall be clearly marked or labeled on the outside of the packing with its description. When, more than one spare part is packed in a single case, a general description of the contents shall be shown on the outside of such case and a detailed list enclosed. All cases, containers and other packages must be suitably marked and numbered for the purpose of identification.

6.2 All cases, containers or packages are liable to be opened for such examination as may be found reasonable by the engineer.

6.3 In case of equipment supplied with grease/lubricants from imported origin, the supplier shall clearly indicate the indigenous equivalent of the grease/lubricant and source of supply so as to enable to owner to procure these items for indigenous sources. Necessary initial filling of lubricating oil, grease etc. shall be arranged by the contractor with no extra cost of Owner.

7.0 Spare Parts

The tenderer shall indicate and include, in the supply all the necessary commissioning spares and recommended spares (of OEM) as described below in the schedule of spare parts. The owner reserves the right to finalize the exact quantities of the spare parts. The spare ordered by / Owner shall be delivered at the site at agreed delivery schedule.

7.1 Commissioning Spares

7.2 It will be the responsibility of the Contractor to draw and furnish a list of all commissioning spares required for successful commissioning of the equipment covered under the contract. Such list shall be furnished by the contractor within four months of the date of LOI / work order, separately for each equipment and shall be reviewed by Owner and discussed for mutual agreement. The commissioning spares will be so identified as to allow the trial operation to suffer for want of commissioning spares. The identification of commissioning spare will not in any way relieve the vendor any of its responsibilities of satisfactory performance under the provisions of other condition of contract. All the commissioning spares shall be deemed to include in scope of the contractor as a part of the respective equipment package at no extra cost to Owner.

7.3 All such identified spares shall be supplied by contractor at least two months before the schedule date of commencement of trial operation of trial operation of the respective package. Such spare shall be received and stored. Erection contractor at the project site and utilized when required.

8.0 Recommended Spares

8.1 In addition to the spares mentioned above, the tenderer shall also indicate in the schedule of recommended list of spare parts, his recommended list of spares with unit price for two year of normal operation of the plant. The / owner reserves the right to buy any or all of the recommended spare parts.

8.2 The tenderer shall also indicate the services expectancy period for the spare parts under normal operating conditions before the replacement is necessary.

8.3 In case some of the spare parts become inapplicable due to change in design / engineering agreed by the / owner, the / owner reserves the right to procure some other spares whose prices are already available in the initial offer in lieu of such not applicable spares subject to the condition that the total amount of the initial order remains the same.

9.0 Completion Certificate

On completion of the electrical and mechanical installation (or and extension to an installation) a certificate shall be furnished by the contractor countersigned by the licensed supervisor, under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local authority. The contractor shall be responsible for getting the installation inspected and approved by the local concerned authorities. Contractors have to co – ordinate and co-operate to the concerned official of NAA/GIDC/DGVCL and Electrical Inspector for timely released of power supply and for initial inspection and annual inspection of all electrical equipments and installations.

The indicative scope of work to be carried out by the selected contractor, inter alias include the following, but are not limited to:

9.1 Identification of Underground utilities/ Shifting of utilities shall be required.

Apart from carrying out improvement and maintenance works, the Contractor shall be, inter- alias, responsible for the following activities:

(i) Procurement of required clearances (other than those specified as NAA/GIDC's obligations) for commencing and completing the works.

(ii) Surveying and setting out of Works and other pre-construction stage activities as required by NAA/GIDC and prudent utility practices;

(iii) Completion of works according to the scope of works, specifications and drawings within stipulated time frame, with adequate equipment and plant support;

(iv) Safety management during implementation of Works.

(v) Preparation and implementation of Total Quality Management Program;

10. RESPONSIBLE CONTACTS.

Interested Applicants may obtain further information at the following address:

The Executive Engineer(M&E), ,
Plot No. C-5/101, GIDC -1st Floor,
Administrative Office Building,
Char-Rasta. Hazira-396195
Phone: 0260- 2430751 /
2430074/2432670
Fax : 0260 - 2420502
E-Mail:
icxenme-Hazira@gidcgujarat.org,
chiefofficer.naoHazira@yahoo.in

BIDDER'S SIGNATURE

CHIEF OFFICER (NA)
GIDC, HAZIRA

DETAILED TECHNICAL SPECIFICATIONS (ELECTRO-MECHANICAL EQUIPMENTS)

Name of Work: - Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High MastFitting& SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.

ITEM WISE SPECIFICATION FOR THE WORK OF:

PART - A (For NAA, GIDC, 46-Hector, Ichhapor, Bhatpore & Kawas Industrial Estate.)

Item No.1 to 04:

- SITC of Swaged Type - 410 SP - 26 : 9.00 Mtr. Streetlight Pole without Bracket & accessories but provided/ fitted with item no. (a) to (g) mentioned below with their specifications: Supplying Steel tubular pole (Swaged) confirming to IS - 2713 (Part-II) 1980. Manufacturing process of steel tubular pole should be as per IS specification. Basic steel tube should be ISI Marked. Pole should be painted by one coat of Zinc comet Primer and two coat of Aluminium /approved paint to be erected on / in existing Foundation. The length of poles are as below. (i) Pole as per IS code 410-SP-26 with 300 X 300 X 4 mm base plate. (Approximate weight 78 Kg) For burial erection, (ii) Add Extra for M.S. Base plate 300 X 300 X 16 mm for pole, Suitable for mounting on surface of foundation with foundation bolts, with required stiffeners welded with pole., (iii) Add Extra for PU base primer and PU Paint on pole: (a) Overall length of pole: 9.00 mtrs., (b) Planting depth: 01.50mtrs., (c) Height above ground level : 07.50 mtrs., (d) Length of section - Out side dia. & Wall thickness, Bottom: 5.00 mtrs. - 114.30 mm x 4.50 mm., Middle : 2.00 mtrs. - 88.90 mm x 4.05 mm., Top : 2.00 mtrs. - 76.10 mm x 3.25 mm., (e) Approximate Weight of Pole : 92 Kg.

- Providing M-20 / 1:2:4 cement concrete foundation & 70 % PCC from bottom including excavation for the pole of size 60 x 60 x 150 cms. Deep in below ground level with plinth of 45 cms x 45 cms(or 45 cms dia x 45 cms) high upper ground level with necessary curing and finishing in approved manner.(1 No. per St.light Pole.)

- Providing street light pole bracket comprising main Light Claas MS tube of 4.2 cms. Outside dia. Complete with suitable M.S. sleeve tubing of approx. 45cms. Length and suitable for 76.5mm. /80 mm or require size pole top having sufficient fastners for fixing the brackets and having suitable rise as per site condition as directed and spread of 2 mtr. with suitable wekded stiffener reduser and with lock nut complete painted with one cost of Red oxide /PU paint . Suitable for side entry fitting brackets of following nos of arms. (a) Single Arm brackets 2 Mtr.

- SITC of funnel type pipe earthing having 150 cm Long and 2.5 cm dia. Medium Class Galvanised iron pipe with coupling and buch burried in specially prepared earth pit with salt

& charcoal complete with necessary double 8 SWG GI earth wire - 0.8 Kg (2 x 3.5 Mtr. = 7Mtr.) laid upto bolt fitted in pole for earthing . (Earthing at each poles) as per drawing - (1 Job Per St. Light Pole)

Make: As approved by Engineer – in Charge
Mode of Measurements: No. basis.

Item No. 05 to 09:

- Providing, laying, testing & commissioning of 1 x 4.0 Core x 16 Sq. MM, XLPE (IS: 7088 (i) - 88), ISI Mark, Armoured, Multistranded, Aluminium Conductor suitable for 1.1 kV grade to be laid 90 Cms under ground or to be laid on wall with necessary clamps or in existing cable trench/ pipe at road crossing or on floor and making the ground as per original of the following cores and sizes of cables. - For Streetlight between two poles & Service Connections.(D) 4-core 16sq.mm.

- Providing & laying mains with 1.1 kV grade FR PVC insulated ISI Marked Stranded Copper cable having Conductor 3-core 2.5 Sq. MM. in exising pipe/ in street light pole erected with 3-core 2.5 Sq. MM. copper conductor FR PVC insulated stranded wire of green colour for earth continuity. - (St. Light Fitting x 1 No. St. Light JB = 20 Mtr.).

- SITC of Solderless Crimping Type Aluminium Lugs(4 Nos. lugs per termination) suitable for 1x4.0 Core x 16 Sq.mm. XLPE Aluminium Armoured cable tail complet erected with insulating materials for each termination.

- Providing Laying approved make Double walled corrugated pipes (DWC) of polythylene (conforming to IS 14930 II) with necessary connecting accessories of same materials at required depth for laying of cable. Below ground / road surface for enclosing cable and back filling the same to make ground as per original.(A) 50 mm dia.

- Painting of street light pole with bracket complete with coats of Aluminium paint for following size of pole. [C] up to 9 mtr.

Make: As approved by Engineer – in Charge
Mode of Measurements: No. & Mtr. basis.

Item No.- 10 & 11

- Supplying and erecting LED street light fittings with High power White LEDs wattage of 1Watt and above- per OEM Street light (IP 66) 60 W, 7800 Lumens, Surge - 10 KV and (1) i.e max. LED/Emitting lamp wattage:1.76 Watt (2) Maximum Circuit Power consumtion should

be of 4 watt assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 90 to 300 V,(3) Oprating Voltage range should be 90 V - 300 V, 50 Hz (4) AC Power Factor more than 0.95, (5) THD < 10 %, (6) CCT 5000 K to 5700K,(7) Coverage Area should be 24 to 26 Mtr X 10 Mtr. (8) LED Luminary should be comply the protection class of IP-66 Class. (9)Uniformity ratio >0.45,(10) Luminaire efficiency>130 lumens/watt . (11) LED driver efficiency > 90 %. CREE / OSRAM / Lumileds / NICHIA make LED used for luminaire. (Each fittings required LM-79 & LM-80 certificates) The fitting should be suitable for side entry having suitable socket bore for clamping complete erected having IP-66 Protection Class (1 No. St. Light Fitting per Arm x 1 Single Arm = 1 No. LED Fitting- (Cat- III).

- Supplying and erecting LED street light fittings with High power White LEDs wattage of 1Watt and above- per OEM Street light (IP 66) 250 W, 32500 Lumens, Surge - 10 KV and (1) i.e max. LED/Emitting lamp wattage:4.5 Watt (2) Maximum Circuit Power consumtion should be of 5 watt assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 90 to 300 V,(3) Oprating Voltage range should be 90 V - 300 V, 50 Hz (4) AC Power Factor more than 0.95, (5) THD < 10 %, (6) CCT 5000 K to 5700K,(7) Coverage Area should be 24 to 26 Mtr X 10 Mtr. (8) LED Luminary should be comply the protection class of IP-66 Class. (9)Uniformity ratio >0.45,(10) Luminaire efficiency>130 lumens/watt . (11) LED driver efficiency > 90 %. CREE / OSRAM / Lumileds / NICHIA make LED used for luminaire. (Each fittings required LM-79 & LM-80 certificates) The fitting should be suitable for side entry having suitable socket bore for clamping complete erected having IP-66 Protection Class (1 No. St. Light Fitting per Arm x 1 Single Arm = 1 No. LED Fitting- (Cat- III).

This specification is for technical and general requirements design, development, manufacturing, testing and S.I.T.C. of energy efficient LED luminaire complete with all accessories, LED lamps with suitable current control driver circuit and required optics including mounting arrangement for streetlight going to use at the site.

CODES & STANDARDS: -

- IS: 513 Cold-rolled low carbon steel sheets and strips
- IEC 60529 Classification of degree of protections provided by enclosures (IP Codes)
- EN 55015, CISPR15 Limits and methods of measurement of radio disturbance characteristic of electrical lighting and similar equipment.

- IEC 62031 LED modules for general lighting-Safety requirements
- The luminaries shall conform to norms on transient voltages, voltage dips and fluctuations as per EN 61547 Equipment for general lighting purposes–EMC immunity requirement
- EN 60929 Performance, AC supplied electronics ballast for tubular fluorescent lamps performance requirement.
- IEC 60598-2-1 Fixed general purpose luminaries
- IEC 60598-1 Luminaries - General requirement and tests
- IEC 61000-3-2 Electro Magnetic compatibility (EMC) - Limits for Harmonic current emission – (equipment input current ≤ 16 A per phase).
- IEC 60068-2-38 Environmental Testing: Test Z- AD: composite temperature/ humidity cyclic test
- IEC 61347-2-13 Lamp control gear: particular requirements for DC or AC supplied electronic control gear for LED modules.
- IS 10322 Specification for the luminaries
- The luminaries shall comply with IS 10322 for functional, photometric and safety requirements. The fixture shall conform to safety standard EN 60598.
- IS 4905 Method for random sampling.
- LM 79 LED luminaire photometry measurement.
- LM 80 Lumen Maintenance
- IEC62384 DC or AC supplied electronic control gear for LED modules performance requirements
- IEC/ PAS 62612 Self-ballasted LED lamps for general lighting services- Performance requirements.
- IEC 62471 - Photo-biological safety of lamps and lamp systems.
- RoHS (Reduction of Hazardous Substances).
- The luminaries fitted with LED source shall be CE and ISO certified to ensure quality of the LED source.
- ANSI C.78.377.2008 - Specifications for the Chromaticity of Solid State Lighting Products.
- IESNA LM- 79-08 - IESNA Approved Method for the Electrical and Photometric. Measurements of Solid State Lighting Products.
- IESNA LM-80-08 (Recommended)- IESNA Approved Method for Measuring Lumen Maintenance of LED Lighting Sources.
- UL Standards (Latest Approved) –

o 8750 Light Emitting Diode (LED) Light Sources for use in Lighting Products.

- 1598 Luminaries.
- 1012 Power Units other than Class-2
- 1310 Class-2 Power Units
- 2108 Low Voltage Lighting Systems.

ENVIRONMENTAL CONDITIONS: -

The LED streetlight is to be used at the in city of Notified Area Authority (NAA), GIDC, Hazira .It is located in part of South Gujarat.

It is well connected with rails & roads, situated on all type roads, Railway and nearby road is NH # 48. The average atmosphere conditions during the year are mentioned below. The equipment shall be designed to work in such environmental conditions:

- Maximum ambient air temperature: 50° C
- Minimum ambient air temperature: 5° C
- Max. Relative humidity: 90% or as per weather condition
- **Average Rainfall: 100 to 120 inches**
- Atmosphere: Dusty and Heavy chemical smoke at times in certain areas.
- Coastal area: The equipment shall be designed to work in coastal area in humid, salt laden and corrosive atmosphere.

CONSTRUCTIONAL FEATURES:

General:

Luminaire shall be made of die cast aluminum / extruded Alunimiam body with powder coated finish having safety.

The casing of the lighting luminaries shall be made of pressure die cast aluminium coated with epoxy polyester powder coat single. The driver unit must be accessible and if need be replaceable easily and with minimum use of tools.

The casing made of non-corrosive aluminium having high conductivity shall have external surface designed in a manner so as to act as an efficient heat sink to extract heat generated at PN-junction of a LED. Efforts shall be made to install the fittings on the required street light pole

without compromising on the performance of the LEDs or luminary.

The Fixture manufacturer shall perform solder point temperature (Tsp) measurement and compute junction temperature (Tj). The manufacturer shall show the proof that the junction temperature shall not go beyond the LED manufacturer's maximum junction temperature for long term lumen maintenance (i.e., 70% of the original value of lumen output after 50000 hours of operation).

Lumen intensity distribution shall be available according to following standard: EN 13032-1, EN 13032-2 and EN 15193.

The lumen output at end of lifetime shall be supplied as well as initial lumen output, with temperature at which the lumens are rated.

