GUJARAT MARITIME BOARD

DRAFT TENDER PAPERS
FOR THE WORK OF

NAME OF WORK:- SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port.

Amount Put To Tender: - Rs. 40,51,310/-

DTP containing pages number from 1 to 207
Recommended to approval as per norms.

AAE (M), AAE (E)	**Dy. Executive engineer (M),**	**Dy. Executive Engineer (E),**
GMB, Gandhinagar	**Dredging GMB, Gandhinagar**	**GMB, Gandhinagar**

Executive Engineer (M),
GMB, Gandhinagar

ADDRESS

The Executive Engineer (Mech.), PIU, Jamnagar
4th floor, Saru section road,
Jamnagar- 361 006 (Gujarat) India
Email-xenm.jam@gmbports.in

Executive Engineer (M),
GMB, PIU-Jamnagar

I N D E X

The Tender Document Contains Pages number from 01 to 203

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Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER-1: BID NOTICE

Notice Inviting On-Line Tender		
Details about Tender:-Tender Notice No. 17 Of 2025-26.		
Department Name	:-	Gujarat Maritime Board
Circle	:-	Superintending Engineer (M), GMB Gandhinagar -382010
Division	:-	Executive Engineer, (Mech),GMB PIU Jamnagar
IFB No.	:-	Tender Notice No. **17 Of 2025-26.**
Name of Work	:-	SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port.
Estimated Contract Value (INR)	:-	**Rs. 40,51,310/- (+GST)**
Period of Completion (in Months)	:-	03 Months
Bidding Type	:-	Open
Joint venture	:-	Not applicable
Bid Call (Nos.)	:-	1
Tender Currency Type	:-	Single
Tender Currency Settings	:-	Indian Rupee

Amount Details

Bid Document Fee	:-	**Rs.1770/- BY Demand Draft (Non Refundable)**
Bid Document Fee Payable in name of	:-	Gujarat Maritime Board NON PLD, Gandhinagar Payable at Gandhinagar.
EMD (INR)	:-	**Rs.47,810/-** having Six Months Validity
EMD in favour of	:-	**Executive Engineer (Mech.) GMB Gandhinagar, payable at Gandhinagar.**
Tender Dates		
Bid Document Downloading Start Date	:-	20/10/2025 onwards
Pre Bid Date		06/11/2025 At 12:30 PM
Bid Document Downloading End Date	:-	15/11/2025 onwards 18:10
Last Date & Time for Uploading (Submission) of Bids	:-	15/11/2025 onwards 18:10
Bid Validity Period	:-	120 days after opening of price bid
Submission of Tender Fees, EMD etc. through /RPAD/Speed post in Office of Executive Engineer (Mech.), Gujarat Maritime Board, 5th floor, Sagar Bhavan, GMB Office Complex, Sector – 10 A, Opp. Air Force Station, CHH-Road, Gandhinagar-382010 (Gujarat) India.	:-	The Bidder will have to submit the following required documents in electronic format only through online scanning and same has to submit in Physical form send the same documents in a sealed envelope through RPAD/Speed Post only up to 18:00 hours dtd. 17/11/2025 to 25/11/2025 during office hours at the Office of Executive Engineer (Mech.), Gujarat Maritime Board, 5th floor, Sagar Bhavan, GMB Office Complex, Sector – 10 A, Opp. Air Force Station, CHH-Road, Gandhinagar- 382010 (Gujarat) India mentioning the name of work on the envelop.

		1. Letter of Application (As per Performa) 2. Tender Fee DD of **Rs.1770/-** 3. EMD of **Rs.47,810 /-** in the form of FDR 4. Copy of PAN 5. Copy of GST Registration 6. Bank Solvency issued on or after 01-01-2025 from nationalized bank /scheduled bank or govt. approved bank for tendering purpose not less than Rs.8.11 Lakhs/- 7. PQ Forms / Annexures I to VI (Along with supporting documents
Remarks	:-	Vendor shall submit their offer **only** in electronic format on website, after digitally signing the same. Offers that are not digitally signed will not be accepted.
Phone / Fax/email		sem.ppu@gmbports.in, xenm.gnr@gmbports.in, xenm.jam@gmbports.in
Online Bid Opening Date	:-	26/11/2025 at 1200 hrs (if possible)

Other Details

Officer Inviting Bids	:-	Executive Engineer (M), GMB, Gandhinagar
Bid Opening Authority	:-	Superintending Engineer (M), GMB, Gandhinagar -382010
Address	:-	GUJARAT MARITIME BOARD, 5th Floor, Sagar Bhavan, Sector 10,A, Opp. Air Force," Chh Road, Gandhinagar-382010, GUJARAT, INDIA

Note:

(1) Bidders can download the tender document free of cost from the website nprocure.com or www.gmbports.org

(2) Bidders have to submit the bid in Electronic form on www.nprocure.com website till the Last Date & time for submission.

(3) For vendors free training camp is being organized every Saturday between 4.00 to 5.00 P.M. at (n) code solutions-A Division of GNFC Ltd., Ahmadabad. Vendors are requested to take benefit of the same.

(4) Government of Gujarat, & Governor **MAY BE READ AS GUJARAT MARITIME BOARD, & CHAIRMAN respectively.**

Bidders who wish to participate in online tenders will have to procure / should have legally valid Digital Certificate as per Information Technology Act-2000 using it they can sign their electronic bids. Bidders can procure the same from any of license certifying Authority of India or can contact (n) code solutions-A division GNFC Ltd, who are licensed Certifying Authority by Govt. of India.

All bids should be digitally signed, for details regarding Digital Signature Certificate related training involved the below mentioned address should be contacted:

(n) Code Solutions, A division of GNFC,301, GNFC Info Tower, Bodakdev, Ahmedabad – 380 054 (India)Tel: +91 26857316 / 17 / 18, Fax: +91 79 26857321
E-mail: nprocure@gnvfc.net, Web-site: www.gmb.nprocure.com
Toll Free: 1800-233-1010(Ext. 321)

Other Terms & Conditions as per detailed tender documents

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER-2: GENERAL INFORMATION

2.1 PROJECT

The Gujarat Maritime Board (GMB) was set up on 5th April 1982 under Gujarat Maritime Board Act, 1981, in order to develop, administer, operate and regulate the state's port sector. In 1998/99 GMB constructed the building of its Head Office as a cornerstone for controlling and coordinating various ports activities. Gujarat Maritime Board (GMB) on behalf of Chairman invites on line e - Tender offer for the work of "**SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port.**". Work details are given in the scope of work category of this tender. The time limit considered is 03 (Three) months.

2.2 Site Information

The contractor has to carry out the said work at GMB Dry-dock, Bedi Port - Jamnagar. Contractor is strongly advised to visit the site and acquainted himself with the site condition its surrounding etc. in view of performing the scope of tender.

2.3 Definition:

In the contract as hereinafter defined, the following words and expressions shall have the meaning hereby assigned to them except where the context otherwise requires.

- The Expression **"Board":** means Gujarat Maritime Board constituted under the Gujarat Maritime Board Act 1981.
- The expression **"Work"** where used in this document shall, unless there be something in the subject or contest repugnant to such construction, be constructed to mean the work or the work contracted and to be executed under or in virtue of the contract, whether temporary or permanent and whether originally or altered, substituted or additional. It shall include all extra or excess works and variations and be subject to all commissions ordered in accordance with these conditions.
- **"Site"** means the Dock/land, jetty and/or other places on, stacking area, under, in or through which works are to be executed or carried out and services to be rendered any other lands or places provided by Gujarat Maritime Board for the purpose of the contract together with such other places that may be specifically designated in the contract as forming part of the site.
- **"Contract"** means the notice inviting tenders, general conditions of contract, terms and conditions of contract, specifications, price bid, tender and contract agreement made at the time of awarding the work and also the mutual agreement made jointly during contract period.
- **"Bidder"/" Contractor"** shall mean the person or persons, firm, company or corporation who's tender has been accepted by the GMB and includes Bidder's/ Contractor's personal representative, successors and permitted assignees or joint Bidders who shall be deemed to be bound jointly and separately.
- **"Contract Period"** means total time limit allowed for this work **i.e.03 months** from the date of issue of work order by Executive Engineer (Mech.), GMB, PIU-Jamnagar for " **SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port"** means total quantity in the items mention in the Bill of Quantities which may be increased or decreased as mentioned in the tender document which approved by the Competent authority.
- **"Engineer-in-charge" (EIC)** shall mean the Executive Engineer (M), GMB, Jamnagar or his authorized representative who shall exercise only such authority on behalf of the Executive Engineer as may have been delegated to him from time to time by the Executive Engineer and powers delegated to him by the Government/GMB Rules.
- **"Approved"** means approval given in writing including verbal approval for which subsequent written confirmation is given and "approval" means approval in writing including as aforesaid.

- **"Competent authority"** Officer or officers of the Gujarat Maritime Board competent to exercise the powers conferred upon him/them by the GMB/Government.
- **Drawings"** means the drawings referred to in the specifications and attached with the agreement and any modifications of such drawings approved in writing by the classification society / EIC or such other drawings as may, from time to time be furnished or approved in writing by the EIC.

2.4 Abbreviations:

GMB / Board	-	Gujarat Maritime Board / Employer
EIC	-	Engineer-In-Charge or Engineer
AR	-	Authorized Representative.
BOQ	-	Bill of Quantities.
BIS	-	Bureau of Indian Standard.
SE (Mech)	-	Superintending Engineer (Mechanical)
XEN (Mech)	-	Executive Engineer (M).
DEE (Mech)	-	Dy. Executive Engineer (Mech)
GoI	-	Government of India
GoG	-	Government of Gujarat
AL	-	Acceptance of Letter / Letter of Intent
WO	-	Work Order

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER-3: INSTRUCTIONS TO BIDDERS

3.0 GENERAL:

On behalf of the Gujarat Maritime Board, the Executive Engineer (M), Gandhinagar, Gujarat Maritime Board invites ON-LINE tenders from Experienced Contractors for the work of "**SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port ".**

3.1 BID SUBMISSION

a. The bid should be uploaded (submitted) through the official web site **www.tender.nprocure.com** only 15/11/2025 up to 18:10 hours.

b. The physical documents shall be submitted through RPAD/Speed Post only up to **17/11/2025** to **25/11/2025** up to 18:10 hours. Beyond the last date physical submission will not be accepted/ considered in any case and it will be returned back to the bidder. The envelope must be super-scribed with name of work "**SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port**". GMB is not responsible for the tender process if on the cover name of tender work is not mentioned.

The Board does not assume any responsibility for the supporting tender documents being torn/ damaged during the postal transit. It is the responsibility of the Bidder to see that the supporting tender documents reach this office before due date as fixed and notified in the tender notice for the purpose of receipt of the tender.

3.2 EARNEST MONEY DEPOSIT:

a) The Bidder shall remit **Rs.47,810/-** only in form of FDR having validity of 6 months with the tender, failing which the tender will not be considered.

b) The earnest money shall be remitted by a FDR of scheduled/ nationalized bank, in favour of the Executive Engineer (M) GMB Gandhinagar. Cheque/DD will not be accepted towards the Earnest Money Deposit.

c) The Earnest Money deposited by the unsuccessful Bidders will be refunded after the finalization of tender. E.M.D. shall not bear any interest.

d) The Earnest Money deposited by the successful Bidder will be refunded on receipt of Security Deposit and Performance Security.

e) If any party backs out after GMB has accepted his bid, it will be considered default and in such case, necessary action against bidder will be taken by GMB such as 1. Forfeiting of EMD 2.Black listing the agency for three years etc.