Test result shall be provided to indicate adequate thermal performance for the long term operation of the LED's at an operating temperature (Ta) of not less than 35°C in accordance to relevant local or international standards. The LED junction temperature shall be maintained at or below manufacturer's recommendation.

The rated LED life L70/B20 shall be more than 50,000 hours at LED operating at (Ta) 35°C.

The fixture manufacturer shall furnish proof that the LEDs that have been offered and used in the fixture have White Point stability data ((Min. 10000 Hours) as per IESNA's LM80-08, done at high ambient temperature 85°C and solder point temperature of 85°C.

The fixture manufacturer shall furnish proof that the LEDs that have been offered and used in the fixture have been tested to IEC 62471 for safety requirements.

Heat sink used should be aluminum extrusion having high conductivity. Heat sink should be integrated within luminaire and efforts shall be made to keep the overall outer dimensions optimum such that it permits sufficient heat dissipation through the body itself so as to prevent abnormal temperature inside the luminaire and consequential damage to cover, gasket material, LEDs, lenses and drivers.

The luminary shall be provided with a built-in external heat sink as well as an aluminium MCPCB printed circuit board, designed in such a way that the heat generated within the LED source is efficiently dissipated to the surrounding atmosphere without abnormal rise in temperature. Any debris build up shall not degrade heat dissipation performance of the luminaries. A lighting luminaire fitted with an assisted cooling system is not acceptable.

LED must be mounted on Metal core PCB with suitable large area surface by means of fins to dissipate the conduct heat. The fins must be exposed to ambient flowing air.

The assembly and manufacturing process for the LED source assembly in modules/arrays shall be designed to assure all internal components are adequately supported to withstand sudden impacts and mechanical shock and vibration from high winds and other sources.

All luminaries shall be provided with toughened glass of min. 0.8 mm thickness of sufficient strength. UV stabilized Poly carbonate material is also acceptable. High efficiency prismatic diffuser/Lens under the LED chamber to protect the LED and luminaries shall be provided.

No part shall be constructed of polycarbonate unless it is UV stabilized.

Material used for the lens of LED source shall be of toughened glass, heat resistant and shall not undergo discoloration during lifetime of the LED source. It shall conform to ASTM specifications for the materials. Any discoloration observed in the lens shall be considered a failure under warranty clause.

All luminaries shall be provided with acrylic / polycarbonate / glass diffusers and/or aluminized reflectors and/or lenses to provide proper road lighting distribution.

Toughened and/or tempered glass of sufficient strength may be provided under the LED chamber to protect the LEDs and luminaries.

The LED lens shall be UV stabilized and shall be capable of withstanding ultraviolet (direct sunlight) exposure for a minimum period of 60 months without exhibiting evidence of deterioration.

The finish of the fixture shall be powder coated and of grey colour.

The luminaire shall provide efficient uniform illumination.

The luminaire shall be assembled without any glue so that it is fully recyclable and environmentally friendly. Final assembly of the luminaire shall be done by manufacturer in an ISO14001 certified factory.

The luminaries shall be capable of operating normally in ambient temperatures from -20°C to 50°C maintaining junction temperature below 100°C and heat sink temperature below 60°C, ensuring efficient thermal management of the luminaire.

The manufacturers shall ensure that the fixture is designed in such a manner that it conducts the heat away from the LEDs as efficiently as possible. The design shall ensure that the junction temperature is kept as low as possible during operation. Thermal management shall be in such a way that Luminary shall have trouble free operations from -20 ºC to +50ºC. The following tests shall be done to determine efficient thermal Management.

The minimum IK protection of optic cover shall be IK 08. The test material certificate shall be provided.

The fixture shall be designed in such a manner that it is easy to handle and install, is not too large and unwieldy, is of robust construction, light weight and conforms to minimum IP66 class of protection for outdoor use. Luminary's manufacturer should submit IP test report from Govt. Accredited Test Lab / R&D Labs.

Suitable number of LED lamps shall be used in the luminaires. The manufacturer shall submit the proof of procurement of LEDs from OEMs at the time of testing.

Suitable reflector/ lenses may also be provided to increase the illumination uniformity and distribution.

The electrical component of the LED and LED driver must be suitably enclosed in hermetically sealed unit.

The connecting wires used inside the luminaire, shall be low smoke halogen free, fire retardante-beam cable and fuse protection shall be provided in input side.

The material used in the construction of driver printed boards; driver enclosure etc. shall be non-flammable and heat resistant. Also, all the PCBs in the system shall be coated to prevent any corrosion.

Design of the thermal management shall be done in such a way that it shall not affect the properties of the diffuser.

The equipment should be compliant to IEC 60598-1, IEC 62031 and IEC/PAS 62612 depending on the type of luminary.

The LED Module(s), Driver gear, etc. shall be designed in such a way so that temperature of heat sink shall not exceed 70° C.

The driver module on board circuitry shall include voltage surge protection to withstand High-repetition noise transients as stated in Section 2.1.6 of NEMA Standard TS-2/ 1992.

The Entire LED lamps should be driven by minimum 2 or more numbers of the driver circuits or as per OEM Stamdards. The entire power supply to the LED Lamps should be divided among the drivers, thus each driver controlling a group of LED lamps if required for Higher wattage of LED Fitting.

All the material used in the luminaire shall be halogen free and fire retardant confirming to standard.

The LED fitted lighting fittings shall operate at 50 Hz +/- 5 % Hz AC over a voltage Ranging from 90V to 300V with a power factor > 0.95 in a 3-wire distribution system. The total power consumption in the LED lighting fixture shall not exceed the total guaranteed power consumption including power consumption in the electronic circuit of the driver for that particular application over the entire voltage range given in clause. Driver output DC Voltage shall be less than 60V DC complying to safety extra low voltage compliance.

Low voltage compliance:-

The fluctuations in line voltage shall have no visible effect on luminous intensity of the LED luminaries. The operating voltage of the luminaries shall be 230V. All parameters measured at this voltage shall stand valid for the entire operating voltage range of 100- 300V.

Total harmonic distortion (THD) of current and voltage induced into the AC power supply by an LED lighting source shall not exceed 15% for current and 5% for voltage. Harmonic Generation shall be as per EN61000-3-2 and EN61000-3-3 / IEEE 519.

The lighting luminaries shall withstand the following tests.

a. HV test of 10 KV

b. IR test of 500V

c. Product shall cut off its supply when voltage exceeds 300V and regains its normal working at 230vac

The output circuit shall have short circuit and open circuit protection inbuilt to the driver unit.

The infrastructure for Quality Assurance facilities to verify/ test/ prove above specifications must be available at the manufacturing facility. The compliance shall be indicated clearly in the tender itself.

All fasteners must be of stainless steel.

All glands inside/ outside luminaire must be metallic

Heat sink must be thermally connected to MCPCB/ LED light source.

High power and high lumen efficient LEDs suitable for following features shall be used:-

The LEDs shall be of reputed make such as CREE / OSRAM / PHILIPS Lumileds / NICHIA / SEOUL/ Bridge Lux (U.S.A.).

LED module/ array shall deliver at least 70 % of initial lumens, when installed for a minimum of 50,000 hours

The rated LED life L70/B20 shall be more than 50,000 hours at LED operating at (Ta) 35°C.

The working life of the lamp at junction temperature of 85° C (max) at operating current shall be more than 50,000 working hours of accumulative operation and shall be suitable for continuous operation of 24 hours per day. These features shall be supported with datasheet.

To enhance the secondary optics of the fixture, suitable Acrylic Optical Lenses shall be used.

The Correlated Color Temperature (CCT) of the LED fixture shall be in the range of 5700±300K °K.

The luminaries shall ensure a CRI of minimum 80.

The Uniformity Ratio (Emin /Eavg) shall be minimum of 40%.

The LED luminaries shall produce constant lux level in the voltage range of 100V to 3000V. Voltage variations/ fluctuations in the specified voltage range shall not impinge upon the lux level it produces.

The life span of the LED source including its Driver shall be minimum or greater than 50000 hours.

The P/N junction temperature of individual LED must not exceed 100ºC. High Thermal conduction must be achieved by use of silicon heat conductive greases an adhesive.

LED Light must be constructed to achieve the average illumination of LUX as required by PART 8 : ROAD LIGHTING as per National Lightng Code SP 72 : 2010 woth Latest Amendments OR latest edition of CIE 136 (International Commission on Illumination) and all applicable Codes, Regulations, Standards, and relevant Authorities or better without glare at the ground level/ working level for the all the Utility Plants roads with the Uniformity Ratio (Emin /Eavg) of mimimum of 40% and tranverse ratio (Emin/Emax) of 0.4 as per relevant to the employers requirement.

All fasteners must be of stainless steel and rust free.

LED must be mounted on heat sinking conductive bars if any with suitable large area surface by means of fins to dissipate the conducted heat. The fins must be exposed to ambient flowing air.

Heat sink used should be aluminium extrusion / high pressure die cast aluminium having high conductivity. Heat sink should be integrated within luminaire and efforts shall be made to keep the overall outer dimensions optimum such that it permits sufficient heat dissipation through the body itself so as to prevent abnormal temperature inside the luminaire and consequential damage to cover, gasket material, LEDs, lenses and drivers.

The electrical component of the LED and LED driver must be suitably enclosed in hermetically sealed unit.

In addition, LEDs should be PWM dimmable control with future provision for power line communication modem or other standard communication system which shall be able to communicate with electronic drivers or similar type of lighting controllers and operate without generating excessive heat. All the LEDs should be "on" while dimming.

The luminary should be provided with in-built power unit & electronic driver. The luminary should be so constructed to ensure that the drivers shall be of modular type that can be easily replaceable, if required.

The luminaries shall conform to IEC 60598 or equivalent standard. The driver should comply with IEC 61347-2-13, IEC 61547, CISPR-15; and 61000-3-2. The supplier should submit luminary test report conforming to the specified standards.

Light Distribution shall be of Cut Off/ Semi Cut Off type. xix. Each lighting fixture shall be provided with an earthing terminal suitable for connecting 2.5 sq. mm (1 core of the 3Cx2.5 sq. mm copper-PVC cable to be used) copper stranded conductor.

Applicable standards:

The standards and code of practices referred to below shall be the latest editions including all official amendments and revisions.

General safety requirements: IS 1913 - for luminaries

Luminaries for street lighting: IS 10322 - electric cables

Current waveform for the LED drivers should meet relevant national and international standard. xxii. Electronic components IC (Integrated circuit) shall be of industrial grade or above.

Metallic film/ Paper/ Polyester Capacitor shall be rated for a sustained operating temperature of 105° C.

The construction of PCBs and the assembly for components for PCBs should be as per IS standards.

Adequate heat sink with proper thermal management shall be provided.

Lumen maintenance report as per LM 80 guidelines shall be produced for the power LEDs used.

Thermal management shall be in such a way that LED soldering point temperature shall not go beyond 75° C.

The LED luminaries shall be free of glare.

LED DRIVER specification used for streetlight:-

Current waveform should meet relevant nation and international standard.

LED Driver shall withstand voltage of 440 V for 1 minute and restore normal working when normal voltage is applied.

The life of the driver should match life of LED luminaire.

Maximum Temperature rise <= 30º C @ 45º C Tamb. with safety margin of 10º C.

The driver should comply to CISPR 15 for limits and methods of measurement of Radio Disturbance characteristics

The equipment should comply to IEC 61547 for EMC immunity requirements

The control gear should be compliant to IEC 61347-2-13, IEC 62031 and IEC 62384 as per the requirements.

The driver of the luminaires should have Short Circuit, Over Voltage, Over current, Over temperature, Under Voltage, String Open protections.

The driver should be supplied with PWM based dimmable controller.

The electronic components used shall be as follows:-

IC (Integrated circuit) shall be of industrial grade or above.

Metallic film/ Paper/ Polyester Capacitor shall be rated for a sustained operating temperature of 105° C.

The resistors shall be preferably made of metal film of adequate rating. The actual rating versus loading shall be by a factor of 3.

The junction temperature of the Switching devices such as transistors and MOSFETs etc. shall not exceed 125° C (allowing thermal margin of 25° C).

The protective cum adhesive coating used on PCBs should be cleared and transparent and should not affect colour code of electronic components or the product code of the company.

The construction of PCBs and the assembly for components for PCBs should be as per IS standards.

POWER (PRICE) LOADING: -

Power (Price) loading shall be calculated based on followings: -

Rated power input of LED streetlight luminaire shall be guaranteed performance figure. Luminaries shall be designed according to “Fixed” parameters mentioned elsewhere in the tender to achieve Guaranteed Rated Input Power.

PENALTY:-

1. If guaranteed rated power input at fixed parameter is not achieved during the test at site. Corporation shall have (1) the right to accept the luminaires & shall have right to charge penalty

for that or (2) also right to reject the luminaires.

2. It should be very clearly noted that performance parameter i.e. guaranteed rated power input must be achieved according to the fixed parameters. No allowance shall be permitted to alter fixed parameters. No relaxation in this regard is permitted.

Particulars and Details to be submitted by the bidder:

In order to properly assess and due diligence on submissions, the Bidder should provide followinginformation on the quality and photometric of proposed luminaries.

1. **General Description**

Following details of the proposed luminaire shall be submitted as per Annexure: D

2. **Electrical specifications**

Electrical ratings of the proposed luminaire product shall be submitted in Annexure: D.

3. **LED chip and driver information**

LED chip and driver information of the proposed luminaire product shall be submitted in Annexure: D.

1. **Photometric information to be submitted as per Annexure: D.**
2. **Design:-**

Dialux design should be submitted of the product tobe Given.

IES Files of the design also to be submitted for the verification.

Latest LM79 max 2 months old to be submitted.

TESTS & CERTIFICATES:-

i. Design Qualification Testing shall be performed by the manufacturer or an independent testing lab hired by the manufacturer on new LED module/ array designs and when a major change has been implemented on an existing design.

ii. The bidder shall submit manufacturer's test certificates complete with verification of Design Qualification Testing details by an independent testing authority.

iii. The Luminaire manufacturer must show proof that the LEDs they use have been tested and approved to IESNA's LM80. The manufacturer must be able to provide the test data set to establish the authenticity and genuineness of the LEDs.

iv. Tests conducted on LED luminaries are classified as:

a) Type test,

b) Acceptance test,

c) Routine test and

d) Mock-up test.

Type Test: -

Type test certificates for both the luminaires shall be provided with the technical-bid.

These Test shall be carried out to prove confirmation with the requirements of specification and general quality/ design features of the unit. In case of any change in Bill of Material or design of unit, complete type test shall be repeated. If any sample fails in any of the type tests, fresh samples shall be taken and tested. If any sample again fails in that test, the whole lot shall be rejected. The selected fixtures from the lot shall be type tested from the ERDA/CPRI/UL.

Acceptance Tests: -

These tests are carried out by an inspecting authority at the supplier's premises on sample taken from a lot for the purpose of acceptance of a lot. Acceptance tests shall not be carried out from particular size from the lot on which type tests have already been conducted. Recommended sampling plan is given below.

Routine Tests:

These tests shall be performed by the manufacturer on each complete unit of the same type and the results shall be submitted to the inspecting agency, prior to offering the lot for acceptance test. The firm shall maintain the records with traceability.

Mock up Test:

The successful bidder shall provide proposed LED lamp and luminaries on three consecutive poles as demonstration to prove the suitability of the fittings matching with the requirement in regards to lux level, quality of illumination for professional, objective & impartial review jointly by the bidders team along with team of GIDC Engineers. This shall be carried prior to submission of detail design for approval.

Sample size and criteria for conformity:

The luminaries shall be selected from the lot at random. In order to ensure randomness of selection, procedures given in IS 4905-1968 (Reaffirmed 2001) may be followed.

Sr. No.	Description of test	Prototype Test	Type Test	Acceptance Test	Routine Test
1	Visual and Dimensional check	Y	Y	Y	Y
2	Checking of documents of purchase of LED	Y	Y	Y	Y
3	Resistance to humidity	Y	Y	- -	- -
4	Insulation resistance test	Y	Y	Y	Y

5	HV test	Y	Y	Y	Y
6	Over voltage protection	Y	Y	Y	- -
7	Surge protection	Y	Y	Y	- -
8	Reverse polarity	Y	Y	Y	Y
9	Temperature rise Test	Y	Y	- -	- -
10	Ra (Colour Rendering Index) measurement test	Y	Y	- -	- -
11	Lux measurement	Y	Y	Y	Y
12	Fire retardant Test	Y	Y	- -	- -
13	Test for IP 66 protection	Y	Y	Y	- -
14	Environmental tests	Y	- -	- -	- -
15	Reliability Test	Y	- -	- -	- -
16	Life Test	Y	Y	- -	- -
17	Endurance Test	Y	- -	- -	- -
18	LM-79	Y	Y	Y	Y

Method of Testing: -

Visual and Dimensional Check:

The unit shall be checked visually for all dimensions as per approved design and drawing.

General workmanship should be good; all the components properly secured and sharp edges shall be rounded off. Check the marking and quality of the workmanship visually. Check the rating and make of electronic/ electrical items.

Checking of documents of purchase of LED

Check Document of purchase of LED lamps of approved sources viz. CREE/OSRAM/PHILIPS Lumileds/NICHIA/SEOUL/BRIDGELUX (USA) make LED used for luminaire.

Resistance to humidity test

This is carried out by suspending the painted panels in corrosion chamber maintained at 100% RH and temperature cycle of 42 to 48° C for 7 days and examining it for any sign of deterioration

and corrosion of metal surface.

Insulation resistance test

The insulation resistance of the unit between earth and current carrying parts shorted together shall not be less than 2 MΩ when measured with 500 V megger.

HV test

Immediately after insulation resistance test, an AC voltage of 1.72 KV rms (1500 + 2 x rated voltage) of sine wave form of 50 Hz shall be applied for one minute between the live parts and frame. There shall not be any kind of break down, flashover or tripping of supply.

Over voltage protection

The LED Driver Shall be cut off once voltage exceeds 310V +/- 10 VAC. It shall be reconnected when supply comes within limit.

Surge protection

It shall withstand a surge of 10 kV at the input terminals for all types.

Reverse polarity

The Luminaire shall withstand polarity reversal. It shall be operated with reverse voltage for 5 minutes at maximum value of voltage range. At the end of this period, the supply shall be made correct polarity and Luminaire shall operate in a normal way.

Temperature rise Test:

Temperature rise Test shall be conducted at 100 V ~ with full load. The temperature rise shall be recorded by temperature detectors mounted at the specified reference points on the body of semiconductors, capacitors and other components as agreed between purchaser and manufacturer. The maximum-recorded temperature under worst conditions shall be corrected to 55° C and compared with maximum permissible temperature (for power devices at junction). Under loading conditions as specified above, the corrected temperature of the power devices shall have a safety margin of minimum 10°C.Temperature at junction shall not exceed 100° C when corrected to 55° C. The Luminaire shall also be subjected for short time rating after continuous loading to ensure the temperature rise is within the permissible limit. The maximum temperature rise of the electronics devices on the PCBs shall be in limit for industrial grade components suitable for 85° C environment. In case of exceeding limit, use of MIL-grade component shall be considered keeping RDSO informed.

Ra (Colour Rendering Index) measurement test :

The lumen is the unit of luminous flux, which is equal to the flux emitted in a solid angle of one steradian by a uniform point source of one candela.

The initial reading of the chromaticity co-ordinates x & y shall be within 5 SDCM (Standards Deviation for Colour matching) from the standardised rated value as per Annex: D of IEC 60081-1997.

The initial reading of the general colour-rendering index (Ra) shall not be less than the rated

value decreased by 3.

The lumen maintenance of the lamp shall not be less than 80% of the initial lumen after 20,000 burning hours and 70% of the initial lumen after 50,000 hours. The initial lumen will be taken after 100 hours aging.

Photometric test shall be conducted as per Annexure: B of IEC 60081-97.

The lumen maintenance test shall be done as per Annexure: C of IEC 60081-97.

Fire retardant Test:

Fire Retardant test shall be conducted as per IEC 60332-1 of the wire used in the luminaires.

Test for IP 66 protection:

This test shall be conducted as per IEC 60529.

Environmental tests (Prototype Test) :

The Luminaire shall meet the following tests as prescribed in IEC–60571.

(i) Dry heat test.

(ii) Damp heat test

(iii) Test in corrosive atmosphere

(iv) Combined dust, humidity and heat test

Reliability Test :

The reliability can only be determined in actual service. However, the following tests shall be carried out on the prototype to simulate as close as possible, the service conditions.

There shall be no failure during this test.

The light unit shall be mounted in an oven maintained at 45° C.

(ii) The light will be operated at the specified maximum voltage and at 45° C for a period of 100 hours.

Photometry Test: -

The test shall be carried out for Total Luminous Flux, Luminous Intensity Distribution, Electrical Power, Luminous Efficacy (calculation), Color Characteristics– Chromaticity, CCT & CRI etc. as per IES LM 79.

The following tests and measurements shall be conducted to verify the LED photometric data:

(a) Isolux Diagram;

(b) Coefficient of Utilisation curves;

(c) Polar Lighting Distribution Diagrams.

Manufacturer shall be having full glass photogonio meter in their own facility. LM79 should be witnessed by GIDC Engineer.

Life Test

The lumen maintenance & life test shall be done as per IES LM 80 for LEDs.

Endurance Test

The Luminaire shall be kept "ON" with input voltage of 250 V ~ for 200 hours. After this the Luminaire is subjected to 20,000 cycles of "ON" and "OFF", each cycle consisting of 3 seconds "ON" and 10 seconds "OFF" period. Luminaire should survive this test. Test is to be continued for 20,000 cycles, followed by performance test.

The luminaire should be tested as per IEC 60598-2-3: 2002 standards and following test reports should be submitted: -

(i) Heat Resistance Test

(ii) Thermal Test

(iii) Ingress Protection Test

(iv) Drop Test

(v) Electrical/ Insulation Resistance Test,

(vi) Endurance Test,

(vii) Humidity Test,

(viii) Electrical and Photometric Measurements Test Report (IES LM 79)

(ix) LED Lumen Maintenance Test Report (IES LM 80)

(x) Vibration test as per ANSI.

Note :- 100% lot for the given streetlight order will have to manufactured, 2 random samples will be selected by GIDC officials from the whole lot. Testing to be done at ERDA/UL/HYPHYSIS/MSME If testing fails, whole lot gets rejected.

Safety:

The Luminaire shall comply with the safety requirements as per IEC 61195.

All Tests defined for acceptance other than LM 79 and LM 80 are allowed to carry out at Manufacturer works.

The offered LED streetlight luminaires must have passed IES LM 79, IES LM 80 from UL/ ERTL laboratory only and attested copies of the test certificates must be attached.

IES file of the tested product will be compared with the design submitted after order and both should match.

One (1) copy of all test certificates and reports certified by accredited laboratories shall be furnished to GIDC.

INFRINGEMENT OF PATENT RIGHTS

GIDC shall not be responsible for infringement of patent rights arising due to similarity in

design, manufacturing process, use of the components, used in design, development and manufacturing of these light luminaires and any other factor which may cause such dispute. The responsibility to settle any issue rises with the manufacturer.

MARKING:

The following information shall be distinctly and indelibly engraved on the housing:

Client's name – GIDC/NAO– Estate Name

Year of manufacture

Batch Number

Serial Number

Name of Manufacturer (Engraving only, stickers not allowed)

Rated wattage and voltage (input)

LED Make

Input frequency

Marking Like CE,CB.BIS

GUARANTEED TERMS & CONDITIONS:-

In addition to meeting the performance requirements for the minimum period of 60 months, the manufacturer shall provide a written comprehensive guarantee against defects in materials and workmanship for the modules/ arrays for a period of 60 months after acceptance of the modules/ arrays. Replacement modules shall be provided promptly after receipt of modules that have failed at no cost to the Owner.

The bidder shall stand guarantee for full replacement of the luminary due to any failure in 5 years, from the date of purchase. Failures shall include failure/ deterioration of LEDs in terms of performance like guaranteed luminous efficiency, high junction temperature, and abnormal lamp lumen depreciation, deterioration in LED including its lens, driver unit and quality of light. The vendor shall replace the entire LED module/ array of the defective luminaire with new module /array free of cost immediately.

In the event of single LED source getting defective, the entire array/ module shall be replaced by the bidder by the new fittings.

The bidder shall stand guarantee against lumen depreciation beyond 20%. Vendorshall ensure that LED module/ array shall deliver at least 70% of initial lumens, when installed for a minimum of 50,000 hours, failing which bidder shall carry out necessary rectification free of cost to the entire satisfaction of GIDC.

The bidder shall maintain appropriate level of inventory in India for immediate replacement of a defective/ malfunctioning luminary/ LED module/ array/ driver etc.

WARRENTY:-

Bidder shall have to offer the following minimum warranty:

The LED Light Fixture supplier / manufacturer shall provide a warranty against all defective

materials and workmanship up to three (03) years after the date of Completion of the Works certified by GIDC.

The Deed of extended warranty shall be submitted upon the acceptance of the LED Light Fixture.

Provide a three year on-site replacement warranty covering warranty covering material fixture finish and workmanship. To in clued transportation, removal, and installation of new products.

Provide three year replacement warranty for defective or non starting LED source assemblies and all drivers

Provide a three year warranty for luminaries exhibiting inadequate lumen maintenance at the end of the warranty period in compliance with the following table :

L 70 lifetime claim	**Min.Lumen maint @ 5 Year**
30,000 Hours	92.50%
50,000 Hours	85.50%
1,00,000 hours	80.00%

A lumminaire dirt depreciation (LDD) factor may be included in the above calculation, such a value be determined by mutual agreement between GIDC and the manufacturer, consistent with local ambient environmental conditions and practice

A luminaries dirt depreciation (LDD) factor may be included in the above calculation, such a value be determined by mutual agreement between GIDC and the mmanufacturer, consistent with local ambient environmental conditions and practice

A monitoring programmme to implement above will be determined by mutual agreement between GIDC and the Bidder. The Costs of the monitoring programme over the three year warranty period will be borne by the bidder, unless agreed otherwise by GIDC and the Bidder.

The warranty shall cover all LED light sources (Packages or modules/arrays) including but not limited to the LED die, enclosure, and phosphor if the expected life of the luminaire system is not maintained net of LDD, the the bidder shall replace the light source(s) and /or luminaries as needed.

Photometric information

The proponent needs to submit the following photometric

1. Photometric mmodeling results, preferably within a LM79 report, from an independent accredited laboratory showing generic candlepower traces and isofootcandle plots for the proposed luminaries' product.
2. Photometric information data and diagrams that model the luminance flux distribution of the proposed luminaire referencing the site characteristics given in above. The proponent shoulde consider the following during the modeling exercise
3. Such modeling should verify that the products proposed luminaire will meet Indian Roadway lighting standard IS 1944, which specifies average luminance (Eavg) and unifroity (Emin/Eavg) for roads at the above sites.
4. Use industry accepted, standardized software like Dialux for the above modeling while

modeling, a maintenance factor of 0.8 should be used

5. Note the proponent needs to submit a soft copy of the IES file of the proposed luminaire along with the bid

Lumen maintenance statement

1. The proponent must submit a lumen maintenance statement that estimates how many operating hours canbe expected from the proposed lumminaire product until its light output declines to 70% of its initial output (L70) given the specific climactic character, including extremes of temperature and high humidity, associated with the than local condition.

2. The lumen maintenance statement should also clearly explain that how or what method was used to determine the rated life time

3. Describe in details the thermal management how th physical and thermal design of the luminaire will prevent the LED chips from overheating on extremely hot days

4. Other trials of pilot projects submit information and contacts for other relevant trials in which the proponent's proposed luminaire product or similar products sold by the agency have been tested in the field

5. Such information should include LM80 report for the LED chip package employed in the product illuminance measurements, if available, taken over a minimum of two years of operation fromm pilot project the proposed lumminaire product, or a similar lumminaire product, in the field

Luminaire specification – others

The provide information and certifications

1 Requirements, Tests, and Certifications specified in IS 10322
2 Specifications such as ISI and CII ,BIS
3 Specifications IP 66

Note : Tenderer must have to submit following information regarding the LED manufacturer compulsory.

1. Since how many years the LED manufactures have manufacture same type LED Fixtures ?

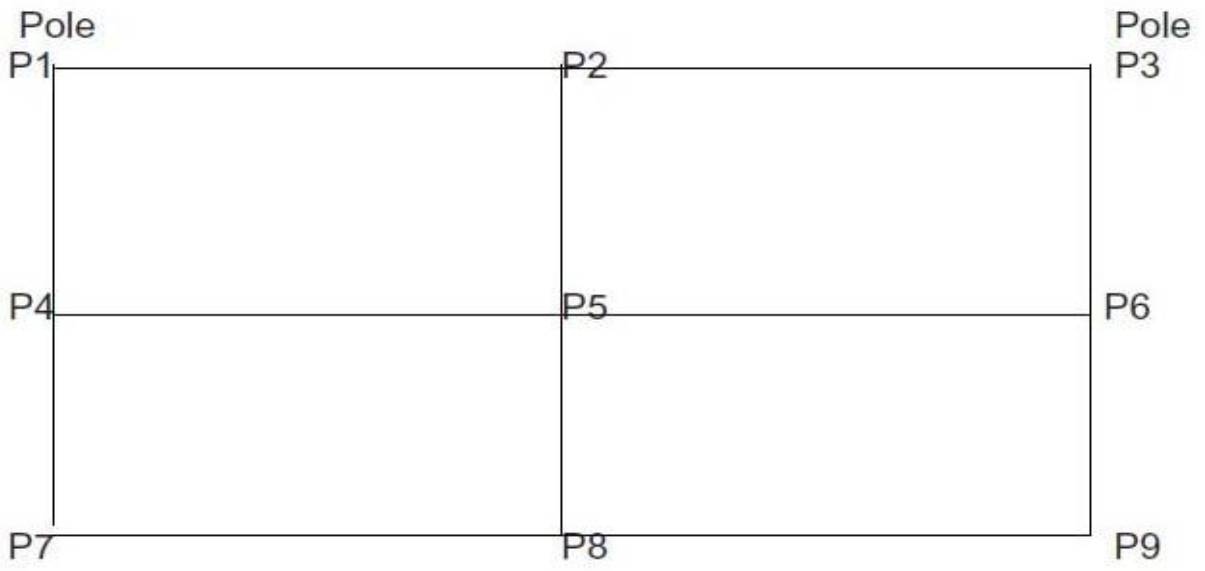
2. In last 5 years how many nos. Same type LED Fixture supplied in Govt., Semi Govt. And Corporates by the LED manufactures.

3. Annual turn over of the LED manufactures of the last 5 years with all supporting documents with and without LED Fixtures.

MEASURMENT OF WORK :-

Testing / Sampling of Lower Promenade Lighting: The Sampling should be required for Lighting on all the different stretch of the Lower Promenade. The method for sampling should be as per CIE norms - 1976a (Nine point Method) & the taken results should be reported separately & required to be approved by the relative authorities of the client before further execution of the same stretch. The type of lighting fixtures will be finalized based on the same results along with its aesthetical suitability on the roads. No extra cost shall be paid for the process to the bidder; it is the responsibility of Manufacturer to coordinate with all the required concerns & vendors for sampling & takes the approval of the same from the authorities of client & architects.