3.3 SECURITY DEPOSIT AND PERFORMANCE SECURITY:

a) The successful Bidder has to furnish a Security Deposit (SD) of sum equivalent to 5 % of contract value plus GST on it in form of FDR and 5 % of contract value plus GST on it in form of FDR/Bank guarantee as a Performance Security with the Gujarat Maritime Board within 15 days of issuing AL. (Total SD 10 % of contract value + GST)

b) If the security deposit is not furnished within 15 days on issuing acceptance letter or such extended period as may be permitted by the Executive Engineer (M) in writing, the earnest money is liable to be forfeited and the contract cancelled.

c) In the event of the Bidder, after the issue of the communication of acceptance of the offer by the GMB, failing/refusing to execute the agreement as hereinafter provided, the Bidders shall be deemed to have abandoned the contract and such an act shall amount to be construed as the bidder's calculated and willful breach

of contract, the cost and consequence of which shall be to the sole account of the Bidder and upon such an event, the Board shall have full right to claim damages in addition to the forfeiture of Earnest Money Deposit.

d) The GMB may at their option forfeit the Security Deposit if the bidder fails to affect the supply or perform or observe the conditions of contract. The Board will also be at liberty to deduct any sum that may be due to the GMB from the Performance Security or from any sums of money due or that may become due under any other contract to the bidder. This is without prejudice to the rights of the Board under the terms of the contract.
e) The said Security deposit shall not in any way be construed as a limitation of the bidder's responsibility or liability pertaining to his obligations and/or guarantees under the contract and shall be without prejudice and in addition to any other remedies available to the Board in terms of the contract and/or the laws of the land.
f) The Security Deposit shall be released after on completion of Performance Guarantee period from the date of work completion.

3.4 TIME SCHEDULE:

The time allowed for the completion of the work "SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port" is considered as under: Total Time limit -03 (Three) months from the date of commencement of work issued by GMB.

3.5 RIGHT OF THE BOARD TO ACCEPT OR REJECT THE TENDER:

The Board does not bind itself to accept the lowest tender and reserves the right to reject any or all tenders received without assigning any reason, whatsoever.

Tenders in which any of the particulars and prescribed information is inadequate or incomplete in any respect and/or the prescribed conditions are not fulfilled are liable to be rejected.

The Gujarat Maritime Board reserves the right to accept or reject any tender or drop the entire tendering process without assigning any reasons thereof.

3.6 PRE CUM TECHNICAL QUALIFICATION:

The bidder will be qualified based on the information submitted online in the prescribed Form **(I) to (VI)** attached with this bid regarding their experience, financial position, technical capabilities etc. and hence all bidders are requested to fill the information correctly strictly in prescribed Performa only with full knowledge and supporting documents otherwise they will be treated as NON responsive Bid for the work.

The information for financial data and project costs by the bidder should be submitted in Indian Rupees only.

The competent authority of the Gujarat Maritime Board shall evaluate the pre-qualification documents.

3.7 MINIMUM QUALIFICATION CRITERIA AND EVALUATION PROCEDURE

1. PQ cum technical bid will be evaluated on the basis of following main criteria as per details provided by the bidders in requisite Performa i.e. PQ-TQ Form **(I) to (VI)** along with prescribed application form given in this bid, without which tender/application will not be considered for evaluation and opening of price bid. On the basis of amount of experience for similar works, annual turnover and

solvency certificate. Bidders who fulfill the minimum criteria will be qualified for opening of price bid.

2. Main criteria of evaluation:
   A. General Criteria
   B. Financial Criteria
   C. Experience Criteria.

A. General Criteria :-

- Submission of Tender FEE
- Submission of EMD
- Submission of GST certificate
- Submission of PAN Card
- Submission of PQ Form V History of Litigation

B. Financial Criteria

- **Bank Solvency Certificate:** Bank Solvency certificate of **Rs.8.11/- Lakhs** or above issued from any Nationalized/Schedule bank or govt. approved bank for tendering purpose, issued on or after 1st January 2025.
- **Annual Turnover:** Annual turnover of any one of the last five years immediate preceding years, i.e. from 2020-21 to 2024-25 will be considered for evaluation. It should be minimum **Rs.40.52/-Lakhs** or above and certified by C.A.

C. Experience Criteria:

- Bidder should have experience successfully carried out *similar work during last five years **w.e.f 01.04.2020** till last date of online bid submission.
- At least one similar work costing not less than **Rs.16.21/- Lakhs**
- Performance certificates of above Experience, from concern organization should be submitted along with tender.
- Details of work executed in **last 5 years shall be considered**, along with work order copy, and its work completion certificate. **(Form No – V)**

*Similar work means :- Experience of successfully completion of constructions of any marine vessel or dry docking repairs of the any Flotilla Vessel like tugs , dredgers, barges or any other floating vessel having under IRS Class or any other IACS Marine Classification society during last 05 years .

Non submission or wrong submission of any of the above documents leading to rejection of bid.

3.8 BID OPENING

1. The On-line tender PQ cum Technical Bid will be opened at 12.00 hrs. on **26/11/2025**.
2. The Price bid will be opened on- Line of those Bidders who are pre cum technically qualified. The date and time of opening of the Price Bid will be notified to the qualified Bidders in advance of opening.
3. During the process of Bid evaluation GMB may call the bidders for discussion /clarification and also can ask for requisite support documents.
4. Tenders submitted by Bidders shall remain valid for acceptance for a period of 120 days from the date of opening of the price bid. The Bidder will not be allowed

during the declared period of validity to revoke or cancel his tender or to vary any term thereof.

5. If any Bidder withdraws his tender before the date of validity as declared, the earnest money deposited by the Bidder, shall be outright forfeited. There shall be considered as breach of contract and action against bidder shall be taken according to norms.
6. The work will be awarded to the lowest techno-commercial offer after approval obtained from the competent authority.
7. Only the authorized representatives of the bidders will be allowed to be present during bid openings.

3.9 ADDENDA/CORRIGENDA:

The Executive Engineer (Mech.), Gandhinagar shall have the right to revise or to amend the contract documents prior to the date of receipt and opening of the tender aforesaid such revision or amendments or extensions, if any, shall be communicated through notice in the newspaper, as may be considered necessary.

Addenda/Corrigenda to the tender documents may also be published On-Line by the Executive Engineer (M), GMB Gandhinagar prior to the date of opening of the tenders, to clarify or reflect modifications in the contract terms and conditions.

3.10 COLLECTION OF DATA - BIDDER'S RESPONSIBILITY:

1. The Bidder shall visit the site and acquaint himself fully with the site and local conditions and no claims whatsoever will be entertained on the plea of ignorance of difficulties for installation and operation of the system. Before submitting the tender, the Bidder shall be deemed to have clearly understood and satisfied himself regarding the work and services, all conditions liable to be encountered during the execution thereof and that prices, rates and/or compensation quoted in the offer are adequate and all-inclusive with respect to all factors, circumstances and conditions likely to be incidental, both direct and indirect, to the work and services.

2. The prices and amount quoted by the Bidder shall include all costs, including escalation of labor, material, equipment, transport and/or storage charges, insurance, inspection fees, increase in cost due to government and other charges, direct and indirect, till the work is completed in accordance with the scope of the contract and contract period. GST will be paid extra as actual on submission of documentary evidence for payment made to GST Department.

3.11 AMBIGUITY:

In case of there be any ambiguity or doubt as to the meaning of any of the tender clauses/conditions or, if any further information is required, the matter should immediately be referred to the Executive Engineer (M), Gujarat Maritime Board, Gandhinagar in writing, whose interpretation shall be final and binding.

3.12 SIGNING THE CONTRACT:

The successful Bidder shall be required to execute an agreement on stamp paper of the required value within 15 days from the date of issue of the notice of Letter of Intent/AL with submission of security deposit as per clause no 3.3. In the event of failure on the part of the successful Bidder to execute the agreement within the above stipulated period, or the period agreed by the Board, the Earnest Money deposited by him will be forfeited and apart from that the Board being in such circumstances entitled to treat the successful Bidder as in breach of contract and proceed accordingly. The agreement

shall be done by Executive Engineer (M), GMB, PIU – Jamnagar.

3.13 **JURISDICTION:** The contract is subject to the jurisdiction of the local courts of Jamnagar (Gujarat).

3.14 All the documents contained in the tender shall form a part of agreement including instructions, conditions, special conditions, Technical specifications document etc. and any correspondence related to this Contract.

3.15 Letter of Application shall be submitted in proper format. Incomplete offers shall be rejected.

3.16 The bidder shall satisfy himself with regard to the nature of work to be carried out, its scope, the conditions of the contract, etc. included in the bid document.

3.17 The cost associated with the preparation and submission of bid shall be borne by the bidder and GMB shall in no case be responsible or liable for such costs.

3.18 The language for submission of bid should be in English. The enclosed schedules should be filled in completely and all questions should be answered. If any particular query is not relevant, it should be stated as "NOT APPLICABLE ". Financial Data, Projects Costs, value of work etc. should be given in Indian rupees only.

3.19 For any clarification the Executive Engineer (Mech.) Gujarat Maritime Board, Office Complex, Jamnagar-361750 or Office of Executive Engineer (Mech.), Gujarat Maritime Board, 5th floor, Sagar Bhavan, GMB Office Complex, Sector – 10 A, Opp. Air Force Station, CHH-Road, Gandhinagar- 382010 (Gujarat) India, may be contacted by prior appointment on working day. For site visit and information regarding relevant data will be also available at the above address.

3.20 If a proprietary firm makes the application, it shall be signed by the proprietor above his full name and the full name of his firm with its current address.

3.21 If the application is made by a firm in partnership, it shall be signed by all the partners of the firm, above their full names and current addresses or by a partner holding the power of attorney of the firm by signing of the application in which case a certified copy of the power of attorney shall accompany the application A certified copy of the partnership dead, current address of the firm and the full names, and current of all the partners of the firm shall also accompany the application.

3.22 If limited company or a limited corporation makes the application, a duly authorized person holding the power of attorney for signing the application in which case a certified copy of the power of attorney shall accompany the application shall sign it. Such limited company or Corporation will be required to furnish satisfactory evidence of its existence before the contract is awarded.

3.23 Information furnished must be sufficient to show that the Bidder is a capable in all respects to successfully complete the envisaged contract works strictly on the basis of the Bidder, having already carried out satisfactorily works of similar size, nature and complexity.

3.24 While submitting the schedules, duly filled in, the Bidder shall enclose the latest copies of brochures and technical documentation giving more information about

the firm and all the members.

3.25 The Gujarat Maritime Board reserves the right to reject any or all bids without assigning any reasons and the Gujarat Maritime Board decision shall be final and binding.

3.26 Detail of company profile shall be furnished in PQ Form-III (General information) of the document.

3.27 No costs incurred by bidder in making this offer like providing clarification or attending discussions, conferences or site visits will be reimbursed by the Gujarat Maritime Board.

3.28 Details of the litigation, if any, during last three years shall be furnished as per performa attached.

3.29 The tenders shall remain open for a period of 120 days from the date of opening of the price bid and that the Bidder is not allowed to withdraw or modify the offer of his own during this period. If any, Bidder withdraws his tender before the said period or makes modifications of his tender, which are not acceptable to the Board the Board shall, without prejudice to any right or remedy, be at liberty to forfeit in full the EMD absolutely.

3.30 The PQ cum Technical Bid should contain all other documents (except the price bid) viz; specifications, general conditions etc. and Bidder's letter regarding deviations to the general terms & conditions, if any. It should be very clearly understood that the PQ cum Technical Bid should be restricted to only "Technical matters and the tender amount of other price should not be discussed in the PQ cum Technical Bid. Conditions in "PQ cum Technical Bid" should be specific so as to evaluate them correctly and to arrive at the correct financial effect.

3.31 The rates should be filled only in Price bid of tender documents nowhere else rates are to be mentioned. The price bid should contain only rate and amount of the work. Any condition in the price bid shall be liable for rejection of offer of that bidder.

3.32 The bidders will understand clearly that the rates quoted are for complete works and include all costs due to labor, plants & equipment, transportation, supervision of GMB officials including lodging & boarding, various other services like water, power, taxes, duties, materials and all matters and things necessary for satisfactory completion of the work and no claim for additional payment beyond the offered/accepted rates will be entertained and the bidder will not be entitle subsequently to make any claim on the ground of misrepresentations or on the ground that he was supplied with wrong information given by any person (whether the person is the employee of GMB or not). Any failure on the part of Bidder to obtain all necessary and correct information for the purposes of filling his Bid and prices / rates therein shall not relieve him from any risks or liabilities arising out of consequence upon the submission of the Bid.

3.33 Should there be any discrepancy or any doubt or obscurity as to the meaning of any of these Bid documents or as to anything to be done or not to be done or as to those instructions to be observed by the bidder, they may point out in writing such queries to the Executive Engineer (M), GMB, Gandhinagar by letter / fax, as soon as possible but not later than 02 days before pre-bid conference. In such case the

decision given by the competent authority shall be final and binding to the bidder(s).

3.34 GMB may issue any corrigendum in regards to any deviation in clause or the outcome of pre bid conference by uploading the documents on tender web-sites.

3.35 No contract will be awarded except to the qualified and responsible bidders capable of performing the classes of work contemplate.

3.36 No Bid shall be deemed fit for consideration unless, it is completed in all respect.

3.37 **Liquidated damages for delay:** If the Contractor fails to complete the work under contract by the stipulated date, he shall pay liquidated damages of Rs.0.1 % (percentage) of the contract value per day from the date of delaying the said work upto the date of completion and handling over to the Government. and shall be subject to the maximum amount of ten percentage (10%) of the estimated amount put to tender.

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER-4: PQ FORMS / ANNEXURES

QUALIFICATION DATA SHEET TO BE FILLED UP BY THE BIDDER.

The qualification questionnaire contains the following forms:

P.Q. FORM-I	:	Letter of Application
P.Q. FORM -II	:	Document Fees & EMD Details
P.Q. FORM III	:	General Details
P.Q. FORM-IV	:	Turnover
P.Q. FORM–V	:	Details of experience
P.Q. FORM -VI	:	History of Litigation on Rs.100 non judicial stamp paper duly notarized

PQ Form No. I

LETTER OF APPLICATION

To,
Executive Engineer (Mech.),
Gujarat Maritime Board, 5th floor, Sagar Bhavan,
GMB Office Complex, Sector – 10 A,
Opp. Air Force Station, Chh-Road,
Gandhinagar- 382010 (Gujarat) India

Dear Sir,

Having examined the Bid documents including scope of works and time frame of the aforesaid work, I/we hereby submit all necessary information and relevant documents as desired.

The application is made by us on behalf of..... .....duly authorized to submit the offer.

The necessary evidence admissible in law in respects of authority assigned to us on behalf of the firms for applying and for completion of the contract document is attached herewith.

It is certified that the information furnished in this document is correct & authentic.

I/We confirm that we have not been barred & blacklisted by any Government organization OR Major Port Trust OR Minor Port Board in India for any such works in last Five Years.

I/We shall make available to the GMB any additional information it may find necessary or require for this tender purpose.

I/We promise that we will abide by all rules & regulation as laid down by G.M.B. time to time for execution of any contract as may arise during this contract period

I/We have examined and have no reservation to these tender documents with any addendum issued by GMB.

I/We undersigned accept that GMB reserves the rights to reject any or all tender for this work without assigning any reason.

Date:
Place:

Signature of the applicant
(Name in bracket)
Seal of firm

Encl: As per NIT

PQ Form No.II: Document Fees & EMD Details

Document Fees Detail	
Document Fees	
D.D./Banker's cheque No.& date	
Bank Name & Address	
EMD Detail	
EMD Amount	
FDR No.	
Bank Name & Address	
Date of FDR	
Valid Up to	

PQ Form No. III: General Information

All individual firms applying for pre-qualification must complete the information in these forms.

1.	Name of firm:	
2.	Head office address:	
3.	Local office address (if any):	
4.	Telephone:	Contact:
5.	Facsimile:	E-Mail & Website:
6.	Place of incorporation / registration:	Year of incorporation / registration:
7.	GST No. :	
8.	PAN No. :	
9.	Main lines of business:	
	1.	Since:
	2.	Since:
	3.	Since:
	4.	Since:
10.	Details of office set up with Key staff name, designation, & other detail	
11.	Other information (if any)	

PQ Form No. IV: Turn over

All individual firms applying for pre-qualification must complete the information in these forms.

(In Rs.Lakhs)

Particular	Year	Value
	2020-21	
	2021-22	
	2022-23	
	2023-24	
	2024-25	

Note: Copy of Chartered Accountant certificate shall be attached online with the Tender.

PQ FORM –V: Experience of similar works

Bidders should provide information showing their experience for similar works as mentioned in the table below:

Actual experience during last 05 years till due date of bid for the proposed work as per relevant clause of PQ bid shall be taken in to consideration.

A. Experience in Contracts of works completed:

Sr. No	Name of work	Owner / Client	Address with phone / Fax No.	Contact person name & Mobile no.	Value of contract	Detail Order (copy Attached)	Successfully Completion Certificate of Client (Attached/ Not Attached
1	2	3	4	5	6	7	8

Note: The above information should be filled in the table and supporting documents in soft copies should be submitted inclusive of work order and work completion certificate/ etc. in e-tender.

PQ FORM – VI: History of Litigation

History of Litigation

(On 100 Rupees Non judicial Stamp paper with duly notarized)

Ref: Date:

UNDERTAKING

We here by undertakes and confirms that our agency M/s _____ have been neither black listed nor banned for tender participation or execution of the works by any Govt./PSU Authority in last three year.

Thanking you,
Yours faithfully,
For M/s _____

_____
(Name of Authorized signatory)

Sign and Seal of contractor

CHAPTER-5: TECHNICAL DETAILS OF VESSEL

Dredger U B Pavankumar

	Name of Vessel	U B Pavankumar
	IV registry No/ registry No.	BP-1169
	Type of Vessel	Deck mounted dumb Grab Dredger
	Year of Built	2001
	Place of Built	Magdalla
	Name of Builder	Vipul Shipyard, Magdalla , Surat
	Trading Warranting	Inland water limits in the state of Gujarat
	Present Classification Society	IRS
	Dimensions	
	Length	25.0 Mtr
	Breadth	9.0Mtr
	Depth	1.5 Mtr
	Draft	1.2 Mtr
	GRT	100 T
	NRT	30 T
	Dead Weight	165 T
	Speed	Dumb
	Spuds	
	Nos of Spuds	3
	Spud Dia	550 mm
	Spud Length	12 Mtr
	Spud Weight	2.5 Ton
	Spud Operating Winches	3 Electrical Driven
	Details of Excavator-backhoe	
	Make	Tata Engines
	Model	TATA Hitachi Ex-400
	Machine No.	4001-0100
	Sr No.	4001-0100
	Bucket Capacity	1.7 Cu Mtr
	Engine Make	Cummins Engines
	Engine Model	NT-855-C-FFC
	Engine HP	310
	Engine RPM	2100
	Engine Sr No.	25249333
	Details of DG Set	
	Engine Make	Greaves Ltd, Pune
	Engine Model	TD 2V6
	Engine RPM	1490

	Engine Sr No	22050600601
	Engine HP	149
	Alternator Details	
	Make	Crompton
	Mfg By	Devgen Set Sabs & Services, Silvassa
	Volt	415
	Sr No	GALFB207m
	Fire Fighting Pump	
	Pump Type	Self-Priming Single Stage BB type
	Make	Florte Eng Pvt Ltd, Mumbai
	RPM	1500
	Engine Make	KOEL
	Engine Model	S.P.E.-2/1
	Engine HP	6
	Rotation	Anti-clockwise
	Pump Size:	50 X 50
	LAS Items	
	Life Buoys	8 No- 2 with SI light
	Life Jacket	8 No
	FFA Items	
	DCP 5kg extinguisher	3 No
	Water Co2 type 10 KG	1 No
	CO2 type Extinguisher 4.5 Kg	1 No
	Fire Hose with Nozzle	1 No

Signature of Contractor

Executive Engineer (M),
PIU, GMB, Jamnagar

CHAPTER-6: Scope of work:-

Dredger U B Pavankumar is dumb barge, which is working at Bedi port, Jamnagar. The unit/vessel is maintained under IRS class. Hence, to maintain the vessel in good operating condition & to maintain the Class (Docking survey to be carried out) & for hassle free dredging operation, general repairing is required to be carried out.

The contractor has to carry out the said work at Bedi Port-Jamnagar. Contractor is strongly advised to visit the site and acquainted himself with the site condition its surrounding etc. in view of performing the scope of tender.

Items of work includes renewal of steel hull, pumps service & repairs, pipe line renewals & repairs, anodes renewals, sand blasting, painting of hull, superstructures, fenders work, electrical parts repairs, DG repairs. work etc. including all of items given in the here items of works in schedule B. All the items of work must have to execute as per detailed specification given in this bid in works specification.

The contractor has to procure the required material as mention in “Schedule-B” of this tender document and should be got approved from IRS/EIC. All the items of work must have to execute as per detailed Specification given in concern chapter of this tender document. The entire work should be carried out as per Marine standard practice, IRS requirements & upto satisfaction of IRS/EIC.

The entire work will have to be carried out under inspection of classification society i.e. IRS.

The work shall be considered to be completed, only after obtaining the class certificate from IRS.

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER-7: STANDARD BIDDING DOCUMENT

NAME OF WORK: -SR to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port.

Amount Put To Tender: - Rs. 40, 51,310/

Office of Executive Engineer (Mech.),
Gujarat Maritime Board, 5th floor, Sagar Bhavan.
GMB Office Complex, Sector – 10 A, Opp. Air Force Station, CHH-Road,
Gandhinagar- 382010 (Gujarat) India

GOVERNMENT OF GUJARAT
GUJARAT MARITIME BOARD
PORT & TRANSPORT
DEPARTMENT

~~This is a generic SBD to be used for Civil works. Each user/concern department needs to examine and put up their particular bidding requirement like; qualification criteria, contract Data etc., marked at [#] while finalizing their own bidding process.~~

INVITATION FOR BID (IFB) AS PER NIT.

NATIONAL COMPETITIVE BIDDING

1. The Executive Engineer (Mech.), GMB, Gandhinagar invites bids for the construction of works detailed in the table. The bidders may submit bids for any or all of the following works.

Sr. No.	Name of work	Estimated Tender value of works (Rs.)	Bid Document Fee. (in DD)	EMD In RS (FDR)	Period of completion
.....AS PER NIT.....					

2. Prospective/Interested bidder may download the Bid Documents from website www.gmbtender.nprocure.com free of cost till the Time and Date as mentioned on online NIT

3. However, Bidder who is submitting the Bid Online will have to pay the Bid Document Fee/ Tender Fee through Demand Draft only of any Schedule Bank payable at Jamnagar and in favor of "Gujarat Maritime Board NON PLD, Gandhinagar A/c" Once the Bid is received online/Offline, Bid Document / Tender Fee will not be refundable.

   The Demand Draft for Bid Document / Tender fee and FDR / Bank Guarantee against Bid Security / EMD shall be submitted in electronic format through online (by scanning)while uploading the bid, this submission shall mean that bid document / tender fee and Bid Security/ EMD has been received. Accordingly, the offer of only those shall be opened whose Bid Document / Tender Fee and Bid Security / EMD have been received electronically. However, for the purpose of realization of Demand Draft, and FDR / Bank Guarantee bidder shall send the same in original through R.P.A.D. so as to reach to **'Executive Engineer (Mech.), GMB, Gandhinagar**' within 7 Days from the last day of bid submission. Penaltative action for not submitting Demand Draft / FDR / Bank Guarantee in original to Executive Engineer / Tender Inviting Authority by bidder shall be initiated.

4. Bids received online, will be opened on the time, date and place as specified in the online NIT at website https:// www.tender.nprocure.com in the presence of the bidders or their authorized representatives, who wish to remain present.
   If the office happens to be closed on the day of opening of the bids as specified, the bids will be opened on the next working day at the same time and venue.

5. A pre bid meeting will be held on.....at.....hrs.at the Office of Superintending Engineer(Mech.) 5th Floor GMB office complex Opp of Air Force Sector 10 A Gandhinagar to clarify the issues and to answer questions on any matter that.....may be raised at that stage as stated inclause 9.2 of 'instructions to Bidders' of the bidding documents.

6. #Bid Security (EMD) is equal to 1%(+18% GSt) of Estimated Amount put to bid / tender and should be rounded off to the next thousand rupees.