9 point method Field Measurements:-



Basics :

a. Divides the section between two poles into 4 quadrants of equal size

b. Measures the Lux levels at four corners of each quadrant

c. Takes the average of each quadrants

d. Finds the average of the all the four quadrants

Sr.No	Quadrant	Average of the quadrant
1	Q1	(P1+P2+P4+P5)/4
2	Q2	(P2+P3+P5+P6)/4
3	Q3	(P4+P5+P7+P8)/4
4	Q4	(P5+P6+P8+P9)/4
	Average	(Q1+Q2+Q3+Q4)/4

Recurrence	Points	Factor
Points taken only once	P1/P3/P7/P9	(P1+P3+P7+P9)/16
Points taken twice	P2/P6/P8/P4	2(P2+P6+P8+P4)/16
Points taken four times	P5	4((P5)/16

Average Lux levels = (((P1+P3+P7+P9) + 2(P2+P6+P8+P4) + 4((P5)) / 16)

= ((P1+P3+P7+P9)/16 + (P2+P6+P8+P4)/8 + (P5)/4)

Note : Agency has to furnish the inspection call at his cost at OEM Work Place. The material Shallnot be allowed on site before prior inspection of GIDC/NAA Authorities.

Make: As approved by Engineer – in Charge
Mode of Measurements: No. & Mtr. basis.

Item No.-12&13:

- Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables..- Size : 2 to 4 Core 16 sq. mm. (2 Nos. Glands Per Sintex Box on St. Light Pole)

- Supplying & erecting approved make SMC press moulded composite FRP. loop-in, loop-out approx. 2mm thick box complete with bakelite connector strip 4way & hinged doors having locking arrangements with mounting clamp with nuts, bolts & washers suitable for erection on pole with cable clamps& earth bolt of following size of box. Size : 300mm x 200 mm x 100 mm (deep) with Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark - Cat -III(1 No. Per St. Light Pole).

Make: As approved by Engineer – in Charge
Mode of Measurements: No. basis.

Item No.-14 to 22

- Supplying & erecting MINI SECTION PILLAR 75 x 60 x 45 cms fabricated from 16 Gauge thick joint legs M.S. Sheet with angle iron legs 45 cms long made from 35 x 35 x 5 mm thick. Jointless M.S. Angle with cable clamps to be buried in ground to have appropriate erection

to work Uniform Until erected with cement concrete foundation and 45 cms high bricks work finishing with plaster etc. hinged double door with 3" x 4" vision panel covered with Mesh & V. panel overlapping with flap for meter reading internally supported on both side, with internal and outside looking arrangement with look and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting bakelite sheet. Painting the Section Pillar inside and out side with three tank powder coated paint.. Section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962.

- Providing & fixing of backelite sheet 12mm thick HYLLAM make grade: P-100 on existing angle iron frame.

- Providing and erecting approved make Digital/Astronomical time switch having lithium cell 6 years operative and operate battery backup 1 channel day clock with 14 memory programmer, suitable to operate on 240V + 5%, 16A with, floating contacts minimum switching setup time 1 minimum & LCD display. Also comprised permanent ON/OFF switching programming switches & housed in fire proof thermoplastic enclosure & transparent cover erected as required with necessary connection erected as directed.

- Providing & Fixing of 3 pole power contactor with 2 NO & 2 NC having 40 Ampere rating of, having magnetic coil voltage of 230 V A.C.Supply. Make:L & T, BCH, , Siemens.

- Providing & erecting 415V 63 A MCB Four Pole Switch for Lighting Load (B curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity.(1 No. per Distribution Box) - CAT –III

- Approved make ELCBs / RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 6 KA and suitable for operation on 3 phase and neutral 415V. having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component for following Max. rating erected as directed.- (III)-(iii) 63 Amps. FP , (100 mA Sensitivity)

- Providing & fixing of 4 pole 440V 40A power contactor for time switch complete as per direction CAT.III

- Supplying & erecting approved make Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark - Cat –III

- Supplying & erecting in earthpit of minimum bore dia. 225mm size ASH or approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanizing,

Inner pipe dia of 40 mm having 200-250 Micron galvanizing, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications. [A] For electrical installation up to 440 V,Length of Pipe - 1 Mtr,Back filling compound - 1 Nos. of Bag of 15 Kgs. (Make approved by engineer in charge) duly tested by earth tester confirming to IS & as per drawing - (1 Job per Distribution Box).

Make: As approved by Engineer – in Charge
Mode of Measurements: No. & kg. basis.

Item No.-23 to 26:

- Drilling the road without breaking the road surface(asphalt)for laying of cable for feeding power supply by making up to 150mm dia.size of holes at both ends complete including removing & fixing of Paver Block. (As Instructed by engineer in charge.)

- Making trench in hard murrum/ tar road of suitable width of cms or required depth for laying any size of cable or locating the fault all over the run and back filling the same and making the surface as normal ground.

- Supplying and erecting fancy bracket with decorative cylindrical shape and with chromium plated or anodized bracket to be erected (a) with complete lamp holder.

- Supplying & errecting of following size of standard UPVC pipe colum pipe with complete (G) 100mm dia.

Make: As approved by Engineer – in Charge
Mode of Measurements: No. & Rmt. basis.

Item No.-27 :

Annual rate Contract of Operation & Maintenance of Street Light of 46-Hector, Ichhapor Estate. The Scope includes to maintain the street light thoughout the contract period, this includes labour plus materials like replacement of chokes , starter , holders , capacitors , ignitor etc in tube light fitting / sodium / mercury fitting. The quantities are as mentioned below.The agency has to provide sufficient wiremans , helpers & required labour for the work. The agency has to maintain average 90% OR above of the street lights during the month. The payment shall be made on efficiency basis. If any lamps or accessories required to be replaced in the above scope, the same shall be used of approved brand only. The scope includes all labour charges , all street light materials cost & tools tackles etc complete., The agency has to carry out the work as per direction of Engineer in charge and / or as specified in the detailed scope of work. Efficiency of the street light shall be checked on weekly basis & agency has to attend the site during weekly checking of street light & all fittings. Agency has to arrange the vehicle for the engineer either Car/ Bike or rikshaw as & when required or called for: Total Nos. of Pole = 212 Nos.(140-

poles Icchapre + 1.0 Nos High Mast, 72-nos. IOC road) Nos. of pole having Single arm Bracket = 212 Nos. , 01-Nos.of High Mast Bracket = 08 Nos., Total Nos.of Single Arm Fitting & High Mast fitting = 220 Nos. x 1.00 Nos.= 220 Fitting. Total fitting = 220 Nos., Rate Rs. 100.76 above as ref. w.o. = Rs. 100.76, TOTAL FITTING X RATE / FITTING/MONTH = 220.00 X Rs.100.76 = 22167.20/month i.e. TOTAL FOR ONE YEAR (FOR 12 MONTH) IN Rs.= Rs.2,66,006.40

Make: As approved by Engineer – in Charge
Mode of Measurements: Job/per fitting/Months basis.

PART - B (For NAA, GIDC, Hazira Industrial Estate.)

Item No.- 1 to 4 :

- SITC of Swaged Type - 410 SP - 26 : 9.00 Mtr. Streetlight Pole without Bracket & accessories but provided/ fitted with item no. (a) to (g) mentioned below with their specifications: Supplying Steel tubular pole (Swaged) confirming to IS - 2713 (Part-II) 1980. Manufacturing process of steel tubular pole should be as per IS specification. Basic steel tube should be ISI Marked. Pole should be painted by one coat of Zinc comet Primer and two coat of Aluminium /approved paint to be erected on / in existing Foundation. The length of poles are as below. (i) Pole as per IS code 410-SP-26 with 300 X 300 X 4 mm base plate. (Approximate weight 78 Kg) For burial erection, (ii) Add Extra for M.S. Base plate 300 X 300 X 16 mm for pole, Suitable for mounting on surface of foundation with foundation bolts, with required stiffeners welded with pole., (iii) Add Extra for PU base primer and PU Paint on pole: (a) Overall length of pole: 9.00 mtrs., (b) Planting depth: 01.50mtrs., (c) Height above ground level : 07.50 mtrs., (d) Length of section - Out side dia. & Wall thickness, Bottom: 5.00 mtrs. - 114.30 mm x 4.50 mm., Middle : 2.00 mtrs. - 88.90 mm x 4.05 mm., Top : 2.00 mtrs. - 76.10 mm x 3.25 mm., (e) Approximate Weight of Pole : 92 Kg.

- Providing M-20 / 1:2:4 cement concrete foundation & 70 % PCC from bottom including excavation for the pole of size 60 x 60 x 150 cms. Deep in below ground level with plinth of 45 cms x 45 cms(or 45 cms dia x 45 cms) high upper ground level with necessary curing and finishing in approved manner.(1 No. per St.light Pole.)

- Providing street light pole bracket comprising main Light Claas MS tube of 4.2 cms. Outside dia. Complete with suitable M.S. sleeve tubing of approx. 45cms. Length and suitable for 76.5mm. /80 mm or require size pole top having sufficient fastners for fixing the brackets and having suitable rise as per site condition as directed and spread of 2 mtr. with suitable wekded stiffener reduser and with lock nut complete painted with one cost of Red oxide /PU paint . Suitable for side entry fitting brackets of following nos of arms. (a) Single Arm brackets 2 Mtr.

- SITC of funnel type pipe earthing having 150 cm Long and 2.5 cm dia. Medium Class Galvanised iron pipe with coupling and buch burried in specially prepared earth pit with salt

& charcoal complete with necessary double 8 SWG GI earth wire - 0.8 Kg (2 x 3.5 Mtr. = 7Mtr.) laid upto bolt fitted in pole for earthing . (Earthing at each poles) as per drawing - (1 Job Per St. Light Pole)

Make: As approved by Engineer – in Charge
Mode of Measurements: No. basis.

Item No.- 5 to 9 :

- Providing, laying, testing & commissioning of 1 x 4.0 Core x 16 Sq. MM, XLPE (IS: 7088 (i) - 88), ISI Mark, Armoured, Multistranded, Aluminium Conductor suitable for 1.1 kV grade to be laid 90 Cms under ground or to be laid on wall with necessary clamps or in existing cable trench/ pipe at road crossing or on floor and making the ground as per original of the following cores and sizes of cables. - For Streetlight between two poles & Service Connections.(D) 4-core 16sq.mm

- Providing & laying mains with 1.1 kV grade FR PVC insulated ISI Marked Stranded Copper cable having Conductor 3-core 2.5 Sq. MM. in exising pipe/ in street light pole erected with 3-core 2.5 Sq. MM. copper conductor FR PVC insulated stranded wire of green colour for earth continuity. - (St. Light Fitting x 1 No. St. Light JB = 20 Mtr.)

- SITC of Solderless Crimping Type Aluminium Lugs(4 Nos. lugs per termination) suitable for 1x4.0 Core x 16 Sq.mm. XLPE Aluminium Armoured cable tail complet erected with insulating materials for each termination.

- Providing Laying approved make Double walled corrugated pipes (DWC) of polythylene (conforming to IS 14930 II) with necessary connecting accessories of same materials at required depth for laying of cable. Below ground / road surface for enclosing cable and back filling the same to make ground as per original.(A) 50 mm dia.

- Painting of street light pole with bracket complete with coats of Aluminium paint for following size of pole. [C] up to 9 mtr.

Make: As approved by Engineer – in Charge
Mode of Measurements: Rmt. & No. basis.

Item No.-10 to 16 :

- Approved make street light luminaire with one no suitable for- HPSV / MH lamp complete with control gear and accessories , Single piece Die cast Aluminium housing with two compartments duly stove enameled painted side reflector protective Glass cover, synthetic felt gasket, necessary hardware. The fitting should be suitable for side entry having suitable

socket bore for clamping complete erected. With 150 watt SVL. /Metal Halide lamp. Cat-III (1 No. St. Light Fitting per Arm x 1 Arm = 1 No. St. Light Fitting)

- Supplying and erecting LED street light fittings with High power White LEDs wattage of 1Watt and above- per OEM Street light (IP 66) 60 W, 7800 Lumens, Surge - 10 KV and (1) i.e max. LED/Emitting lamp wattage:1.76 Watt (2) Maximum Circuit Power consumtion should be of 4 watt assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses with company mark/name engraved or embossed 90 to 300 V,(3) Oprating Voltage range should be 90 V - 300 V, 50 Hz (4) AC Power Factor more than 0.95, (5) THD < 10 %, (6) CCT 5000 K to 5700K,(7) Coverage Area should be 24 to 26 Mtr X 10 Mtr. (8) LED Luminary should be comply the protection class of IP-66 Class. (9)Uniformity ratio >0.45,(10) Luminaire efficiency>130 lumens/watt . (11) LED driver efficiency > 90 %. CREE / OSRAM / Lumileds / NICHIA make LED used for luminaire. (Each fittings required LM-79 & LM-80 certificates) The fitting should be suitable for side entry having suitable socket bore for clamping complete erected having IP-66 Protection Class (1 No. St. Light Fitting per Arm x 1 Single Arm = 1 No. LED Fitting- (Cat- III).

- Providing High pressure sodium vapour lamp, tubular/Elliptical type 150W Cat.III

- Providing High pressure sodium vapour lamp, tubular/Elliptical type 400W Cat.III

- Supplying & erecting approved make ignitor suitable for HPSV/ Metal Halide fittings 150W/400W.

- Supplying & erecting approved make heavy duty polyseter filled ballast suitable for HPSV/ Meatl Halide lamp 150W.Supplying & erecting approved make heavy duty polyseter filled ballast suitable for HPSV/ Meatl Halide lamp 400W.

As above detailed specification Part-I

Note : Agency has to furnish the inspection call at his cost at OEM Work Place. The material Shallnot be allowed on site before prior inspection of GIDC/NAA Authorities.

Make: As approved by Engineer – in Charge
Mode of Measurements: No. basis.

Item No.- 17 to 18 :

- Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables..- Size : 2 to 4 Core 16 sq. mm. (2 Nos. Glands Per Sintex Box on St. Light Pole)

- Supplying & erecting approved make SMC press moulded composite FRP. loop-in, loop-out approx. 2mm thick box complete with bakelite connector strip 4way & hinged doors having locking arrangements with mounting clamp with nuts, bolts & washers suitable for erection on pole with cable clamps& earth bolt of following size of box. Size : 300mm x 200 mm x 100 mm (deep) with Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark - Cat -III(1 No. Per St. Lght Pole)

Make: As approved by Engineer – in Charge
Mode of Measurements: No. basis.

Item No.- 19 to 27 :

- Supplying & erecting MINI SECTION PILLAR 75 x 60 x 45 cms fabricated from 16 Gauge thick joint legs M.S. Sheet with angle iron legs 45 cms long made from 35 x 35 x 5 mm thick. Jointless M.S. Angle with cable clamps to be buried in ground to have appropriate erection to work Uniform Until erected with cement concrete foundation and 45 cms high bricks work finishing with plaster etc. hinged double door with 3" x 4" vision panel covered with Mesh & V. panel overlapping with flap for meter reading internally supported on both side, with internal and outside looking arrangement with look and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting bakelite sheet. Painting the Section Pillar inside and out side with three tank powder coated paint.. Section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962

- Providing & fixing of backelite sheet 12mm thick HYLLAM make grade: P-100 on existing angle iron frame.

- Providing and erecting approved make Digital/Astronomical time switch having lithium cell 6 years operative and operate battery backup 1 channel day clock with 14 memory programme, suitable to operate on 240V + 5%, 16A with, floating contacts minimum switching setup time 1 minimum & LCD display. Also comprised permanent ON/OFF switching programming switches & housed in fire proof thermoplastic enclosure & transparent cover erected as required with necessary connection erected as directed.