7. Other Information is as under:

a. Agencies can prepare and edit their offers a number of times before the end of the tender submission date and time. After the tender submission date and time, the bidder cannot modify / edit / withdraw their submitted offer in any case. No written or online request in this regard shall be granted.

b. Offers in physical form will not be accepted in any case.

c. Demand Draft purchased by the other then bidder and issued after the last date of submission of Bids, will not be considered or accepted.

d. The cost incurred by the contractor for this offer for clarification or attending discussion, conferences or site visits will not be reimbursed by the Employer or Engineer-in-Charge.

e. Conditional tender shall not be accepted.

f. Any changes, addition, alternation made in the prescribed form attached with tender are liable to be rejected.

g. Any change in format or conditional Bank Guarantee will not be accepted and the bidder will be considered non-responsive.

h. All the bidders are instructed to fill in information strictly in accordance with the format given in the checklist /qualification document / tender document.

i. It is mandatory for the bidders to supply each and every information as asked strictly in electronic format at appropriate places only.

j. Blank/insufficient information shall be treated as nil information and shall result in disqualification.

k. Even if the bidder has been qualified in a similar or larger size of project in the past, it shall not be deemed to be aground/reason for not giving required information for this work /bid.

l. Information supplied for earlier projects shall not be considered while evaluation of this bid. The Government will not ask for any other information, unless it is found absolutely necessary by the competent authority.

m. If found necessary, the contractor will be intimated for negotiation,

#For the works costing up to 7.5 crore (ROAD), 7.0 crore(BUILDING&BRIDGE) kindly refer to SSR-10-201517-C dated03-02-2017.

 # For the works costing under 7.5 crore for Road Works and 7.0 crore for Building and Bridge Works following documents shall be submitted in electronic format only through online by scanning and the (i) Bid Document Fee / Tender Fee (ii) Bid Security / EMD should be sent in original to the Tender opening authority through RPAD, so as to reach the Executive Engineer within 7 days from last day of submission of Bid.

ELIGIBILITY CRITERIA

EILIGIBILITY CRITERIA AS PER NIT & TQ /PQ relevant tender clause given here above clause & criteria.

All the eligibility criteria shall be requires to submit as mention in tender documents.

i. Upload Scan copy of Tender Fee of Rs.AS PER NIT /- in the form of Demand Draft only (Cash not acceptable) in favour of The PO GMB Jamnagar payable at Jamnagar from any Nationalized / Scheduled Bank. (DD for Tender Fee must be purchased from the account of Bidder)

ii. Upload scan copy of Earnest Money Deposit Rs.AS PER NIT **/-** in the form of FDR (with a validity period of not less than 6 months) from Nationalized/ Scheduled Bank in favor of Executive Engineer(Mech.), PIU Gandhinagar, payable at Gandhinagar (FDR for EMD must be purchased from the account of Bidder).

iii. Upload Scan copy of GST Registration Certificate

iv. Upload Scan copy of Permanent Account Number issued by Income Tax Department

v. Upload Scan copy of Bank Solvency of **Rs AS PER MENTION PQ/TQ** issued on or after **01.01.2025** by Scheduled/Nationalized Bank or Government approved bank for tendering purpose.

vi. Turn over of minimum **Rs. 40.52 Lakhs** AS PER MENTION PQ/TQ in any one year, over the last five financial years i.e. (2020-2021 to 2024-2025) issued by Charter account.

vii. AFFIDAVIT for abandoned any work of Government

viii. Upload the scan copy of **3A certificate** issued for completions of Government work or if agency submit experience of private work then copy of work order, completions certificate mentioning amount of work done, date of start and actual date of completions of work.

- Bidder should have experience successfully carried out *similar work during last five years w.e.f **01.04.2020** till last date of online bid submission.
- At least one similar work costing not less than **Rs. AS PER MENTION PQ/TQ** /-.
- *Similar work means:- Experience of successfully completion of Constructions of any marine vessel or dry docking repairs of the any Flotilla Vessel like Tugs , dredgers, barges or any other floating vessel having under IRS Class or any other IACS Marine Classification society.

ix. Submission of Dry Dock details as per relevant annexure

Section1: Instructions to Bidders

Table of Clauses

A. General

1. Scope of Bid
2. Source of Funds
3. Eligible Bidders
4. Qualification of the Bidder
5. One Bid per Bidder
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C. Preparation of Bids

11. Language of Bid
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15. Bid Validity
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17. Alternative Proposals By Bidders
18. Format and Signing of Bid

D. Submission of Bids

19. Sealing &Marking of Bids
20. Deadline for Submission of Bids
21. Late Bids
22. Modification and Withdrawal of Bids

E. Bid Opening and Evaluation

23. Bid Opening
24. Process to be Confidential
25. Clarification of Financial Bids
26. Examination of Bid sand Determination of Responsiveness
27. Correction of Errors
28. Deleted
29. Evaluation and Comparison Of Financial Bids
30. Deleted

F. Award of Contract

31. Award Criteria
32. Employer's Right to Accept Any Bid and to Reject any or all Bids
33. Notification of Award and Signing of Agreement
34. Performance Security
35. Advance Payment and Security
36. ~~Deleted~~
37. Corrector Fraudulent Practices

A: GENERAL

1. Scope of Bid

1.1 The Employer (Named in Appendix to ITB) invites bids for the Construction of works (as defined in these documents and referred to as 'the works") detailed in the table given in IFB. The bidders may submit bids for any or all of the works detailed in the table given in IFB.

1.2 The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.

1.3 Throughout these bidding documents, the terms 'bid' and 'tender' and their derivatives (bidder/tenderer, bid/tender, bidding/tendering, etc.) are synonymous.

2. Source of Funds

2.1 The expenditure on this project will be met from the budget of Govt. of Gujarat Gujarat Maritime Board/ Govt. of India for centrally sponsored projects.

3. Eligible Bidders

3.1 This Invitation for Bids is open to all eligible bidders.

3.2 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is neither associated, nor has been associated, directly or indirectly, with the consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the works, and any of its affiliates, shall not be eligible to bid.

4. Qualification of the Bidder:-

4.1 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a preliminary description n of the proposed work method and schedule, including drawings and charts, as necessary. The proposed methodology should include a program of construction backed with equipment planning and deployment duly supported with broad calculations and quality assurance procedures proposed to be adopted justifying their capability of execution and completion of work as per technical specifications, with in stipulated period of completion.

4.2 Deleted

4.3 Deleted.

4.4 Deleted

#4.5 QUALIFICATIONCRITERIA: (Please refer Chapeter-1: NIT and Chapter-3: INSTRUCTIONS TO BIDDERS) (Applicable for the works which require Post Qualification)

4.5.1 Qualification will be based on Applicant's meeting all the following minimum pass/ fail criteria regarding the Applicant's general and particular experience, personnel and equipment capabilities and financial positions, as demonstrated by the applicant's responses in the forms attached to the letter of application (specified requirement for joint ventures are given under para 4.6 below) Subcontractors experience and resources shall not be taken in to account in determining the applicants

compliance with the qualifying criteria

To qualify for more than one contract, the applicant must demonstrate having experience and resources sufficient to meet the aggregate of the qualification criteria for each contract given in ~~paragraphs 4.5.4, 4.5.5 and 4.5.9 below~~ Chapter-3, Instructions to bidders, clause 3.7 and 3.8.

4.5.2 Base year and Escalation

~~The base year shall be taken as Current financial year~~

~~Following enhancement factors will be used for the costs of works executed and the financial figure to a common base value for works completed in India.~~

~~**Year**~~	~~**Financial Year**~~	~~**Multiplying factor**~~
~~Base year of inviting tender~~	~~2024-2025~~	~~1.00~~
~~-1~~	~~2023-2024~~	~~1.10~~
~~-2~~	~~2022-2023~~	~~1.21~~
~~-3~~	~~2021-2022~~	~~1.33~~
~~-4~~	~~2020-2021~~	~~1.46~~
~~-5~~	~~2019-2020~~	~~1.61~~

~~Applicant should indicate actual figures of costs and amount for the works executed by them without accounting for the above-mentioned factors.~~

~~In case the financial figures and value of completed works are in foreign currency the above enhanced multiplying factors will not be applied. Instead, the current market exchange rate (State Bank of India BC Selling rate as on the last date of submission of the bid) will be applied for the purpose of conversion of the amount in foreign currency into India rupees.~~

4.5.3 General Experience. :-As per Bid PRE CUM TECHNICAL QUALIFICATION (CHPATER 3, CLAUSE 3.6 and 3.7).

~~The Applicant shall meet with the following minimum criteria:~~

~~(a) Achieved a minimum Annual financial turnover of Rs. in any one year, over the last five years issued by Charter account~~

~~(b) Experience in successfully completing or substantially completing at least one contract similar nature of work at least 40 percent of the value of proposed contract within the last five years.~~

~~The works may have been executed by the applicant as prime contractor or asa member of a joint venture or as a nominated sub-contractor. As subcontractor, he should have acquired the experience of execution of all major items of works under the proposed contract. In case a project has been executed by a joint venture, weight towards experience of the project would be given to each joint venture in proportion to their financial participation in the joint venture.~~

~~Substantially completed works means those works which are at least 90 % completed as on the date of submission (i.e. gross value of work done up to the last date of submission is 90 % or more of the original contract price) and continuing satisfactorily.~~

~~For these, a certificate from the employers shall be submitted along with the application incorporating clearly the name of the work, contract value, billing amount, date of commencement of works, satisfactory performance of the contractor and any other relevant information.~~

4.5.4 Personnel Capabilities. Availability for his work of personnel with adequate

experience as required; as per Appendix.

4.5.5 Equipment Capabilities

Based on the studies carried out by the Engineer, the minimum suggested major equipment to attain the completion of works in accordance with the prescribed construction schedule are shown in the Appendix.

The bidders should, however, undertake their own studies and furnish with their bid, a detailed construction planning and methodology supported with layout and necessary drawings and calculations to allow the employer to review their proposals. The numbers, types and capacities of each plant/equipment shall be shown in the proposals along with the cycle time for each operation for the given production capacity to match the requirements.

4.5.6 ~~Financial Position~~

~~The Applicant should give undertaking that he has access to, or has available, liquid assets (aggregate of working capital, cash in hand and uncommitted bank guarantees) and / or credit facilities up to 25 percent of the value of the contract / contracts applied.~~

4.5.7 ~~The audited balance sheets for the last five years should be submitted, which must demonstrate the soundness of the applicant's financial position, showing long – term profitability including an estimated financial projection for the next two years If necessary, the employer will make inquiries with the applicant's bankers.~~

4.5.8 Litigation History

The Applicant should provide accurate information on any litigation or arbitration resulting from contracts completed or under execution by him over the last five years. A consistent history of awards against the Applicant or any partner of a joint venture may result in failure of the applicant.

4.5.8 Disqualification

Even though the applicants meet the above criteria, they are subject to be disqualified if they have: Made misleading or false representation in the forms, statements submitted, and / or Record of poor performance such as abandoning the work, rescinding of contract for which the reasons are attributable to the non – performance of the contractor; consistent history of litigation awarded against the applicant or financial failure due to bankruptcy. The rescinding of contract of a joint venture on account of reasons other than non – performance, such as Most Experienced partner of joint venture pulling out, court directions leading to breaking up of a joint venture before the start of work, which are not attributable to the poor performance of the contractor will, however, not affect the qualification of the individual partners.