- Providing & Fixing of 3 pole power contactor with 2 NO & 2 NC having 40 Ampere rating of, having magnetic coil voltage of 230 V A.C. Supply. Make : L & T, BCH, , Siemens.

- Providing & erecting 415V 63 A MCB Four Pole Switch for Lighting Load (B curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity.(1 No. per Distribution Box) - CAT –III

- Approved make ELCBs / RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 6 KA and suitable for operation on 3 phase and neutral 415V. having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component for following Max. rating erected as directed.- (III)-(iii) 63 Amps. FP , (100 mA Sensitivity)

- Providing & fixing of 4 pole 440V 40A power contactor for time switch complete as per direction CAT.III

- Supplying & erecting approved make Miniature circuit breaker single pole 6A to 32A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark - Cat –III

- Supplying & erecting in earthpit of minimum bore dia. 225mm size ASH or approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanizing, Inner pipe dia of 40 mm having 200-250 Micron galvanizing, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications. [A] For electrical installation up to 440 V, Length of Pipe - 1 Mtr, Back filling compound - 1 Nos. of Bag of 15 Kgs. (Make approved by engineer in charge) duly tested by earth tester confirming to IS & as per drawing - (1 Job per Distribution Box)

Make: As approved by Engineer – in Charge
Mode of Measurements: No.& Kg basis.

Item No.- 28 to 31 :

- Drilling the road without breaking the road surface(asphalt)for laying of cable for feeding power supply by making up to 150mm dia.size of holes at both ends complete including removing & fixing of Paver Block. (As Instructed by engineer in charge.)

- Making trench in hard murrum/ tar road of suitable width of cms or required depth for laying any size of cable or locating the fault all over the run and back filling the same and making the surface as normal ground.

- Supplying and erecting fancy bracket with decorative cylindrical shape and with chromium plated or anodized bracket to be errected (a) with complete lamp holder

- Supplying & errecting of following size of standard UPVC pipe colum pipe with complete (G) 100mm dia.

Make: As approved by Engineer – in Charge
Mode of Measurements: No. Rmt &Mtr basis.

Item No.- 32 :

Annual rate Contract of Operation & Maintenance of Street Light of 46-Hector, Ichhapor Estate. The Scope includes to maintain the street light though out the contract period, this includes labour plus materials like replacement of chokes , starter , holders , capacitors , ignitor etc in tube light fitting / sodium / mercury fitting. The quantities are as mentioned below. The agency has to provide sufficient wiremans , helpers & required labour for the work. The agency has to maintain average 90% OR above of the street lights during the month. The payment shall be made on efficiency basis. If any lamps or accessories required to be replaced in the above scope, the same shall be used of approved brand only. The scope includes all labour charges, all street light materials cost & tools tackles etc complete., The agency has to carry out the work as per direction of Engineer in charge and / or as specified in the detailed scope of work. Efficiency of the street light shall be checked on weekly basis & agency has to attend the site during weekly checking of street light & all fittings. Agency has to arrange the vehicle for the engineer either Car/ Bike or rikshaw as & when required or called for: Total Nos. of Pole = 80 Nos.(22-pole Reliance Gas - P-7 Road, 58-poles L&T_Suvali Road) Nos. of pole having Single arm Bracket= 80 Nos., Total Nos.of Single Arm Fitting = 80 Nos. x 1.00 Nos. = 80 Fitting. Total fitting = 80 Nos., Rate Rs. 93.00 above as ref. w.o.= Rs. 93.00, TOTAL FITTING X RATE/FITTING/MONTH = 80.00 X 93.00 = 7,440.00/Month i.e. TOTAL FOR ONE YEAR (FOR 12 MONTH) IN RS..= Rs.89,280.00

Make: As approved by Engineer – in Charge
Mode of Measurements: Job/per fitting/Months basis.

CONTRACTORS TO PLEASE READ THIS CAREFULLY

READ CAREFULLY:

(1) Any item of any component of the work may be reduced or may not be executed, if decided by the employer due to any reason; the contractor shall not have any right for any financial Loss.

(2) NAO will deduct 1% of the Estimated Cost from each Running Account Bill against the Labour Welfare Cess.

(3) Maintenance guarantee period:

3.1 ~~The contractor shall have to give **ONE years free maintenance guarantee period from the certified date of completion of work**~~ as per clause No. **17,17A &17B of B1** agreement attached herewith. During this period contractor shall have to repair the damaged portion of work executed under this contract by him at his risk and cost as per direction of the Engineer-in-charge. The requirement and nature of repair work will be decided by Engineer-in-charge and will be binding to contractor.

3.2 During the maintenance guarantee period as described under Para 3.1, contractor shall be responsible for maintaining/ replacing the work executed including its all components in best of condition by routine maintenance work and / or special repairs, as may be required, from time to time.

3.3 During the maintenance guarantee period, contractor shall have to repair the damage portion of work executed at his risk & cost as per direction of the Engineer-in-charge where ever.

3.4 If the agency carries out the maintenance of work executed as per above paras, entire Bank Guarantee, maintenance Bond or N.S.C. / F.D. / S.S.N.N.L. & Security deposit shall be released as per Clause No**. 1,17,17A & 17B** on completion of guarantee period. If the agency does not maintain the work to the entire satisfaction of the Engineer-in-charge, Corporation will undertake the work & its components by themselves and the expenditure so incurred shall be recovered from amount of Security deposit, Bank Guarantee, maintenance Bond or N.S.C. / F.D. / S.S.N.N.L. Corporation reserves right to encase the Bank Guarantee, maintenance Bond or N.S.C. / F.D. / S.S.N.N.L.

3.5 Clause No. 17B of B -1 agreement is deemed attached herewith.

3.6 The recovered amount/Bank Guarantee shall be refunded after the expiry date of the maintenance period as per clause No.17B of B1 agreement, after deducting there form the amount of expenses, if any, due to NAO under this agreement.

(4) PROGRAMME OF WORK:

The program of work for this contract is as under

Online Dates of Tender Forms.	Last date of Receipt of Tender with required documents	Validity period	Period of completion
02-12-2019 to 24-12-2019 up to 17.00 hrs.	**26-12-2019up to 27-12-2019 17.00 hrs**	120 days	**12 (twelve) Month** from the date of work order& up to fixation of new agency if agree by Engineer In-charge/NAO.

The time is essence of the contract. The contractor shall have to ensure progress of the work proportionately, failure to adhere to this; he shall be liable to compensation as per the Clause No. 2 & 7 of B-1 agreement form attached herewith.

(5) Supervision of work:

NAO/G.I.D.C. reserves rights to get check the quality of works through **Engineer In charge** also in addition to the Engineer-in-charge & Quality Control Units of the Corporation.

(6) PRICE VARIATION CLAUSE & STAR RATE FOR CEMENT, STEEL AND BULK BITUMEN: (Deleted)

(7) PURCHASE OF BITUMEN BY THE AGENCY:

~~The contractor shall have to purchase (only) bulk bitumen from only Govt. recognized refinery & shall have to produce the original purchase bills along with the original gate passes etc. The bitumen to be brought on site includes all transportation charges, taxes etc. with all lead and lift.~~

(8) Surveying & measuring equipments:

Equipments for surveying & measurement on the work shall be procured by the contractor for his use. The same also be made available to the Engineer at site or any work connected with the contract without any additional charges.

(9) Units rates under Schedule "B":

The Unit rates specified for various items to be executed as per Schedule "B" attached with the Price Bid are inclusive all labors, materials, testing charges, equipments, all incidental charges involving in the work and as specified in the Mode of measurement & payment of detailed specifications of items incl. all taxes, royalty, Octroi, transportation cost etc. all as applicable presently as to be enforced for future by any / all including Central/State Government & Statutory bodies from time to time.

(10) Maintenance Bond of Nationalized Bank as S.D.:

The contractor shall have to execute the Maintenance Bond of Nationalized schedule bank in the given form at attached herewith or in the format as approved by the Corporation. The banker shall confirm this every year. N.S.C. / F.D. / S.S.N.N.L. shall also be acceptable in favor of Chief Officer. NAO, GIDC, Hazira.

(12) Others:

- In all the items of Schedule "B", the thickness mentioned is compacted thickness to be considered for the purpose of measurements and payments.
- The contractor document shall include the original tender papers of NAO, submission of contractor negotiation letter, letter of acceptance, agreement in B-1 form and the work order.
- In conformity with prevailing Income Tax rules 2% and surcharge of bill value shall be deducted at source for which necessary certificate shall be released by the Chief Officer.
- In conformity with prevailing sales tax, rules vide No. ANVE: WORKS: TAX: 97-98: 2162, dtd. 24/11/1997, published by Additional Sales Tax Commissioner, Govt. of Gujarat, 2% Sales tax and surcharge applicable of bill value shall be deducted at source for which necessary certificate shall be released by Chief Officer.
- The contractor shall exhibit a board as per requirement of NAO with detailed specification and details of work and amount at site at his own cost as directed by the Engineer-in - charge.

1) BIDDER'S RESPONSIBILITY:

The intending Bidders shall be deemed to have visited the site and familiarized themselves thoroughly with the site conditions and all other aspects affecting the work under this Contract before submitting the tender. No claim/extension of time whatsoever shall be entertained on account of prevailing site conditions.

Interested Bidders may obtain further information at the following address:

Chief Officer Notified Area, GIDC, Hazira.

2) LOCATION OF WORK:

The work site is located at Hazira, NAO, Industrial Estate.

3) SCOPE OF WORKS:

Physical parameter of the proposed works:-

Sr. No.	Type of the Work
1	Annual Rate Contract(ARC) for Operation, Maintenance & Repairing of 150 Watt HPSV type Fitting& 250W HPSV type High MastFitting& SITC 60W LED Fittings with including Special Repairs @ NAA, GIDC, Hazira I.E.

3) EARNEST MONEY DEPOSIT (EMD):

Earnest money as mentioned in the memorandum of work in brief attached herewith shall be paid in the form of D.D./F.D.R. for the minimum period of 180 days.

5) SECURITY DEPOSIT (SD):

SD is payable in the manner set out in the tender document by the successful tenderer.

6) WORKERS WELFARE CESS UNDER THE BUILDING & OTHER CONSTRUCTION WORKERS CESS ACT 1996:

1% of the value of work done shall be deducted from the all bills payable to the contractor.

7) MOBILIZATION ADVANCE: Not applicable for this work

Mobilization advance shall be applicable only as per GIDC circular No.GIDC/ ENG/CE/581, DT.18/12/2008.

8) DEFECT LIABILITY PERIOD:

Please read the clause No. **17,17A & 17Bof B1 agreement** attached herewith.

9) SPECIAL CONDITIONS FOR MAINTANCE PERIOD:

Please read the clause No. **17,17A & 17Bof B1 agreement** attached herewith.

10) PROGRAMME OF WORK:

Please read the Special conditions attached herewith.

11) UNITS RATES UNDER SCHEDULE "B":

Unit Rates specified for various items to be executed as per Schedule "B" in the price bid are inclusive of all labour, materials, testing charges, equipments, all incidental charges involved in the items **& 1% Labour Cess** and as specified in the mode of measurement & payment of detailed specifications of items, incl. all taxes/**GST**, royalty, Octroi, transportation cost etc. all as applicable presently and as to be enforced for future by any / all including Central/State Govt. and Statutory bodies from time to time.

12) SURVEYING & MEASURING EQUIPMENTS:

Equipments for surveying & measurement on the work shall be procured by the contractor for his use. The same also be made available to the Engineer at site or any work connected with the contract without any additional charges.

13) CONDITIONS OF CONTRACT:

Condition of contract will be as per Form B-1 **(CONTRCT AGREEMENT TO BE EXECUTED)** attached with technical bid, or modified as needed for local conditions, price adjustment for bitumen, One year free maintenance guarantee period & others documents will be governed as per the documents and conditions of contract finalized for the work. All works will confirm to the Indian Standards, specifications for road & Bridge works of Ministry of Road Transport and Highway or other equivalent standard mentioned in the contract document as approved by the Engineer-in-charge.

Please also read the B1 form (CONTRACT AGREEMENT TO BE EXECUTED) attached herewith.

14) SUPERVISION OF WORK:

14.1 As per prevailing Policy/Circular dated 06/11/2008 this proposed project implemented by GIDC as a prime implementing body and concern industries associations / Notified Area Officer of the estate act as a Co-implementing body.

14.2 Project work shall be monitored by the NAO/GIDC Officials.

15) **OTHERS:**

- In the all items of Schedule “B”, the thickness mentioned are compacted thickness to be considered for the purpose of measurements and payments.
- The contractor document shall include the original tender papers of NAO, submission of contractor negotiation letter, letter of acceptance, agreement in B-1 form and the work order.
- In conformity with prevailing Income Tax rules 2% and surcharge of bill value shall be deducted at source for which necessary certificate shall be released by the Chief Officer.

- In conformity with prevailing sales tax, rules vide No. ANVE: WORKS: TAX: 97-98: 2162, dtd. 24/11/1997, published by Additional Sales Tax Commissioner, Govt. of Gujarat, 2% Sales tax and surcharge applicable of bill value shall be deducted at source for which necessary certificate shall be released by Chief Officer.
- The contractor shall exhibit a board as per requirement of NAO with detailed specification and details of work and amount at site at his own cost as directed by the Engineer-in - charge.
- All the work shall be carried out as per the specifications attached with this tender.
- In addition to above conditions, contractor has to read carefully Chapter- 1 of B_1 agreement.
- Unit rates specified for various items to be executed as per Schedule – B attached are inclusive of all labour, materials, testing charges, equipments, all incidental charges involved in the items and as specified in the mode of measurement & payment of detailed specifications of items, including all taxes, royalty, octroi, transportation cost etc. all as applicable presently and as o be enforced for future by any / all including Central / State Govt. and Statutory Bodied from time to time.
- The Initial Security Deposit shall be produced in the form of NSC/SSNNL Bond and valid till the certified date of completion of maintenance guarantee period in favour of Chief Officer, Notified Area, Hazira.
- The Initial Security Deposit shall be released only after issuance of completion certificate from competent authority of GIDC/NAO and Security Deposit recovered through R. A. Bill will be released after defect liability period as per clause.

PAYMENT TERMS:

- Payment shall be paid monthly/Bio-monthly basis by RA Bills, on basis of Average working Performance of street lights, calculated as per Annexure-A, duly checked & certified by DEE(M&E),GIDC,Hazira& EngineerIncharge.

SPECIAL CONDITIONS: (To be Submitted by online)

1) Registration Certificate of Approved Bidders /Special Category.
2) Bank solvency certificate. (20% value of Estimated Cost put to Tender of 2018)
3) Partnership deed / Power of Attorney with certificate of registration of Firm.
   (In case ofPartnership Firm)
4) Latest Income Tax Return filed & PAN Card details.
5) GST Registration No. & R.P.F.C. registration certificate.
6) Statements for Work Executed in past and works on hands is required to submit with relevant documents. (Schedule- E)
7) The copy of the work order of similar type is required to be submitted otherwise the price bid will not be opened & tender will be rejected.
8) License under Labour Contract (Registration & Abolition Act 1970)
9) The valid Electrical license (As Per Memorandum of Work).

10) P.F code Number

11) E2 Class or above in R&B Electric wing with Similar types of Work Experience.

12) Insurance of Engaged Staff.

13) Notarized copy of 3A Certificate having similar type of work experience.

14) Notarized copy of Annual Turnover of last five financial year (i.e. from 2013-2018) duly certified by CA

15) If the tender is taken in favor of a company, a "Power of attorney", in favor of the person who can sign the tender for the company, must accompany the tender.

16) If the tenderer are firm, company or limited concern, they should mentioned the names of all the partners or the Directors, as the case may be, in their forwarding letter and indicate the name of person who holds, the power of attorney, authorizing him to conduct all transactions on behalf of the firm, company or limited concern. A true copy of partnership deed or the articles of association and power of attorney shall be attached with the tender, in case; the tender is finalized in favor of successful tenderer. The contractor shall have to enter into the agreement as per the rules.

17) EMD:

a) Earnest money shall be paid in the form or demand draft or FDR from any nationalized bank as well as public sector banks i.e. IDBI, UTI, HDFC & ICICI only. Earnest Money in cash or cheque or bank guarantee shall not be accepted. EMD should be valid for minimum period of 180 days. The EMD should be drawn in favor of Chief Officer, Notified AreaHazira.

b) Units registered with Industries Dept. or with NSIC as a Small Scale Unit shall have also to pay prescribed tender fees and earnest money deposit. Govt. exemption certificate for EMD shall not be valid..

c) The amount of earnest money deposit to be paid in the form of FDR in favor of "Chief Officer, Notified Area Hazira should be attached; along with the tender only, otherwise it will not be accepted. It may be noted that DD / FDR brought personally at the time of opening, will also not be accepted at all.

d) The earnest money deposit of the unsuccessful contractor(s) shall be returned without interest within reasonable time after final decision on the tender and after entering into a contract with the Corporation by the contractor whose tender is accepted.

e) Exemption certificate for E.M.D. shall not be entertained.

f) The contractor does not turn up with the security deposit and execute contract agreement within specified time after intimation to him about acceptance of his offer, the earnest money paid for this work will be forfeited according to the terms and conditions of tender and tenderer's tender shall be rejected and then according to aforesaid provision of tender, action to black list the contractor will be initiated without delay.

18) The contractor shall have to furnish GST Registration Number, Income Tax PAN Number and ward under which is assessed with copy of last IT return filed by him.

Copies of certificate as regards previous experience, if any, must accompany the tender.

19) VALIDITY (120 days minimum)

The tenders submitted by tenderer shall remain valid for acceptance for a period of 120 days from the date of opening of the tender. Line out for the execution of the work, in case accepted tender, will be given within a period of 120 days from the date of opening. The tenderer shall not be entitled during the said period of the 120 days without written consent of Chief Officer, Notified Area Hazira to recover or cancel his tender to vary the rates given or any terms thereof. In case of tenderer revoking or canceling or varying any terms of the tender without the written consent of Chief Officer, Notified Area Hazira shall forfeit EMD paid by him / them along with the tender and take further necessary actions.

20) Declaration showing all works on hand with the contractor and the value of works of that remains to be executed in each must accompany the tender.

21) The rates for items in Schedule - " B " must be given in words and figures, amount of each item must also be entered in column of amount and the tenderer must strike out grand total of the amount

22) The contractor should initial all pages of Schedule - "B" and specifications.

23) The Contractor should sign all corrections, erasures and overwriting and original tender papers should be returned invariably.

24) The successful bidder has to enter in prescribed agreement FORM- B – 1, if it is desired to study the same, it is available in the office of Executive Engineer(M/E), GIDC, Hazira.

25) DISCREPANCIES AND ADJUSTMENT OF ERRORS:

Any error in quantity or amount in of Schedule -"B" showing items of works to be carried out shall be adjusted in accordance with the following rules.

a) In event of discrepancy between words and figures, quoted by tenderer in the rates of column the description in words shall prevail.

b) In the event of an error occurring in the amount column of the Schedule - "B" showing items of works, as a result of wrong multiplication of the unit rate and quantity, the unit rate shall be regarded as firm and multiplication shall be amended on the basis of the rate.

c) All errors in totaling in amount column and in carrying forward totals shall be corrected

d) Any rounding off, of amounts against items or in "TOTALS" shall be ignored. The tendered sum so altered shall, for the purpose of the tenders, be substituted for the sum originally tendered and be considered for acceptance.

It may please be noted that the tender will be considered as invalid especially if, the requirements as per instructions No.1 to 10 above, are not complied with before submitting the tender. Also, please read carefully the fact sheet and "General Rules and Directions for the guidance of contractors, i.e. Form B -1 / Form B - 2 / Form D ". Rights to reject any or all tender(s) without assigning any reason (s) thereof is reserved with competent authority of

NAO/GIDC. No price variation is acceptable and the prices once quoted shall remain firm during the period of execution / completion of contract.If taxes and excise are being claimed extra, the present applicable percentage / amount should be clearly mentioned, failing which, rates quoted will be considered as inclusive of all taxes and duties.NAO will not issue any tax exemption from i.e. “P”, “C” or “D” form; the tenderer may quote rates accordingly.

26) No amendment shall be permitted either in performance of the equipment offered or prices, once tender is opened.

27) EVALUATION OF TENDERS

a) The tenders will be verified for accuracy in the numerical calculations; any tender with arithmetical mistake will be corrected on the basis of the quantities of the work given in the tender form and the unit prices quoted by the tenderer.

b) The tender forms are to be filled in, by ink or by typewritten without alterations or modifications and shall furnish all the information required. No changes of the form are accepted, tenderers may attach supplementary information separately.

c) NAO reserves the rights to alter the quantity of the work and or award to more than one tenderer.

d) Any deviations, in terms, conditions and technical specifications shall be clarified with its financial evaluation, will render financial bid invalid.

e) If for any items, alternative rates are called for the selection of any item shall be at the discretion of the GIDC/NAO only; all the offers shall be evaluated on the selected option only.

28) TECHNICAL TERMS AND CONDITIONS:

a) Where specifications are not already specified, the materials to be supplied, should be as per relevant ISI or Equivalent International Standards where ISI is not available.

b) Supply and installation shall have to be completed within stipulated time limit. In case of failure, compensation will be charged as mentioned separately.

c) Tenders containing uncalled remarks or any additional conditions or modifications in any of the tender conditions, rates or quantity are liable for rejection.

d) In case of arbitration as per Contractor’s conditions, arbitration shall be in accordance with Indian Arbitration Act, 1940.

e) DESCRIPTION IN DRAWING OR SPECIFICATIONS:

The drawings and specifications are to be considered as mutually explanatory of each other. Details drawings being followed in preference to small-scale drawings and figured dimensions in preference to scale and special conditions in preference to general conditions. Special directions or dimensions given in the specifications shall supersede all else. Should any discrepancies, however, appear or should any misunderstanding arise as the meaning and importance of the said specifications or drawings, or as to the dimensions or the quality of the materials for the due and proper execution of the works, or as to the

measurement or quality and valuation of the works executed under this contract or as extra there upon the same shall be explained by the Engineer In Charge and his explanation shall, subject to the final decision of the Chief Officer, Notified Area HaziraDirector of Notified Area in case of reference be made to him under condition, be binding upon the contractor and contractor shall execute the work according to such explanation (Subject as aforesaid) and shall also do all such works and as may be necessary for the proper completion of works, as implied by the drawings and specifications even though such works and things are not specially shown and described in the said specifications.

f) ACCESS TO SITE AND ONSITE

The Engineer may, if he considers fit from time to time enter upon any lands which may be possession of the contractor for the purpose of executing any other work not included in this contract and may execute such work not included in this contract by his agents, or by other contractors on his opinion, the contractor shall in accordance with the requirements of the Engineer, afford all reasonable facilities for execution of such works including occupation of lands by structures. Such reasonable facilities shall also be given for any other contractor employed by the Corporation, and his working of the Corporation, employed in the execution of such other work on or near the site of the work, such other works may not be included in the contract, or it may being connection with or ancillary to the works entrusted to him. In case of default, the contractor shall be liable to the Corporation, for any delay in executing other works or expense incurred by reason of such default, provided always that if the exercise of the powers shall cause any damage to the contractor he may, within 15 days arising of such damage make a written statement of the same to the Engineer- in-charge, who shall from time to time, assess the value in his judgment of such damage and GIDC /NAO shall from time to time, pay to the contractor, the amount (If any) as justified by the Engineer In Charge and finally accepted by the Corporation.

29) SECURITY DEPOSIT

The person / persons whose tender may be accepted herein called the "CONTRACTOR" which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators and assigns and shall deposit with the Chief Officer, Notified Area Hazira,a sum of sufficient amount to make the full security deposit specified based on the tendered cost or estimated cost whichever is the higher (Within one day for a contract of RS. 1,000/- but less or two days for a contract of more than RS.1, 000/- but less than RS. 2,000/- and so on up to a limit of ten days which can be extended up to 15 days by the Notified Area Authority / Chief Officer, Notified Area, if he thinks it fit to do so, for a contract of more than RS. 1,000/- but less than RS. 7,000/-and so on, up to a limit of ten days for a contract of RS. 10,000/- or more) On the receipt by him of the notification of the acceptance of his tender shall deposit with the Chief Officer, Notified Area in cash or Govt. securities endorsed to Chief Officer, Notified Area, (If sufficient to make up the full security deposit specified in the tender) or Permit GIDC/NAO at the time of making any payment to him for work done under the contract to deduct such a bill, deductions to be held by NAO by way of security deposit provided always that in the event of the contractor depositing a lump sum by way of

security deposit as contemplated (A) above, then and in such case, if the sum of deposit shall not be less than 5% of the total estimated cost of the work. It shall be lawful for NAO at the time of making any payment to the contractor for work done under the contract to make up the full amount of 5% by deducting a sufficient sum from first payment as last aforesaid until the full amount of the security deposit is made up. All compensation or other sums of money payable by the contractor to NAO under the terms of this contract may be deducted from or paid by the sale of a sufficient parts of his security deposit or from the interest arising there from or from any sums which may be due or may become due by NAO to the contractor on any account whatsoever and in the event of his security deposit being reduced by reason of any such deduction or sales as aforesaid, the contractor shall, within ten days there after, make good in cash or govt. securities endorsed as aforesaid any sum or sums which may have been deducted from or as aforesaid any sum or sums or any part thereof.

The security deposit referred to when paid in cash may, at the cost of the depositor, be converted into interest bearing securities provided the deposit has expressly desired this in writing.

If the amount of the security deposit to be paid in a lump within the period specified at (A) above is not paid, tender/contract already accepted shall be considered as cancelled and legal steps shall be taken against the contractor for recovery of the amounts.

The security deposit of by the Contractor in full i.e. 10% shall be returned after 3 months, after completion of work satisfactorily in all respect. The mode of security deposit in the form of small saving scheme or securities under Sardar Sarovar Narmada Nigam Ltd. and shall be valid for a minimum period of 24 months initially.

GENERAL INSTRUCTIONS

The acceptance of the tender will rest with the competent authority that doesn't bind him to accept the lowest one and reserve the right to reject any of all the tenders without assigning any reasons thereof.

In addition to the above, the tender will also be liable to be rejected outright, if,

a) The tenderer proposes any alternation in the works specified or any condition or corrections made in any code or mode of schedule “B” or specifications.

b) Any of the page(s) of the tender is/are removed or replaced.

c) The tender does not initiate all corrections, additions or pasted slips.

d) He makes any eraser in the tender.

e) The tenderer or in the case of a firm each partner or the person holding the power of attorney thereof doesn't sign or the signature(s)is/are not attested by the witness on Schedule -B of the tender in the space provided.

f) The tenderer does not quote for the entire work and full quantity; otherwise it shall be treated as incomplete tender and may be rejected. The tender rates are not realistic or not workable as compared to prevailing rates under minimum wages Act.

g) The rate of minimum wages act not fulfilled on mentioning / quoting rate.

30) In respect of the tenders from the co-operative society, a solvency certificate of an amount of equal or more than 20% of the amount of the work put to tender will have to be produced along with the tender or a certificate regarding the borrowing capacity of the society issued by the legal assistant, Directorate of Cottage Industries will have to be produced along with the tender.

a) The several documents forming the contract are essentials part of the contract and a requirement occurring, in one is as binding as though occurring in all. They are intended to be mutually explanatory and complementary and to describe and provide for a complete work.

b) In the event of any discrepancy, the several documents forming the contract or in anyone documents the following order of precedence should apply.

i) Dimensions & quantities

ii) Drawings

iii) Schedule "B" of the Tender

iv) Specifications.

c) In case of defective description or ambiguity, the Engineer-in-charge should issue further instructions directing in what manner the work is to be carried out, it is being understood that the best modern practice is to be followed. The contractor should forthwith comply with such instructions.

d) All the conditions of the contract and specifications shall be thoroughly studied and understood by the tenderer and signed by him in token of having done so they / he that also sign other documents of the tender.

e) The contractor should take no advantage of any apparent error or omission in specifications and the Engineer-in-charge shall make such corrections and interpretation as necessary to fulfill the intent of the plants and specifications.

31) TOOLS & TACKLES

a) The contractor shall, at his own expense provide all the materials, labour, haulage, power, tools, tackles and apparatus necessary to execute and complete the works.

b) Necessary tools & tackles for Street Light work (hydraulic van/Tower ladder vehicle/ boom van etc. up to 10mtr.).

32) FORCE MAJURE

Either party to the contract shall not be liable for its failure in performing any provision of the contract such failure or delay is caused or resulted from an Act of Nature such as floods, earth quakes, lightening, cyclone, wars, civil riots, strikes, national emergencies, civil disturbances or on account of any law or order proclamation made by the central/state Government.

33) COMMERCIAL TERMS & CONDITIONS

The rates shall be offered inclusive of followings all levies & taxes.

a Insurance

b **GST**

c Any Other Taxes if any by time to time.

34) GENERAL CONDITIONS:

1) In case of the services of any employee of O& M is not found satisfactory by the Corporation , the O&M Agency shall replace him within 3 (three days on receipt of such notice from the Chief Officer, Notified Area Hazira.
2) The O&M agency shall comply with all the instructions and direction of the Corporation as may be given through Engineer-in-charge / Controlling officer from time to time.
3) The O&M agency shall maintain records and registers, as may be required for O&M work as per the prevailing requirement of corporation from time to time, as an evidence of proper performance of their duties by the said O&M Agency. The stationery materials e.g. Logbooks, papers etc. for this purpose will be provided by the O&M Agency.
4) The wages of following O&M personnel deployed in the services of the NAO will be given as per minimum wages act.
   a) Electrician
   b) Labour
   c) Helper
5) The Agency while entering into the agreement with NAO shall produce the registration certificate of his establishment with the competent authority of Regional Provident Fund Commissioner failing which 3% (three percent) amount will be deducted from the respective bills and shall be refunded only against production of such certificate and indemnity bond. O&M agency shall follow the conditions laid down as below in this regard.

CONDITION FOR EMPOYEES PROVIDENT FUND AND MISC PROVISIONS ACT, 1952:

The agency shall be responsible for complying with the provisions of the employees' Provident fund and miscellaneous provisions Act, 1952 scheme and modifications of the Act from time to time.

The contractor shall get themselves enrolled with the Regional Provident Fund Commissioner or any competent office appointed under the act and shall have to go separate number in respect of their respective establishment as defined in Sec. 3 of the employees provident fund Act and shall discharge all the liabilities arising out of aforesaid Act as provided in Para 36A of the scheme and other provisions of the Act.

"The Engineering in charge on receiving report from the Competent Inspecting officer under the said act shall have the power to deduct from the payment to the contractor any sum required or estimated to be required for making good the loss / suffered by the worker or workers by reason for non fulfillment of the condition of the contractor for the benefit of the workers under the said Act. The contract shall indemnify NAO against any payment to be made for the observance of the regulations aforesaid.

The contractor shall produce his certificate of registration with RPFC while entering to agreement; the same shall be produced within one month from the date of work order. If the contractor fails to produce proof of its registration R.P.F.C and an amount of equal to 3% of the gross amount payable to the contractor shall be recovered from his running account bills from the 1st R.A. bill and this deductions shall be continued to be made from each R.A. bill of the rate of 3% of the gross amount of the R.A. bill till registration from RPFC is obtained and produced to the NAO.