#4.6 ~~JOINT VENTURE: (Maximum 3 Members i.e. 1 Lead & 2 Others) (Applicable only for estimated project cost of 50 Crore and above)~~

4..6.1 ~~Joint ventures must comply with the following requirement:~~

~~(a) Following are the minimum qualification requirements:~~

~~(i) The lead partner shall meet not less than 50 percent of all criteria given Inpara & 4.5.6 above. The joint venture must collectively satisfy the criteria of para4.5.3 & 4.5.6above.The experience of the other joint venture partners shall be considered if it is not less than 30 percent of~~

~~the qualifying criteria in para4.5.3&4.5.6 above.~~

~~(ii) Individually each member must satisfy the requirements of para 4.5.7 & 4.5.8 above.~~

~~(b) Bid shall be signed so as to legally bind all partners, jointly and severally, and shall be submitted with a copy of the joint venture agreement providing the joint and several liabilities with respect to the contract.~~

~~**4.6.2** Qualification of a joint venture does not necessarily qualify any of its partners individually or as a partner in any other joint venture. In case dissolution of a joint venture, each one of the constituent firms may qualify if they meet all the qualification requirements, subject to the written approval of the Employer.~~

~~**4.7. Bid Capacity.**~~

~~Applicants who meet the minimum qualification criteria will bequalified only if their available bid capacity at the expected time of bidding is more than the total estimated cost of the works. The available bid capacity will be calculated asunder:~~

~~**Assessed Available Bid Capacity=(A*N*2-B),where**~~

~~A = Maximum value of work executed in any one year during the last five years(updated to the price level of the year indicated in appendix) taking in to account the completed as well as works in Progress.~~

~~B = Value at current price level of the existing commitments and ongoing works to be completed during the next 2 (Two)Months(period of completion of work for which bids are invited);and~~

~~N = Number of years prescribed for completion of the works for which the bids areinvited.~~

~~**Note :- In Case of joint venture, the available bid capacity will be applied foreach partner to the extent of his proposed participation in theexecution of the work.**~~

4.8 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- Made misleading or false representation in the forms, statements and Attachmentsthesubmittedinproofthequalificationrequirements;and/or
- Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delay in completion, litigation history, or financial failures etc.; and/or
- Participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

5. One bid per bidder

5.1 Each bidder shall submit only one bid for one package. A bidder who submits or participates in more than one bid (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the bidder's participation to be disqualified.

6. Cost of Bidding

6.1 The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

7. Site Visit

7.1 The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of work and its surrounding and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works.

The costs of visiting the site shall be at the Bidder's own expense.

B: BIDDING DOCUMENTS

8. Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause10:

Section	Particulars	Volume No.
-	Invitation for Bids	I
1	Instructions to Bidders	
2	Qualification Information ,and other forms	
3	Conditions of Contract	
4	Contract Data	
5	Technical Specifications	II
6	Form of Bid	III
7	Bill of Quantities	
8	Securities and other forms	
9	Drawings	IV
10	Documents to be furnished by bidder	V

8.2 Volumes I, II, III and IV are available online and documents to be furnished by the bidder in compliance to section 2 will be prepared by him and furnished as Volume- V in two parts (refer clause12).

8.3 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, and technical specifications, bill of quantities, forms, Annexes and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. **Pursuant to clause 26 hereof**, bids which are not substantially responsive to the requirements of the Bid Documents shall be rejected.

9. Clarification Bidding Documents

9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or through E-mail at the Employer's address indicated in the invitation to bid. The Employer will respond to any request for clarification which he received earlier than 15 days prior to the deadline for submission of bids. Employer's response will be published on website including a description of the enquiry but without identifying its source.

9.2 Pre-bid meeting

9.2.1 The bidder or his official representative is invited to attend a pre-bid meeting which will take place at the address, venue, time and date as

indicated in the appendix.

9.2.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

9.2.3 The bidder shall be required to submit any questions in writing or e-mail to reach the Employer not later than 03 days before the meeting.

9.2.4 Minutes of the meeting, including the question raised (Without identifying the source of enquiry) and the responses given will be published without delay on the tender website i.e. www.tender.nprocure.com. any modification of the bidding documents listed in sub-Clause 8.1 which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting.

9.2.5. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

10. Amendment of Bidding Documents

10.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.

10.2 Any addendum thus issued shall be part of the bidding documents. The Employer will assume no responsibility for the same.

10.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at his discretion, extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 20.2 below.

C: PREPARATION OF BIDS

11. Language of the Bid

11.1 All documents relating to the bid shall be in the English language.

12. Documents Comprising the Bid

12.1 The bid be submitted by the bidder as Volume-V of the bid document (refer Clause 8.1) shall be in two separate parts:

Part-I shall be named "Technical Bid" and shall comprise (As per Chapeter-1: NIT and Chapter-3: INSTRUCTIONS TO BIDDERS)

(i) Bid Security in the form specified in Section 8
(ii) Qualification Information and supporting documents as specified in Section 2
(iii) Certificates, undertakings, affidavits as specified in Section 2
(iv) Any other information pursuant to Clause 4.5 of these instructions
(v) Undertaking that the bid shall remain valid for the period specified in Clause 15.1

Part II shall be named "Financial Bid" and shall comprise

(i) Form of Bid as specified in Section 6
(ii) Priced Bill of Quantities for items specified in Section 7

12.2 The Bidder shall submit the details/information pertaining to each part i.e. technical as well as financial and must be submitted online only.

Following documents will be deemed to be part of the bid.

Section	Particulars	Volume No.

	Invitation for Bids (IFB)	
1	Instruction to Bidders	Volume-I
3	Conditions of Contract	
4	Contract Data	
5	Specifications	Volume-I
9	Drawings	Volume-IV

13. Bid Prices

13.1 The Contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Bidder.

13.2 The bidder shall fill in rates and prices and online item total (both in figures and words) for all items of the Works described in the Bill of Quantities along with total bid price other in figures and words). Items for which no rate or price is entered by the bidder will not be paid for by the Bill of Quantities.

13.3 All duties, taxes, and other levies except GST payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder. (GST will be paid extra)

13.4 Deleted

13.5 ~~The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 47of the Condition of Contract~~ **~~(Irrespective of the time limit and Bid Amount)~~**

14. Currencies of Bid and Payment

14.1 The unit rates and the prices quoted by the bidder shall be entirely in Indian Rupees.

All payments shall be made in Indian Rupees.

15. Bid Validity

15.1 Bids shall remain valid for a period of not less than 120 days after the dead line date for bid submission specified in Clause20.

15.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified period. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his security for a period of the extension, and in compliance with Clause-16 in all respects.

#16. Bid Security: As per qualification criteria given tender (As per Chapeter-1: NIT and Chapter-3: INSTRUCTIONS TO BIDDERS).

16.1 **~~The Bidder shall furnish, as part of his Bid, a Bid security in the amount as shown in column 4 of the table of IFB for this particular work. This Bid security shall be in favor of Employer as named in Appendix and may be in one of the following forms;~~**

a. ~~Bank Guarantee from any scheduled Indian bank, in the format given in Volume III.~~ **~~(Bank Guarantee is applicable only for Bid Estimated Amount of 01 Crore and above) and Bank~~** ~~Guarantee of Schedule and Private Banks shall be considered as per GoG~~

~~Finance Department's Circular No. FD/MSM/e-file/4/2024/0057/D.M.O. Date 21/04/2024 or as per their latest amendment.~~

~~b. Fixed Deposit Receipt issued by any Scheduled Indian Bank or a foreign Bank approved by the Reserve Bank of India.~~

~~**OR**~~

~~# A Valid Bid Security / EMD Exemption Certificate issued by (1) Road & Building Department or (2) Narmada Water Resources, Water Supply and KalpsarDepartment of Govt of Gujarat. **Exemption Certificate is applicable only when Registration Certificate of Appropriate Class and Category of Approved Contractors is required as eligible criteria of bidder.**~~

~~**16.2** Bank guarantees (and other instruments having fixed validity) issued as surety for the bid shall be valid for 45 days beyond the validity of the bid i.e. total validity of 120+45 = 165Days~~

~~**16.3** Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 and 16.2 above shall be rejected by the Employer as non-responsive.~~

16.4 The Bid Security of unsuccessful bidders will be returned within 28 days of the end of the bid validity period specified in Sub-Clause15.1

16.5 The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.

16.6 The bid Security may be forfeited

(a) If the Bidder withdraws the bid after Bid opening during the period of Bid validity.

(b) If the Bidder does not accept the correction of the Bid Price, if any or

(c) In the case of a successful Bidders, if the Bidder fails the specified time limit to

(i) Sign the Agreement; or

(ii) Furnish the requirement Performance Security.

(d) #If found necessary, the bidder will be intimated for negotiation, He will be intimated maximum three times within the validity period for negotiation, If contractor does not respond in time, his Bid Security (EMD) will be forfeited and his tender will be rejected. Punitive action will be taken on such contractors. (As per GoG R&B Dept's Gr. No. S/22/2017/6369/D,Dt.08/06/2018)

17. Alternative Proposals by Bidders.

17.1 Bidders shall submit offers that fully comply with the requirements of the bidding documents, including the conditions of contract (including mobilization advance or time for completion), basic technical design as indicated in the drawing and specifications. Conditional offers or alternative offers will not be considered further in the process of tender evaluation.

18. Format and Signing of Bid

The Bidder shall prepare documents comprising the bid as described in Clause-12 of these Instructions to bidder as the "Technical Bid" and "Financial Bid" in separate parts to be uploaded.

D: SUBMISSION OF BIDS

19. Deleted

20. Deadline for Submission of the Bids

20.1 Complete Bids must be received online by the Employer at the tender website specified above not later than the date indicated in appendix.

20.2 The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause-10, in which case all right and obligation of the Employer and the bidders previously subject to the original dead line will then be subject to the new deadline.

21. Deleted

22. Modification and Withdrawal of Bids

22.1 Bidders may modify or withdraw their bids online before the deadline prescribed in Clause 20 or pursuant to Clause 23.

22.2 Deleted.

23.3 No bid shall be modified or withdrawn after the deadline for submission of Bid.

23.4 Withdrawal or modification of a bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause-15.2 may result in the forfeiture of the Bid security pursuant to Clause16.

E: BID OPENING AND EVALUATION

23 Bid Opening

23.1 The Employer will open all the Bids received including modifications made pursuant to Clause 22, in the presence of the Bidders or their representatives who choose to attend at time, date and the place specified in Appendix in the manner specified in Clauses 20 and 23.3, In the event of the specified date of Bid opening being declared holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.

23.2. Deleted.

23.3. The "Technical Bid" shall be opened. The amount, form and validity of the bid security furnished with each bid will be announced. If the bid security furnished does not conform to the amount and validity period as specified in the invitation for bid (ref. Column 4 and paragraph 3), and has not been furnished in the form specified in Clause 16, the technical bid will not be opened.

23.4. (i) Subject to confirmation of the bid security by the issuing Bank, the bids accompanied with valid bid security will be taken up for evaluation with respect to the Qualification information and other information furnished in part-I of the bid pursuant to Clause-12.1.

(ii) If required, the bidder will be asked in writing to clarify his Qualification Documents with respect to any required clarification.

(iii) The bidders will respond in not more than 7 days of issue of the clarification letter.

(iv) Immediately (usually within 3 or 4 days), on receipt of these clarification the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration.

23.5. Deleted

23.6 At the time of opening of "Financial Bid", the names of the bidders were found

responsive in accordance with Clause 23.4(iv) will be announced. The bids of only these bidders will be opened. The responsive Bidders' names, the Bid prices, the total amount of each bid, any discount and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening.

23.7 the time of opening of "Financial Bid", the names of the bidders were found responsive in accordance with Clause 23.4(iv) will be announced. The bids of only these bidders will be opened. The responsive Bidders' names, the Bid prices, the total amount of each bid, any discount, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening.

23.8 In case bids are invited for more than one package, the order for opening of the "Financial Bid" shall be in order of estimated amount of Bids from highest to lowest.

23.9 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 23.6.

24 Process to be Confidential

24.1 Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.

25. Clarification of Financial Bids

25.1. To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by e- mail, but no change in the price or substances of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids.

25.2 Subject to sub-clause 25.1, no Bidder shall contact the Employer on any matter relating to his Bid opening to the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.

25.3. Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decision may result in the rejection of the Bidders' bid.

26. Examinations of Bids and Determination of Responsiveness

26.1 During the detail evaluation of "Technical Bid", the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding document. During the detailed evaluation of the "Financial Bid", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications, and drawings.

26.2 A substantially responsive "Financial Bid" is one which confirms all the terms, conditions and specifications of bidding documents, without material deviation

or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or(c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

26.3 If a "Financial Bid" is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

27. Deleted

28. Deleted

29. Evaluation and Comparison of Financial Bids

29.1. The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Sub-Clause 26.2.

29.2. Deleted.

29.3. The Employer reserves the right to accept or reject any variation or deviation. Variation and deviations and other factors, which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the Employer, shall not be taken in to account in Bid evaluation.

29.4. The estimated effect of the price adjustment conditions under Clause 47 of the Conditions of Contact, during the period of implementation of the Contract, will not be taken in to account in Bid evaluation.

29.5. If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract the Employer may require the Bidder to produce detailed consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 34 be increased at the expense of the successful /bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

29.6. A bid which contains several items in the bill of Quantities which are unrealistically priced low and which cannot be substantiated satisfactorily by the bidder may be rejected as non-responsive.

30. Deleted

F: AWARD OF CONTRACT

31. Award Criteria

31.1. Subject to Clause 32, the Employer will award the contract to the Bidder whose Bid has been determined. (Bidder who qualified in Pre-qualification criteria and qualified bidders whose price bid stage opened and bidder who quoted lowest price in Bill of Quantity will be eligible for award of contract)

(i) to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price; and

~~(ii) To be within the available bid capacity adjusted to account for his bid price which is the lowest evaluation in any of the packages opened earlier than the one consideration.~~

~~In no case, the contract shall be awarded to any bidder whose available bid capacity is less than the evaluated bid price, even if the said bid is the lowest~~

~~evaluated bid. The contract will in such cases be awarded to the next lowest bidder at his evaluation bid price.~~

32. Employer's Right to accept any Bid and to reject any or all Bids

32.1. Notwithstanding Clause 31, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of contract, without thereby incurring any liability to the affected bidder or Bidder or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

33. Notification of Award and Signing of Agreement

33.1. The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the condition of contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

33.2 The notification of award will constitute the formation of the contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause.

33.3. The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the Employer and to the successful Bidder, within 28 days following the notification of award along with the Letter of Acceptance. Within 21 days of receipt, the successful Bidder will sign the Agreement and deliver it to the Employer.

33.4. Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

34. Performance Security:- A
(As per details given in chapter-3, Bid Instruction to Bidder 3.3)

~~34.1. (A) Within 10 (Ten) days of receipt of Letter of Acceptance, the successful Bidder shall furnish to the Employer an irrevocable and unconditional guarantee from a Bank in the form set forth in Section 8 (the "Performance Security") for an amount equal to 5% (five percent) of its Contract Price. In case ofbids mentionedbelow,thesuccessfulBidder,alongwiththePerformanceSecurity,shall also furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the same form given at Section 8 towards an Additional Performance Security (The "Additional Performance Security") for an amount calculated as under:~~

~~(a) If the Contract Price offered by the Selected Bidder is lower than 10% but up to 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 20% of the difference in the (i) Estimated Project Cost (as mentioned in Bid Document) – Minus 10% of the Estimated Project Cost and (ii) Contract Price offered by the selected Bidder.~~

~~(b) If the Contract Price offered by the Selected Bidder is lower than 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 30% of the difference in the (i) Estimated Project Cost (as mentioned in Bid Document) – Minus 10% of the Estimated Project Cost and (ii) Contract Price offered by the selected Bidder.~~

~~(c) This Additional Performance Security shall be treated as part of the Performance Security.~~

~~(B) The Performance Security shall be valid beyond 60 (sixty) days of the Defects Liability Period and the Additional Performance Security shall be valid beyond 28 (twenty-eight) days of Project Completion Date.~~

~~34.2. If the performance security is provided by the successful Bidder in the form of a Bank Guarantee, it shall be issued either (a) at the Bidder's option, by a Nationalized/Scheduled Indian bank or (b) by a foreign bank located in India and acceptable to the Employer. As per GoG Finance Department's Circular No. FD/MSM/e-file/4/2023/0057/D.M.O. Date 21/04/2023 or as per their latest amendment.~~

34.3. Failure of the successful Bidder to comply with the requirement of Sub-Clause 34.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security.

~~35 Advance Payment and Security~~

~~35.1 The Employer will provide an Advance payment on the Contract Price as stipulated in the Conditions of Contract, subject to maximum amount, as stated in the Contract Data.~~

36. Deleted

37. Corrupt of Fraudulent Practices

37.1 The Employer will reject a proposal if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in completing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with National Highways Authority of India/ State PWD and any other agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in completing for the contractor, orin execution.

37.2 Furthermore, Bidders shall be aware of the provision stated in Sub- Clause 59.2 of the Conditions of Contract.

~~APPENDIX TO ITB~~
~~Clause Reference~~
~~With respect to~~
~~Section –I~~

~~1.~~	~~The Name of the Employer is Executive Engineer (M), Gujarat Maritime Board, Jamnagar~~	~~[Cl.1.1]~~
~~2.~~	~~The last five years.~~	
	~~2023-2024~~	
	~~2022-2023~~	
	~~2021-2022~~	
	~~2020-2021~~	
	~~2019-2020~~	
~~3.~~	~~This Annual Financial Turnover Amount is Rs. …… ….~~	~~[Cl.4.5.3(a)]~~
~~4.~~	~~Value of Work is **Rs. /-**~~	~~AS per NIT~~
~~5.~~	~~Deleted~~	
~~6.~~	~~The cost of electric work is Rs.~~	
~~7.~~	~~The cost of water supply / sanitary works is Rs.~~	
~~8.~~	~~Liquid assets and / or availability of credit facilities is Rs. ……~~	~~[Cl.4.5.6]~~
~~9.~~	~~Price level of the financial year……~~	~~[Cl.4.5.2]~~

10.	Thepre-bidmeetingwilltakeplaceat……	[Cl.9.2.1]
11.	The technical Bid will be opened at the office of the Executive Engineer (M), Gujarat Maritime Board, Jamnagar on dt……at ……AM/PM	
12.	Address of the Employer: Executive Engineer (M), PIU, 1st Floor Gujarat Maritime Board office , Near Chopati Grounf Jamnagar Port.	
13.	Deleted	
14.	The bid should be submitted latest by As stated on online NIT	[Cl.20.1&20.2]
15.	The bid will be opened at Executive Engineer (M), PIU, 1st Floor Gujarat Maritime Board office , Near Chopati Grounf Jamnagar Port. As stated on online NIT	[Cl.23.1]
16.	The Bank Draft in favor of PO GMB Jamnagar	
17.	Deleted	
18.	Escalation factors (for the cost of works executed and financial figure to a common base value) for works completed	[Cl.4.5.2]

Year	FinancialYear	Multiplyingfactor
Baseyearofinvitingtender	20242025	1.00
-1	2023-2024	1.10
-2	2022-2023	1.21
-3	2021-2022	1.33
-4	2020-2021	1.46
-5	2019-2020	1.61

#LIST OF KEY PLANT & EQUIPMENT TO BE DEPLOYED ON CONTRACT WORK

[ReferenceCL.4.5.5]

The contractors shall also give a list of machineries in his possession and which they propose to use on the work.

Sr. No.	Plant or Machinery	Location	Age of Machinery (maximum 15 years)	Make	Capacity	Approximate Value	Remark
1	2(a)	2(b)	3	4	5	6	7

List of Key Personnel to be deployed on Contract Work (Reference Cl. 4.5.4)

#**Employment of a qualified site Engineer by the Contractor.**

~~The Contractor shall employ full time technically qualified staff during the execution of this work as under: -~~

1. ~~Two graduate Civil Engineer sand three diploma Civil Engineers when cost of the work to be executed is more than Rs.50lakhs.~~
2. ~~One graduate &two Diploma, Civil Engineers when the cost of the work to be executed is more than Rs.15 lakhs but less than Rs.50lakhs.~~
3. ~~Minimum one Diploma Civil Engineer when the cost of work is less than Rs.15 lakhs but more than Rs.5lakhs.~~
4. ~~Minimum two Diploma Civil Engineers for the work when the cost of work to be executed is less than Rs. 5 lakhs. The Engineer so employed for the Government work must have sufficient experience to handle the work independently. Such an Engineer shall have to stay at the site of work and he shall not be entrusted with other duty except this work.~~

~~In case the contractor or partner of the contractor firm is a Civil Graduate Engineer, Employment of a separate Engineer will not be necessary provided that the Engineer partner himself attends the execution of the work on the site.~~

~~Within 15 days of issue of work order the Contractor will have to furnish to the Deputy Executive Engineer in charge of the work the Name, Qualifications, copy of marksheet, Colour Photograph and the appointment order issued such engineers engaged for this contract work. If 15 days after issue of work order such designated Site Engineers do not resume or do not remain present onsite of work, the recovery at the rate of Rs. per month per Engineer will be made from the bills/deposit/dues of the contractor. Such recovery shall be non-refundable.~~

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

SECTION-2: QUALIFICATION INFORMATION

(As per Chapeter-1: NIT and Chapter-3: INSTRUCTIONS TO BIDDERS).

QUALIFICATION INFORMATION

The information to be filled in by the Bidder in the following pages will be used for the purpose of post qualification as provided for in Clause 4 of the Instruction to Bidders. This information will not be incorporated in the Contract.

1. For Individual Bidders

1.1 Constitution or legal status of Bidder (Attach Copy)
Place of registration _____
Principal place of business _____

Power of attorney of signatory of Bid

(Attach)

1.2 Total value of Civil engineering constructions 2023-2024
Work performed in the last five years 2022-2023
(inRs. Lakhs) 2021-2022
2020-2021
2019-2020

1.1.1 Work performed as prime contractor, work performed in the past as a nominated sub-contractorwillalsobeconsideredthesub-contractinvolvedexecutionofallmain-items of work described in the bid documents, provided further that all other qualification criteria are satisfied (in the same name) on works of a similar nature over the last five years** and in current year before the submission of the bid.

Project Name	Name of the Employer	Description of work	Contract No.	Value of contract (Rs. Crore)	Date of work order	Stipulated period of completion	Actual date of completion*	Remark explaining reasons for delay &work Completed

*Attachcertificate(s) from the Engineer(s)in-charge
**Immediately preceding thefinancial year in which bids are received.
#1.3.2 Quantities of work executed as prime contractor, work performed, in the past as a nominated sub-contractor, will also be considered provided the sub-contract involved execution of all main items of work described in the bid document, provided, further that all other qualification criteria are called (in the same name and style) in the last five years** and in current year before the submission of the bid.

Year	Nam	Name of	Quantity of work performed (Cum/MT)	Remarks*

	e ofthe work	the Employer	Cement Concrete (Including RCC & PCC)	Masonry	Earth Works	Bitumino us Work	(indicate contractRef)
20 20							
20 20							
20 20							
20 20							
20 20							

1.4 Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

(A) Existing commitments and on going works:

Description of works	Place & State	Contract No.	Name &Address of Employer	Value Contract (Rs. Cr)	Stipulated Period of Completion	Value of Works* remaining to be completed (Rs. Cr)	Anticipated of completion
1	2	3	4	5	6	7	8

*Attachcertificate(s) from the Engineer(s)in charge

**Immediately preceding the financial year in which bids are received.

1.5 Availability of key items of Contractors Equipment for carrying out the works (Ref.Clause 4.5.5). The Bidder should list all the information requested below.

Item of Equipment	Requirement		AvailabilityProposals			Remarks (from whom to be purchased
	NO	Capacity	Owned/ Leasedtobe procured	Nos/. Capacity	Age/ Conditions	

1.6 Qualifications and experience of key personnel required for administration and execution of the contract.Attach biographical data. Refer also to Sub Clause 9.1 of the Conditions of Contract

Position	Name	Qualification	Year of Experience (General)	Year of experiencein the proposed position
Project Manager				

Etc.				

Proposed sub-contract and firms involved

Sectionsofthe works	ValueofSub-Contractor	Sub-Contractor (Name& Address)	Experiencein similarwork

Attachcopiesofcertificatesonpossessionofvalidlicenseforexecutingwater supply/ sanitary work/ building electrification works.

1.8 Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports (in case of companies/corporations), etc. List them below and attach copies.

1.9 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List them below and attach copied documents.

1.10 Name, address, and telephone, telex, and fax numbers of the Bidders bankers who may provide references if contacted by the Employer.