In all 3% on the total gross payment made for the work shall stands to be recovered from the running account bills to contractor, if even till completion of works and deducting the amount 3% contractor has not registered its establishment with R.P.F.C security deposit when payable shall also not be refunded till the clearance certificate of the compliance of the provisions of the Act is obtained by the Contractor and produced to the Executive Engineer. Contractor shall sign indemnity bond in prescribed Performa in favor of NAO but amount shall be with held till RPFC registration certificate is received by NAO.

O&M agency shall follow the Labour Contract Act:

The contractor tendering for the work shall have to obtain license under the labour contractor (Regulation and Abolition) Act, 1970 within a week of award of work and comply with all the amenities for the amenity, if not provided by the Contractor. Such amenity shall be provided by the NAO, as principal employees as his representative within the prescribed time and the expense incurred by the principal employer providing the amenity shall be recovered by the amount payable to the contractor. The contractor shall act in accordance with the provision of the Act in all respect and shall above the principal employer shall nominate a representative duly authorized by him to be present at the time of disbursement of wages and it shall be the duty of such representative to certify the amount paid as wages in such manner as may be prescribed.

The contractor shall provide every facility to the principal employer to maintain registers and records giving particulars of contract labour employer. The nature work performed by

the contractor labour the rates of wages paid to the contractor labour and such other particulars that are prescribed or may be prescribed under the provisions of the said Act.

35) TERMS OF PAYMENT

The payment shall be made on monthly basis. 10% amount of each RA bill shall be kept as a deposit towards liability of the assets handed over to the agency during contract period and same shall be released at the end of the contract period after the assets is returned the department in good condition and correct in quantity.

36) DECLARATION FORM

a) I / We hereby declare that I/ We have visited/understood the site and fully acquainted myself/ourselves with the local situation regarding materials, labour and other factors pertaining to the work before this tender.

b) I / We declare that I /We have carefully studied the conditions of contract, specifications & other tender documents of this work and agree to execute the same accordingly.

37) As per amendment by Road and Building Department, Government of Gujarat inForm B-1 Clause-14.2 & Form B-2 Clasue-14.2 and subsequent amendment by corporation vide Circular No. GIDC/ENG/CE/103 dtd. 18.07.2017, Form B-1 Clause-14.2 & Form B-2 Clasue-14.2 herein after amended as under.

38) AMENDMENT

Existing Clause	Amendment
From B-1 Clause-14.2 **Form B-2 Clasue-14.2** **Except that when the quantity of any item exceeds the quantity as in the tender by more than 30% the contractor will be paid for the quantity in excess of 30% at the rate entered in the SOR of the year during which the excess in quantity is first executed and for the materials consumed in excess quantity the rate for the material to be charged would be the basic rate taken in to account for fixing the rate taken into account for fixing the rate for the SOR above instead of the rate stipulated in Schedule-A**	**From B-1 Clause-14.2** **Form B-2 Clasue-14.2** **Except that when the quantity of any item exceeds the quantity as in the tender by more than 10% the contractor will be paid for the quantity in excess of 10% at the rate entered in the SOR of the year during which the excess in quantity if first executed or tender whichever is less.**

Note:- Other Terms and conditions of the tender remains unchanged.

SIGNATURE OF CONTRACTOR

CHIEF OFFICER (NA)
GIDC, HAZIRA

CODE OF PRACTICE

G E N E R A L

(1) The method of execution of the items shall conform to the relevant specifications as per the latest version of the Indian Standard unless specified otherwise and as far as applicable.

(2) Wherever a reference to ANY Indian Standard appears in the specification, it shall be taken to mean as a reference to the latest version of the standard.

(3) The following specifications, standards, and codes are made as a part of this specification.

Indian Standards : specification for building materials, specification for equipment, method of test, method of measurement of building works ,code of practice for construction , safety code for demolition of building, safety code for scaffolds etc. published by the Bureau of Indian Standards

(4) The contractor shall invariably carry out Materials & work Tests as specified in the **Schedule "D"** attached with tender documents and IS code. However, if the additional tests are required as per the opinion of the Engineer-in-charge, the same shall also have to be carried out. All such tests shall be got carried out in Government or as approved laboratories and cost thereof shall be entirely borne by the contractor. No collection of materials shall be made before it is got approved from the Engineer-in-charge.

All moulds, equipments etc. required of preparing specimens for the test shall be kept in sufficient numbers and in good state, as directed by the Engineer-in-charge on the site of work.

Specimen for tests shall sent to the laboratory along with representative of NAA/GIDC in time and the results thereof shall be promptly obtained and reported to the Engineer-in-charge.

(5) Satisfactory test results shall not observed the contractor from dismantling and re-doing any work revealed to the defective at a later date. The contractor shall have no claim for any payment or compensation whatsoever on account of replacement of such defective work. Contractor shall take all precautions and care during dismantling and re-doing the work to ensure that any other work so far executed does not get damage or affected.

(6) The work shall be carried out in true line and level and in conformity with the detailed drawing and specified patterns.

(7) All the work shall be carried out in a workmanship like manner and as per the best techniques for the particular item.

(8) All tools, tempts equipments etc. for correct execution of the work as well as for checking lines, levels, alignments of the works, during execution shall be kept in sufficient numbers on the side of work.

(9) All installations pertaining to water supply and its fixtures as well as drainage lines and sanitary fitting shall be deemed to be completed only after giving satisfactory tests by the contractor.

(10) Scaffolding being provided by the contractor at his own cost for such of the items for the execution of which it is essential.

(11) CODE AND STANDARDS

2.1 The design, manufacture and performance of the equipment shall comply with all currently applicable statues, regulations and safety codes in the locality where the equipment will be installed.

2.2 Unless otherwise specified the motors shall conform to the latest applicable Indian standards British standards or IE standards, some of which are listed below:

(a) IS: 325 : Induction Motors.

(b) IS: 4691 : Degrees of protection provided by enclosures for rotating electrical machinery.

(c) IS: 4729 : Measurement and evaluation of vibration of Rotating electrical machines.

(d) IS: 3202 : Climate proofing of electrical equipment.

(e) IS: 2131 : Dimensions of 3 phase foot mounted Induction motor.

(f) IS: 9283:1979: The Submersible motor & Submersible cable

CODES & STANDARDS

2.1 The following standards and rules shall be applicable :

IS : 732 Code of practice for electrical wiring installation (System voltage not exceeding 650 V)

IS: 1646Code of practice for fire safety of buildings (General) Electrical installation.

IS: 9537 (Part - 2)	Rigid steel conduits for electrical wiring.
IS: 2667	Fittings for rigid steel conduits for electrical wiring.
IS: 3480	Flexible steel conduits for Electrical wiring.
IS: 3837	Accessories for rigid steel conduit for electrical wiring.
IS: 694	PVC insulated cables.
IS: 9537 (Part - 3)	Rigid non-metallic conduits for electrical wiring.
IS: 6946	Flexible (Pliable) non-metallic conduits for electrical installation.
IS: 1293	3 pin plugs and sockets.

IS: 8130	Specifications of conduits for electrical installation.
IS: 3854	Switches for domestic purpose.
IS: 3419	Fittings for rigid non-metallic conduits.
IS : 4648	Guide for electrical layout in residential buildings Indian electricity act and rules

All standard and codes mean the latest.

C-1/1 Excavation

General:

In all sorts of soil, sand, gravel, soft murrum and other similar soft or loose material. The excavation will generally refer to the open excavation for foundation.

Clearing the site:

The site on which the structure is to be built shall be cleared and all obstructions, loose stones, material, and rubbish of all kind, bush, wood, and trees shall be removed as directed. The materials so obtained shall be the property of the NAA/GIDC and shall be conveyed the stacked as directed by the Engineer-in-charge.

Setting out:

After clearing the site the centre lines will be given by the Engineer. The contractor shall assume full responsibility for alignment, elevation, and dimension of each and all parts of the work. Contractors shall supply labour materials, etc. required for setting out the reference marks and bench marks and shall maintain them as long as required.

Excavation:

It shall be all sorts of soil, sand, gravel, soft murrum, or other similar soft or loose materials.

The excavating for foundation and for basement shall be carried out in true line and level and shall have the width and depth as shown in the drawing or as directed by the Engineer-in-charge. The contractor shall do the necessary shorting and shutting or slopes to a safe angel, if necessary including bailing and pumping out water when separate provision does not exist for it in tender, at his own cost. The bottom of the excavated area shall be leveled both longitudinally and transversely as directed by the Engineer-in-charge. No earth filling will be allowed to bring it to level if by mistake or any other reasons excavation is made deeper or wider than shown on the plan or directed by the Engineer-in- charge. The extra depth or width shall be made up with concrete or masonry of the foundation grade as directed by the Engineer-in- charge and at the cost of the contractor.

Disposal of the excavated stuff:

The excavated stuff of the selected type shall be used in filling the trenches in layers including ramming and watering etc.

The balance of the excavated quantity shall be removed by the contractor from site of work to a place as directed by the Engineer-in-charge with all lead and lift but within the same

estate.

C-1/2 Excavation in Hard murrum :

Same as C-1/1 except that the excavation shall be in hard murrum.

C-1/3 Excavation in Hard murrum and boulders.

Same as C-1/1 except that the excavation shall be in hard murrum and boulders.

C-1/4 Excavation in soft rock :

Same as C-1/1 except that the excavation shall be in soft rock.

C-1/5 Excavation in Hard rock.

Same as C-1/1 except that the excavation shall be in hard rock

C-2 Plain Cement Concrete Laying in Foundation / for Floor Bedding :

General:

Before starting concrete, the bed of the foundation trenches shall be cleared of all loose materials and watered as directed.

Proportioning of Mix:

The proportion of the cement to sand and coarse aggregates shall be as specified in the item and shall be measured by volume.

Mixing:

The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantities of work if approved by the Engineer-in-charge. The mixing shall be done for a period of 11/2 to 2 minutes. The quantity of water shall be just sufficient to produce a dense concrete of required workability for the purpose.

Scaffolding:

All scaffolding, hoisting arrangement and ladders etc. required for the facility of concrete shall be provided by the contractor and removed on completion of work. The scaffolding, hoisting arrangement and ladders shall allow easy approach to the work and afford easy inspection.

Form work:

The form work shall be provided if necessary as directed by the Engineer-in-charge and shall be as per I.S. 461-1972 or revised from time to time.

Transporting & placing the concrete:

The concrete shall be handled from the place of mixing to the final position by not more than 15 minutes by the method as directed by the Engineer-in-charge and shall be placed into its final position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

The concrete shall be laid in layers of 15 cms to 20 cms.

Compaction:

The concrete shall be thoroughly compacted by hammers immediately after depositing to

get a dense concrete. Concrete shall not be disturbed once it has set.

Curing:

After the final set, the concrete shall be kept continuously wet, if required by pounding for a period of not less than 7 days from the date of placement.

C-3 Lime Cinder Concrete Laying :

This shall be as per C-2 of code of practice. The coarse aggregate in this case shall cylinder.

C-4 Ordinary Cement Concrete Plain or Reinforce :

I.S. 466-1978 or as revised from time to time shall be followed in general cement sand by black trap grit and coarse aggregate shall be measured by volume. For proportioning of cement by volume one bag of cement shall be taken as 0.0342 cu.m. (1.2 cft)

Mixing:

Concrete shall be mixed in a mechanical mixer. Mixing shall be continued until there is a uniform distribution of the materials and the mass is uniform in colour and consistency but in no case shall mixing be done for less and 1.1/2 minutes. When hand mixing is permitted by the Engineer-in-charge in case of small work or in case of breakdown of machineries and in the interest of the work it shall be carried out on water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. However, in such cases 10% more cement than otherwise required have to be used without any extra cost.

Transporting:

Concrete shall be handled from the place of mixing of the final position as quickly as practicable by methods which will prevent segregation or loss of ingredients. In no case operation shall be taken more than 15 minutes.

Placing:

The concrete shall be placed into its final position and completed and finished within 30 minutes of mixing the water and before setting commence. Method of placing shall be such as to avoid segregation, approved by the Engineer-in-charge. Concreting shall be carried out continuously up to construction joints, the position and arrangement of which, shall be pre-determined by the designer.

When the work has to be resumed on a surface which has hardened, such surface shall be roughened. It shall then be swept clean thoroughly wetted and covered with a thin layer or mortar composed of cement and sand in the same proportion as the cement and sand in the concrete mix. This layer of mortar shall be freshly mixed and placed immediately before the placing of the concrete.

When the concrete has not fully hardened, all laitance shall be removed by scrapping the wet surface with wire or bristles care being taken to avoid dislodgement of particles or aggregates. The surface shall be thoroughly wetted and all free water removed. The surface shall be coated with neat cement grout. The first layer of concrete to be placed on this surface shall not exceed 150mm in thickness and shall be well rammed against old work. Particular attention is paid no corners and spots.

Compaction:

Concrete shall be thoroughly compacted during the operation of placing and thoroughly worked around the reinforcement, around embedded fixtures and into corners of the form work. Compacting shall be done by mechanical vibrations, in such a way that a dense mix is obtained.

Curing:

The concrete shall be kept covered with a layer of sacking canvas or similar materials or by pounding and kept constantly wet for twenty one days from the date of placing concrete. Curing by pounding shall preferably be done by erecting suitable dykes of lean mortar.

Form work:

General:

The form work shall conform to the shape, lines and dimensions as on the plans and be so constructed as to remain sufficiently rigid during the placing and compacting of the concrete, and shall be sufficiently water tight to prevent loss of liquid from concrete. Adequate arrangements shall be made by the contractor to safeguard against any settlement of the form work during the course of concreting and after concreting. The design of the form work and centering shall be got approved form Engineer-in-charge before erection.

Cleaning & Treatment of Forms:

All rubbish, particularly chipping shavings and saw dust shall be removed from the interior of the forms before the concrete is placed and the form work in contact with concrete shall be cleaned and thoroughly wetted or treatment with an approved composition. Care shall be taken that such approved composition is kept out of contract with reinforcement.

Stripping Time:

In normal circumstances and where ordinary cement is used, forms may be struck after expiry of following period

(a)	Walls columns & vertical side of beams	24 to 48 hours as may be decided by the Engineer-in-charge.
(b)	Side of slabs	3 days
(c)	Beam	7 days
(d)	Removal of props to slabs. (i) Slabs spanning up to 4.5 M (ii) Spanning over 4.5 M	 7 days. 14 days.
(e)	Removal of props to beams & arches. (i) Spanning up to 6 M (ii) Spanning over 5 M	 14 days 21 days

Procedure when removing the Form work:

All form shall be removed without such shock or vibrations as would damage the reinforced concrete surface. Before the soffits and struts are removed and concrete surface shall be exposed where necessary in order to ascertain that the concrete has sufficiently hardened.

The form work will be paid under the respective item if provided in the tender.

Centering:

The centering to be provided shall be got approved form the Engineer-in-charge. It shall be sufficiently strong to ensure absolute safety of the form work and concrete work before, during, and after pouring concrete. Watch should be kept to see that behavior of centering and formwork is satisfactory during concreting. Erection should also be such that it would allow removal of forms in proper sequence without damaging either the concrete or the forms to be removed.

The props of centering shall be provided on firm foundation of base of sufficient strength to carry the loads without settlement.

The centering and form work will be inspected and approved by the Engineer-in-charge before concreting. But this will not relive the contractor or his responsibility for strength, adequacy, and safety of form work and if there is a failure of form work or centering, contractor shall be responsible for the damages to work, injury to life and damage to the property.

Scaffolding:

All scaffolding, hoisting arrangements etc. required for the facility of concreting shall be provided and removed on completion of work by the contractor at his own expenses. The scaffolding, hoisting arrangement and ladders etc. shall be strong enough to withstand all live, dead and impact loads expected to act and shall be subject to the approval of the Engineer-in-charge. However, contractor shall be solely responsible for the safety of the scaffolding, hoisting arrangement, ladders, work, and workmanship etc.