1.11 Information on Litigation history in which the Bidder is involved.

Other Party (ies)	**Employer**	**Cause of Dispute**	**Amount Involved**	**Remarks showing Present Status**

1.12. Statement of compliance under the requirements of Sub Clause 3.2 of the instruction to Bidders. (Name of Consultant engaged for project preparations is* ……)

~~Proposed work method and schedule. The Bidder should attach descriptions, drawings and charts as necessary to comply with the requirements of the Bidding documents. (Refer ITB Clause4.1) Programme~~

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

SECTION-3: CONDITIONS OF CONTRACT

Conditions of Contract: Table of Contents

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A: GENERAL

1. Definitions

Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meaning.

Bill of Quantities i.e. Schedule-B means the priced and completed Bill of Quantities forming part of the Bid

Compensation Events are those defined in Clause44 here under

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 55.1

The Contract is the contract between the Employer and Contractor to execute, complete and maintain the Works **till the completion of Defects Liability Period.** It consists of the documents listed in Clause 2.3 below.

The **Contract data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body who's Bid to carry out the Work has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer and includes Technical and Financial Bids.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days: **months** are calendar months.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer (GUJARAT MARITIME BOARD)** is the party who will employ the Contractor to carry out the Works.

The Engineer (EIC – ENGINEER IN CHAGRE) is the person named in the Contract Data (or any other competent person appointed and notified to the contractor to act in replacement of the Engineer) who is responsible for supervising the Contractor, administering the Contract, certifying payments due to the Contractor, issuing and valuing Variations to the Contract, awarding extensions of time, and valuing the Compensations Events.

Equipment is Contractor's machinery and vehicles brought temporarily to the site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for

incorporation in the works.

Plant is any integral part of the work which is to have mechanical, electrical, electronic or chemical or biological functions.
The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those which were included in the Bidding documents and are factual interpretive reports about the surface and subsurface conditions at the site.

Specifications means the Specifications of the works included in the Contract and any modification or addition made or approved by the Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Sub contractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Engineer, which varies the Works. The **Works** are what the Contract requires the Contractor to construct, install, And turn over to the Employer, as defined in the Contract Data.

2. Interpretation

In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter and the other way around. Heading have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about Conditions of Contract.

If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion date, and Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion date for the whole works)

The documents forming the Contract shall be interpreted in the following order of priority

(1) Agreement
(2) Letter of Acceptance, notice to proceed with works
(3) Contractor's Bid.
(4) Contract Data
(5) Conditions of Contract including Conditions of Contract
(6) Specifications
(7) Drawings
(8) Bills of quantities and
(9) Any other document listed in the Contract Data as forming part of the Contract.

3. Language and Law

3.1 The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Engineers Decisions

4.1 Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

5.1 The Engineer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

~~**7. Sub-Contracting**~~

~~The Contract or May subcontract any portion of work, up to a limits pacified in contract data, with the approval of the engineer but may not assign the Contract without the approval of the Employer in writing. Sub-contracting shall not alter the Contractor's obligations.~~ ~~**Sub-contracting of supply or specific items of work is not allowed.**~~

~~The sub-contractor must be registered in appropriate class and category for the part of work to be sub-contracted.~~

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities and the Employer between the dates given in the Schedule of other Contractor. The Contractors shall as refer to in the Contract Data, also provide facilities and services for them as described in the Schedule. The employer may modify the schedule of other contractors and shall notify the contractor of any such modifications.

9. Personnel

9.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel as referred to in the Contract Data to carry out the functions stated in the Schedule or other personnel approved by the Engineer. The Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.

9.2 If the engineer asks the Contractor to remove a person who is a member of the Contractor Staff or his work force stating the reasons the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer's and Contractors Risks

10.1 The Employer carries the risk which these Contract states are Employer's risks, and the Contractor carries the risks which these Contracts states are Contractors risk.

11. Employer's Risks

11.1 The employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive.

12. Contractor's Risks

12.1 All risks of loss of or damages to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Insurance

13.1 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract data for the following events which are due to the Contractor's risks:

(a) Loss of or damage to the works, Plant and materials,

(b) Loss of or damage to Equipment's

(c) Loss of or damages of property(expect the works, Plant, Materials and Equipment) in connection with the Contract ;and

(d) Personal injury or death.

13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Engineer.

13.5 Both parties shall comply with any conditions of the insurance policies.

14. Site Investigation Report

14.1 The Contractor in preparing the Bid shall rely on any site Investigation reports referred to in the Contract Data, supplemented by any information available to the Bidder.

15. Queries about the Contract data

The engineer will clarify queries on the Contract Data

16. Contractor to Construct the Works

16.1 The Contractor shall construct and install the works in accordance with the specification and Drawings.

17. The Works to be completed by the Intended Completion Date

17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the programme submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion date

18. Approval by the Engineer

18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary works to the Engineer, who is to approve them if they comply with the Specifications and drawings.

18.2 The Contractor shall be responsible for design of temporary works.

18.3 The Engineer's approval shall not alter the contractor responsibility for design of the Temporary works.

18.4 The Contractor shall obtain approval of third parties to the design of the Temporary works where required.

18.5 All Drawings prepared by the Contractors for the execution of the temporary or permanent work are subject to prior approval by the Engineer before their use.

19. Safety

19.1 The Contractor shall be responsible for the safety & welfare of worker all activities on the Site.

20. Discoveries

20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the site is the property of the Employer. The contractor is to notify the engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

21. Possession of the Site:-

21.1 The Employer shall give possession of all parts of the site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be a Compensation Event.

21.2 If within 25% of the time limit of the project, 80% of possession of the site is not handed over to the Contractor, then contractor/ Employer may fore-close the contract. Contractor/Employer has to foreclose the work within 30 days after lapse of 25%-time limit and after 30 days foreclosure option will be closed.

22. Access to the Site

22.1 The Contractor shall allow the Engineer and any person authorized by the Engineer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plants are being manufactured/ fabricated/ assembled for the works.

23. Instructions

23.1 The Contractor shall carry out all instructions of the Engineer pertaining to works which comply with the applicable laws where the site is located.

23.2 The Contractor shall permit the Employer to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Employer, if so required by the Employer.

24. Disputes

24.1 If the Contractor is of the view that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to #**Superintending Engineer** (Higher Authority)within 14 days of the notification of the Engineer's decision. If the issue is not resolved, any party can refer the matter for conciliationwithin15 days from the decision given by the #Superintending Engineer.

24.2

(a) For the work up to Rs.100 Cr., if any of the parties is not satisfied with the decision of the #Superintending Engineer, both the parties have to refer to the Chief Engineer concern for the conciliate on process.

(b) For the work more than Rs.100 Cr., if any of the parties is not satisfied with the decision of the #Superintending Engineer ,both the parties have to refer to the #Secretary, Roads &Building Department, Government of Gujarat for the conciliation process.

If the dispute is not resolved through the conciliation process, he may refer the dispute to Gujarat Public Works Contract Dispute Arbitration Tribunal. If the Contractor fails to refer a claim / dispute to the Higher Authority within 14 days of the notification of the Engineer's decision, the Contractor shall not be entitled to any additional payment/claim if he doesn't follow the above sequence in stipulated time and he should not stop the work.

25. Procedure for Disputers

25.1 The arbitration shall be conducted in accordance with the arbitration procedure stated in the Special Conditions of Contract.

26. Deleted

B: TIME CONTROL

27. Programme

27.1 Within the time stated in the Contract Data the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements orders, and timing for all the activities in the works along with monthly cash flow forecast.

27.2 An update of the Programme shall be a Programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

27.3 The Contractor shall submit to the Engineer, for approval an updated Programme at intervals no longer than the period stated in the Contract data. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract data from the next payment after the date on which the overdue Programme has

been submitted.

27.4 The Engineer's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Engineer again at any time. A revised Programme is to show the effect of Variations and Compensations events.

28. Extension of the Intended Completion Date

28.1 The Engineer shall extend the Intended Completion Date if a compensation Event occurs or a Variation is issued which makes it impossible for completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost.

28.2 The Engineer shall decide whether and by how much to extend the Intended Completion Date within 35 days of the Contractor asking the Engineer for a decision upon the effect of a compensation event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

28.3 The Engineer shall within 14 days of receiving full justification from the contractor for extension of Intended Completion Date refer to the Employer his decision. The employer shall in not more than 21days communicate to the engineer the acceptance or otherwise of the Engineer's decision. If the employer fails to give his acceptance, the Engineer shall not grant the extension and the contractor may refer the matter under Clause24.1

29. Deleted

30. Delays Ordered by the Engineer

30.1 The Engineer may instruct the Contractor to delay the start or Progress of any activity within the works.

31. Management Meetings

31.1 Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

31.2 The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

32. Early Warning

32.1 The Contractor is to warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract price or delay the execution of works. The Engineer may require the contractor to provide an estimate of the expected effect of the future event or circumstance on the contract price and completion date. The estimate is to be provided by the Contractor as soon as reason by possible.

32.2 The Contractor shall cooperate with the Engineer in making and

considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Engineer.

C: QUALITY CONTROL

#33. Identifying Defects/ Defect liability period

33.1 Defect liability period: The contractor shall be responsible to make good and remedy at his own expense any defect which may develop or may be noticed before the period mentioned hereunder from the certified date of completion. The Engineer in charge shall give the contractor a notice in writing about the defects and the contractor shall make good the same within 15 days of receipt of the notice. In the case of failure on the part of the contractor, the Engineer- in-charge may rectify or remove or re-execute the work at the risk & cost of the contractor. The Engineer-in-charge shall be entitled to appropriate the whole or any part of the amount of security deposit towards the expenses, if any, Incurred by him in rectification, removal or re-execution. The Defects Liability period shall be asunder….

(a) For all works costing up to Rs.50,000 (amount put to tender), the period shall be 3 Months from the certified date of completion.

(b) For all works costing more than Rs. 50,000 and up to Rs. 1 crore (amount put tender), the period shall be 12 (Twelve) months from the certified date of completion or one monsoon, whichever is later.

(c) For major projects costing more than Rs. 1 crore, the period shall be 36 Months from the certified date of completion which should include three monsoons.

(d) For original building works the defect liability period will be4 years or elapse of 4 monsoon period following date of possession of building taken over by user agency following the certified date of completion, whichever is later.

For the purpose of deciding the monsoon period, the 30th September shall be treated as the last date.

Modified vide R &B D Circular No.PAC-11-102008-2076-N dated 31/8/2009, PRCH/102013(2976) 2759-N, Dated 27/05/2013 and Circular No. TNC/10/2016/Clause 17A (Correction/(1)C Dated 12/05/2016]

~~33.2 Free maintenance guarantee period for works of Road/Bridge construction~~

~~(a) For resurfacing work of road free maintenance guarantee period one year from the date of completion.~~

~~(b) In case of widening of the road/strengthening of the road/bridge, the contractor shall have to give four years free maintenance guarantee from the certified date of completion. During this period the contractor shall visit the site every six months along with the concerned Section Officer / Deputy Executive Engineer and will examine the work already carried out in this contract like road work, jungle cutting, side shoulders, side gutter, road furniture, patta etc. and will prepare Km. wise inspection report duly signed by all concerned and any defect observed shall be done within 15 days by the contractor at his risk and cost as per the direction of Engineer in charge. The contractor needs to do videography of these visits and require to submit at the time of release of FMG. If B.T. the surface during the maintenance period of 4 years is worn out then agency shall have to provide renewal coating as per tender item as directed by the Engineer in-charge. The amount equivalent to 5% of each running bill shall be withheld and will be released after the free maintenance guarantee period (i.e. 4 years) is over.~~

~~However, this amount shall be released against fixed deposit or bank~~

guarantee pledged in the name of Executive Engineer after completion certificate of work is issued.

(1) The flakiness and elongation index (combined) for coarse aggregates under no circumstances shall exceed the allowable limit set forth in the relevant clause for the material inquestion.

(2) 2% of the amount eligible for the payment of bituminous items shall be withheld till the miscellaneous items like earthwork in embankment / cutting for side shoulders, side gutters, kilometer / indicator / guard stones, sign boards etc. are completed in all respect by the contractor. After completion of the miscellaneous items, the above said 2% withheld amount shall bereleased.

(Govt. of Gujarat's G.R.No.:TNC-10-2013-3(Part-3)/C,Dtd.13/12/2013).