The scaffolding, hoisting arrangement and ladders shall allow easy approach to the work spot and afford easy inspection.

Testing:

Work sample of concrete 150mmx150mm x 150mm shall be taken as under:

Qty. of work in M3	**No. of sample**
1.5	1
6.15	2
16-30	3
31-50	4
51 & above	4+1 for each additional quantity of 50 M or part thereof.

The contractor shall make his own arrangement for taking sample and testing of the sample in the Government or the approved laboratories. The test shall be carried out in accordance with IS 516-1959 or as revised from time to time. A register of cubes shall be maintained the site of work in the prescribed Performa. The result of the cubes shall be submitted to the Engineer-in-charge by the contractor.

Note: (1) At least one sample shall be taken from each shift

(2) Each sample consists of three test specimens for testing at 28 days.

Additional cubes may be required for various purposes. Such as to determine the strength of concrete at 7 days or at the time of striking the form work or to determine the duration of curing or to check the testing error.

Finishing unless otherwise specified in the item to keep the exposed concrete surface, the concrete surface shall be finished with cement mortar 1:4 (1- cement: 4-sand) in true line level in accordance with M-9 of specification of materials.

C-5 Controlled concrete :

Grade:

The concrete shall be designed as M-150, M-200, M-250, M -300 & M-400 as prescribed in I.S. 456-1978 or as revised from time to time.

Aggregates:

Samples of the aggregates proposed to be used shall be got approved from the Engineer-in-charge prior to collection of the materials at the site of work field test for determining the content of silt, loam, clay etc. In fine aggregate and grading and moisture content in both fine and coarse aggregate shall be carried out before commencing the concreting work and record of the test shall be maintained till the completion of the work.

The grading of aggregate shall be controlled by obtaining the fine and coarse aggregate in different size being stocked in separate stock piles. The grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency shall be as directed by the Engineer-in-charge, to ensure that the uniform grading as per approved samples used in the preliminary tests is maintained.

As soon as possible, after receiving the order to commence the work the contractor shall design the mix for different grades of concrete required in the work submit details in respect of proportion of cement and aggregates water cement ration etc. and arrangement to make trial mixes for preliminary tests to be carried out in the Government or any other approved laboratory to satisfy the Engineer-in-charge that the designed mix meets with the prescribed strength. The maximum total quantity to aggregates by weight per 50 Kg. of cement shall not exceed 450 Kg. except where otherwise specifically permitted by the Engineer-in-charge.

The minimum number of specimens for preliminary test and criteria for acceptance of test strength shall conform to Table –V **Acceptance criteria for concrete of I.S. 456-1978.**

On the satisfactory results of the above tests, the mix actually to be used shall be got approved from Engineer-in-charge. The approval of the Engineer-in-charge will not relieve the contractor of his responsibility for obtaining the required minimum strength in the work test. Record of all tests in support of mix design shall be maintained as a part of record of the contract.

Strength requirement of concrete

The compressive strength requirements for various grades of concrete shall not be lower than the figures given below:

Grade of concrete	Compressive strength of 15 cms cubes conducted in accordance with I.S. 516-1959.		
	After 28 days after mixing in preliminary test (Kg/cm2)	At 7 days after mixing in work test	At 28 days after mixing in work test (Kg/cm2)
M-100	135	70	100
M-150	200	100	150
M-200	260	135	200
M-250	320	170	200
M-300	380	200	300
M-350	440	235	350
M-400	500	270	400

Batching & Mixing:

Concrete materials shall be matched by weight, where combined batching and mixing plants are not available, weight batches of adequate capacity shall be used for weighting or aggregates and cement. In the later case the contractor shall have additional weight batches as stand by. The contractor shall use power driven mechanical concrete mixers of adequate capacity in conjunction with weight batches.

Dry weights per unit volume of fine and coarse aggregate shall be determined by experiments. Water shall be either measured by volume in calibrated tanks or weighted.

Whereas cement will be issued in bags and twenty bags will treated to weight one tone. Cement shall be actually weighed during batching and any difference in standard weight and actual weight of cement shall be contractor's account and no extra payment shall be made for such a difference.

Water Cement Ration:

It is most important to maintain the water cement ratio at its correct value. To this end, determination of moisture content in both fine and coarse aggregate shall be made as frequently as possible the frequency for a given job being determined by the Engineer-in-charge according to weather and site conditions. The amount of the added water shall be adjusted to compensate for any observed variations in the moisture contents. Determination of moisture content in aggregate shall do as per I.S. 2386 (Part-III) Methods of test for aggregate for concrete Part-III (Specific gravity, density, absorption, and bilking). To allow for the variation in weight of aggregate due to variation in the moisture content, suitable adjustments in the weight of aggregates shall be done.

No substitution in materials used on the work or alteration in the established proportions except as permitted in the previous paragraph is made without additional test to show that

quality and strength are satisfactory. Work ability of the concrete shall be checked at frequent intervals by the slump test.

Compression Test: (Work Test)

Samples (consisting of cubes 150mm x 150mm x 150mm) shall be taken as under:

Qty. of work in m3	**Nos. of samples**
1-5	1
6-15	2
16-30	3
31-50	4
51 & above	4+1 for each additional quantity of 40 m3 of part thereof.

The test shall be carried out in accordance with I.S. 516-1959. A register of cubes shall be maintained at the site of work. The cost of casting of cubes, concrete used for cubes and all other incidental charges such as curing, and cost of testing, carriage to the testing laboratory etc. shall be borne by the Corporation. The testing shall be got carried by the contractor in Government or any other approved laboratory at his own cost.

Note: (1) At test one sample shall be taken from each shift.

(2) Each sample consists of three test specimens for testing at 28 days. Additional cubes may be required for various purpose such as to determine strength of concrete at 7 days or at the time of stacking the form work or to determine the duration of curing or to check the testing error.

When defective or rejected work cannot be replaced because of operation or other reasons (decision of the Engineer-in-charge) in this respect shall be final and binding on) payment shall be made for such rejected work but cost of dismantling and removal shall be recovered from the contractor when such defective work is subsequently replaced by the Corporation or not. The decision of Engineer-in-charge shall be final as regards the cost of dismantling and removal.

Consumption of cement:

Co-efficient for cement consumption shall be determined by the Engineer-in- charge for various mixes based on the accepted proportion for these mixes. The theoretical quantity of cement to be used for the works shall be calculated on the basis of these co-efficient.

As regards form work, curing, stripping time, centering etc. not covered here shall be as per **C-4** ordinary cement concrete for R.C.C.

C-6 <u>Form work for "off the form exposed concrete surfaces having board marked pattern and time texture.</u> "

Concrete surface, which are to be "form finish shall be cast in an approved form work and shall be free from honey combined, fine, projections, and air holes. All external angles to form finish concrete surfaces shall be chaffed if and as directed. All interesting flush

surfaces, surfaces horizontally or vertically between columns and beams of other structural members shall be separated by grooves if and as directed by the Engineer-in-charge.

The pattern of the form boards, the disposition of construction joints and lifts, and the incorporation of recessed or raised joints shall be carefully studied by the contractor for its proper implementation.

The contractor shall submit shuttering drawings and details of pattern and the method of forming joints in the exposed (form finish) concrete to the Engineer-in-charge. For his approval and all changes and modification specified by the letter shall be appropriated by the former and final approval whereof obtained from the Engineer-in-charge.

No work of form finished exposed concrete shall be carried out until the contractor has produced acceptable sample of shuttering and concrete to the approval of the Engineer-in-charge.

Utmost care shall be then be constantly exercised by the contractor in the :

a. Design workmanships and fixing of form work.
b. Control of concrete ingredients, mixing and placing.
c. Adequate technical supervision of all process involved.

Listed below are some form work specifications, for form finished exposed concrete to be used on site as directed by the Engineer-in-charge.

i. Smooth Board Surfaces :

The smooth board marked surfaces are produced by new dressed tongued and grooved boards of uniform thickness of not less than 45 mm. These boards should be brought and dressed on both faces as well as on all side.

ii. Rough Board Surfaces :

A rough texture is obtained by the use of new sawn boards with dressed square edges.

Steel Mould Surface:

Steel moulds must be rigid enough are perfectly plane and clean. They must be painted with a protective point and absolutely free from rust or have a special section at their edges to prevent cement leakage and produce a water tight joint.

This type of form work is to be entrusted to a skilled and specialized manufacture who has produce satisfactorily similar form work and who must be approved by the Engineer-in-charge.

In all type of form work to form finished exposed concrete. Only non-staining mould oil supplied by an approved manufacturer will be used.

The repetitive usages of the same form work to cast form finished exposed concrete shall be as decided by the Engineer-in-charge and no case form work not guaranteed to produce the required form finish to the satisfaction of the Engineer-in-charge shall be used.

The exposed concrete shall have uniform finish. The finish of the concrete when shuttering and form work is removed will generally be without blemish and will be such as will not require touch up. Slight touch up a small work or two if necessary shall be carried out

immediately on removal of form work by 1.1 proportions. This shall be carried out expertly on removal of form work with entire surface.

C-7 Fabricating placing reinforcement in position :

Fabrication:

The reinforcement bars shall be out to be required length including necessary bends hooks, overlaps, etc. as shown on the plan or as directed by the Engineer-in-charge and shall conform to I.S. 2502-1963 or as revised from time to time. Details of length and bending diagrams shall be got approved from the Engineer-in-charge.

Placing and Binding:

All reinforcement shall be accurately placed in position with spacing as shown in the drawing and firmly held so during placing and setting of concrete. The bars shall be tied diagonally both ways, at all inter-sections with M.S. binding wire of 1.22mm or 1.63mm dia (16 or 18 gauge). Spot welding instead of tying brass by wires will be permitted by the Engineer-in-charge, if required. Spacing of bars shall be maintained by means of stays, blocks, tiles, spacers, hangers or other approved supports or devices at sufficiently close intervals.

All bars protruding from concrete to which other bars are to be spliced and which are likely to be exposed for indefinite period shall be protected from rusting by thin coat of cement wash.

Welding:

Welding (instead of overlaps) by gas or electricity will be permitted under suitable conditions and with suitable safe-guards. In case such permission is granted, relevant Indian Standards for welding of steel reinforcement bars including carrying out necessary tests shall be followed.

Inspection:

No concrete shall be deposited unless the Engineer-in-charge has inspected the reinforcement work, recorded measurements, and given permission to place the concrete. After the approval of the reinforcement by the Engineer-in-charge, it will be the contractor's responsibility to see that reinforcement is not disturbed from its position till the concreting is completed.

C-8 Fixing Expansion Joints :

The expansion joints shall be provided in R.C.C. structural members:

1. For the joints between twin internal beams of RCC frame structure, copper strip of 1.5mm thickness and width and shape as shown in the detailed drawing shall be placed near the bottom in the first beam such that one Kg. of the specified width is embedded in the beam and "U" fold (of 80mm depth unless otherwise specified) will come in the joint.

   The "U" shape gap of the copper strip shall be filled with poured bituminous joint filler and nearly finished on top. Before casting of the jointing member pre-moulded bitumen joint filler or required thickness shall be placed in position as directed and concrete then

cast, embedding the other leg.

2. The joint between the twin terrace beam shall be prepared in a manner similar to (1) above except that the raised concrete edge shall be provided and the copper plate shall be fixed in the raised edge as directed. It shall be covered by lead flushing 1.5mm thick fixed to one seat with copper screws to the wood blocks embedded in the concrete as shown in the detailed drawing.
3. For the joints between twin internal or external columns, white casting the first column, one leg of each of the copper strips of 1.5mm thickness shall be embedded into the column and "U" fold will come in the joints nearer the exterior faces of the column. The copper strips shall be fixed with hold fast of copper rod as shown in the detailed drawing. Before casting the second column pre-moulded bituminous joint filler shall be placed against the face of the first column all along between the two steps as directed by the Engineer-in-charge.

C-9 Laying in Situ Cement Concrete Flooring (I.P.S.) :

The flooring shall be provided with ordinary cement concrete 1:2:4 (1- cement: 2- coarse sand & 4- graded stone aggregate 20 mm nominal size). The work of plain cement concrete 1: 2 : 4 shall be carried out as per C-2 above. The thickness flooring shall be specified in the item of work.

The surface of the sub-grade shall be cleaned and all loose materials and moistened immediately before laying flooring.

The concrete shall be laid immediately after mixing white being placed, the concrete shall be vigorously sliced and spaced with suitable tools to prevent formation of voids or honey comp pockets. The concrete shall be brought to the specified levels by means of heavy straight edge resting on the side forms and drawn ahead with a sawing motion in combination with a series of lifts and drops alternating with small lateral shifts immediately after laying concrete the surface shall be checked for high or low sports and any needed corrections made up by adding or removing the concrete. After striking off the surface it shall be compacted with wooden float. The blows shall be fairly heavy in the beginning but as consolidation takes place light rapid strokes shall be given to complete the ramming. The floating shall be followed by steel traveling after concrete has hardened sufficiently to prevent excess of fine material from working to the surface. The finish shall be brought to a smooth and even surface free from defects and blemishes and tested with a straight edges. Dry cement or mixture of dry cement and sand shall not be sprinkled directly on the surface to absorb moisture or to stiffen the mix. After the concrete has dried, sufficiently to allow rendering to a thin floating coat of neat cement slurry uniformly floated.

If so specified in the item of a work approved mineral colour, pigment shall be added to cement mortar to give mortar rendering is sufficiently stiff lines may be marked on it so specified or directed. With strings or any other devices to give the appearance of 250 mm x 250mm tiles of any other size diagonally or square as directed. The junctions of floor with the walls shall be rounded off, if so directed.

Curing:

Curing shall start on the next day after finishing and shall be continued for fourteen days.

C-10 Application of cement plaster finish :

Preparatory work:

The smooth surface of concrete / masonry shall be suitable roughened to provide necessary bond. All dirt, swat, oil, or any others material that might interfere with satisfactory be shall be removed. The surface shall be cleaned and scrubbed with fresh water and kept wet for 6 hours prior to plastering. It shall be kept damp during the progress of the work.

Gauge:

Patches of plaster 150mm x 150mm shall be put on above 3 mtr. apart as gauges to ensure even plastering in one plane.

Plastering: (a) BASE COAT:

In all plaster work, the mortar shall be firmly applied with somewhat more than required thickness and well pressed into the joints and the surface rubbed and leveled with a flat wooden rule to give required thickness. Long straight edges shall be freely used to ensure a perfectly plane and even surface. All corners shall be finished their true angles or founded as directed by the Engineer-in-charge. The surface shall be finished to plane or curved surface as shown on the plan or as directed by the Engineer-in-charge and shall present a neat appearance. The mortar shall adhere to the concrete surface firmly when set and there shall be no hollow when struck. Cement plastering shall be done in squares or strips as directed. Plastering shall be done from top down wards. All exposed angles and junctions with door frame etc. shall be carefully finished.

(b) FINISHING COAT:

Finishing coat shall be provided to the plaster as specified. A coat of cement slurry shall be applied to the plaster surface with a trowel to provide uniform texture while the base coat is still plastic. In any continuous faced of a wall, finishing treatment should be carried out continuously and day to day breaks made to coincide with architectural breaks in order to avoid unsightly injunction. All tools and accessories used in plaster work shall be cleaned by scraping and washing at the end of each day's works after use. Metal tools shall be cleaned after operation.

(c) Watering & Curing:

All plaster work shall be kept damp continuously for a period of fourteen

Days.

BIDDER'S SIGNATURE **CHIEF OFFICER (NA)**
GIDC, HAZIRA

METHOD OF FUNNEL TYPE PLATE EARTHING