(3) Videography for the surface under Maintenance Guarantee is to be done as per Govt. letter No.: SSR/10/2015-16/26/C, Dtd. 26/11/15 for the work costing more than Rs. 5.00Crore.

(4) Setting up of adequate laboratory & deployment of quality engineers.

The contractor shall have to set up the laboratory with adequate equipment. Till the setting up of adequate laboratory is completed & reported of this to the engineer (subject to due verification by engineer's representative) by contractor in writing, Rs.2,00,000/- shall be withheld. The qualified quality Engineer shall be deployed exclusively for this contract by the contractors. If quality Engineer is not deployed by contractor within one month after the date of work order, the amount equivalent to Rs.20,000 per month shall be recovered till the actual deployment of quality engineer. The amount so recovered towards the deployment of quality engineers shall not be refunded.

(5) Asphalt work will have to be cross checked as per G.R. No.: RGN/60/2006/35/C, dtd.31/05/07 before final bill ispaid.

(6) Maintenance during Construction Period

During the Construction Period, the Contractor shall maintain, at his own risk and cost, the existing lane(s) of the road so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition 10 (ten) days prior to the date of the Agreement, and shall undertake the necessary repair and maintenance works for this purpose; provided that theContractor may, at his cost, interrupt and divert the flow of traffic if such interruption and diversion is necessary for the efficient progress of works and conforms to Good Industry Practice; provided

further that such interruption and diversion shall be undertaken by the Contractor only with the prior written approval of the Executive Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the road.

33.3 The Engineer shall check the Contractor's work and notify the Contractor of any defects that are found. Such checking shall not affect the Contractor's responsibilities the Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.

34. Tests

34.1 If the engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect the test shall be a Compensation Event.

34.2 #1% of the amount of **work done** should be deducted from R.A. Bill of the contractor for testing the quality of material workmanship, irrespective of actual charges.

34.3 Agency has to establish testing laboratory on site for the various test to be carried out in the work for this purpose agency shall construct a pukka laboratory building with all facility on site at location specified by the engineer in charge.

35. Correction of defects

35.1 The engineer shall give notice to the Contractor of any defects before the end of the defects Liability Period, which begins at Completion and is defined in the contract data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

35.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect with in the length of time specified by the Engineer's notice.

36. Uncorrected Defects:-

If the Contractor has not corrected a defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

D: COST CONTROL

37. Bill of Quantities

37.1 The bill of Quantities shall contain items for the constructions, installation, testing and commissioning work to be done by the Contractor.

37.2 The bill of Quantities is used to calculate the Contract price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

38. Change in the Quantities

38.1 The Engineer shall have power to make any alterations in or addition to the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work and the contractor shall be bound to carry out the work in accordance with any instruction in this connection which may be given to him in writing signed by the Engineer and such alteration shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work and at the same rate as are specified in the tender for the

main work.

Except that when the quantity of any item exceeds the quantity as in the tender by more than 130%, the contractor will be paid for the quantity in excess of 130%, at the rate entered in the SOR of the year during which the excess in quantity is first executed.

39. Variations

39.1 All Variations shall be included in updated programmed produced by the Contractor.

40. Payments for Variations

40.1 If the additional or altered work includes any class of work for which no rate is specified in this contract, then such class of work shall be carried out as under.

(i) At the rate derived from the item within the contract which is comparable to the one involving additional or altered class of work; where there are more than one comparable items, the item of the contract which is nearest in comparison with regard to class or classes of the work involved shall be selected and the decision of the Superintending Engineer as to the nearest comparable item shall be final and binding on the contractor.

(ii) If the rate cannot be derived in accordance with (i) above, such class of works shall be carried out at the rate entered in the Schedule of Rates of the division for the year in which the tender was received, increased or decreased by the percentage by which the tender amount is more or less as compared to the amount arrived at the rates in the "Schedule of Rates" of the Division in the year in which the tender was received. If the Schedule of rates of the Division does not contain all the items, the percentage increase or decrease of the tender shall be calculated considering such items which were included in the "Scheduled Rates" of the division for the year and for materials consumed on such item the rate to be charged would be the basic rate taken into account for fixing the rate in S.O.R. referred to above.

(iii) If it is not possible to arrive at the rate from (i) and (ii) above, such class of work shall be carried out at the rate decided by the competent authorities on the basis of detailed rate analysis after hearing the contractor before a Committee of two Superintending Engineers stationed at the same place or the nearest place.

40.2 If the additional or altered work, for which no rate is entered in the "Schedule of Rates" of the Division is ordered to be carried out before the rate is agreed upon, then the contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer-in-charge of the rate, which it is his intention to charge for such class of work and if the Engineer in charge does not agree to this rates, he shall by notice in writing be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner as he may consider it advisable, provided always that if the contractor shall commence work or incur any expenditure in regard thereof before the rates shall have been determined as lastly herein before mentioned, then in such cases he shall only be

entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of the dispute, the decision of the Superintending Engineer of the Circle shall be final.

Where, however, the work is to be executed according to the designs, drawings and specifications recommended by the contractor and accepted by the competent authority, the alternation above referred to shall be within the scope of such designs, drawings and specifications appended to the tenders.

The time limit for the completion of the work shall be extended in the proportion that the increase in the cost occasioned by alterations bears to the cost of the original work and the certificate of the Engineer-in-charge as to such proportion shall be final and conclusive.

~~41. Cash Flow Forecasts~~

~~41.1 When the programme is updated, the contractor is to provide the engineer with an updated cash flow forecast.~~

42. Payment certificates.

42.1 The Contractor shall submit to the Engineer monthly statements of the estimated value of the work completed less the cumulative amount certified previously.

42.2 The Engineer shall check the Contractor's monthly statement within 14 days and certify the amount to be paid to the Contractor after taking in to account any credit or debit for the month in question in respect of materials for the works in the relevant amounts and under conditions set forth in sub-clause 32.3 of the Contract Data (secured Advance).

42.3 The value of work executed shall be determined by the Engineer.

42.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

42.5 The value of work executed shall include the valuation of variations and compensation events.

42.6 The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

43. Payments

43.1 Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes at source, as applicable under the law. The Employer shall pay the Contractor the amounts certified by the Engineer within 28 days of the date of each certificate.

43.2 Payment of GST (prevailing rates) on the amount payable under the contract to the Contractor will be made by the Employer. Hence, it is the responsibility of the contractor to pay the GST to the concerned Authority.

43.3 Items of the works for which no rate or price has been entered in will not be paid by the Employer and shall be deemed covered by other rates and

prices in the Contract.

~~**44. Compensation events**~~

~~44.1 The following are compensation Events unless they are caused by the Contractor:~~

~~(a) The Employer does not give access to a part of the Site by the site Possession date stated in Contract data to the Contractor~~

~~44.2 In case of compensation event occurs and it prevents the work being completed beyond the Intended Completion Date then Authority will approve EOT with eligible contractual price escalation.~~

45. Tax

45.1 The rates quoted by the Contractor must be inclusive of all taxes prevailing on due date of bid submission except GST. However, any subsequent changes in the tax structure by Government after due date of bid submission will be compensated (+/-) on availability or submission of actual documentation. Contractor will have to intimate Engineer regarding changes occurred in the tax structure after bid submission. If the contractor fails to provide such information and if any financial obligation may arise due to change in tax structure, same will be recovered from the contractor.

GST will be paid separately on the bills. Hence, it is the responsibility of the contractor to pay the GST to the concerned Authority.

46. Currencies.

46.1 All payment shall be made in Indian Rupees.

~~**47. Price Adjustment**~~

~~47.1 Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with the following principles and procedures and as per formula given in the contract data:~~

~~(a) The price adjustment shall apply for the work done from the start date given in the contract data up to end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.~~

~~(b) The price adjustment shall be determined during each month from the formula given in the contract data.~~

~~(c) Following expressions and meanings during to the work done during each month~~

~~R = Total value of work done during the month. It would include the amount of secured advance granted, if any, during the month less the amount of secured advance recovered, if any during the month. It will exclude value for works executed under variations for which price adjustment will be worked separately based on the terms mutually agreed.~~

~~47.2 To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clause in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.~~

48. Retention

48.1 The Employer shall retain from each payment due to Contractor the proportion stated in the Contract Data until Completion of the whole of the works.

48.2 On Completion of the whole of the Works half the total amount retained is repaid to the Contractor and half when the Defects Liability Period has passed and the Engineer has certified that all Defects notified by the Engineer to the Contractor before the end of this period have been corrected.

48.3 On completion of the whole works, the contractor may substitute retention Money with an "on demand" Bank guarantee.

In case, Contractor requests for refund of the Retention Money deducted by the Employer under the provision of this clause, Employer shall consider the said request of the Contractor provided that the refund here under shall be made in tranches of not less than 1% (One Percent) of the Contract Price and Contractor furnishes an irrevocable and unconditional Bank guarantee for an equal amount substantially in the format of Bank Guarantee for Performance Guarantee enclosed with SBD and valid up to 60 day beyond the scheduled / extended Defects Liability Period. On completion of the whole works, the contractor has however an option to submit a fresh irrevocable and unconditional Bank Guarantee for an amount equal to 5% of the total value of work executed substantially in the format of Bank Guarantee for Performance Guarantee enclosed with SBD and valid up to 60 days beyond the Defect Liability Period and yet refund the Retention Money Bank Guarantee submitted for refund of Retention Money.

49. Liquidated Damages

49.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole works or the milestone as stated in the contract data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payment due to the Contractor. Payment of liquidated damages does not affect the Contractor's liabilities.

49.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall not be entitled for any interest on the over payment calculated from the date of payment to the date of repayment.

49.3 If the contractor fails to comply with the time for completion as stipulated in the tender, then the contractor shall pay to the employer the relevant sum stated in the Contract Data as Liquidated damages for such default and not as penalty for everyday or part of day which shall elapse between relevant time for completion and the date stated in the taking over certificate of the whole of the works on the relevant section, subject to the limit stated in the contract data.

The employer may, without prejudice to any other method of

recovery deduct the amount of such damages from any monies due or to become due to the contractor. The payment or deduction of such damages shall not relieve the contractor from his obligation to complete the works on from any other of his obligations and liabilities under the contract.

49.4 If, before the Time for Completion of the whole of the Works or, if applicable any Section, a Taking Over Certificate has been issued for any part of the Works or of a Section, the liquidated damages for delay in completion of the remainder of the Works or of that Section shall, for any period of delay after the date stated in such Taking-Over-Certificate, and in the absence of alternative provisions in the Contract, be reduced in the proportion which the value of the part so certified bears to the value of the whole of the Works or Section, as applicable. The provisions of this Sub-clause shall only apply to the rate of liquidated damages and shall not affect the limit thereof.

~~50. Bonus~~

~~50.1 If the contractor achieves completion of the whole of the works prior to the intended Completion Date prescribed in Contract Data the Employer shall pay to the contractor a sum stated in Contract Data as bonus for every completed month **but subjected to maximum amount as stated in Contract Data**; which shall elapse between the date of completion of all items of works as stipulated in the contract, including variations ordered by the Engineer and the time prescribed in Clause17.~~

~~Bonus shall be paid only to works amounting to above INR 5 crore with time limit of the works is equal or more than 6 months. The bonus would be paid asunder~~

~~% of Time Saved~~	~~% of Initial Contract Price entitled for Bonus~~
~~50%~~	~~5%~~
~~40%~~	~~4%~~
~~30%~~	~~3%~~
~~20%~~	~~2%~~
~~10%~~	~~1%~~
~~Lessthan10%~~	~~0%~~

~~51. Advance Payment~~.

~~51.1 The Employer shall make advance payment (not to be paid less than two installments except in special circumstances for which the reason to be Recorded in writing) to the Contractor of the amounts stated in the Contract Date by the date stated in the Contract Date, against provision by the Contactor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to be at least 110% of the advance payment. The guarantee shall remain effective~~

~~until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. The Mobilization advance would be deemed as interest bearing advance at an interest rate of 10 % to be compounded, quarterly.~~

~~51.2 The Contractor is to use the advance payment only to pay for Equipment, plant and Mobilization expenses required specifically for execution of the Works. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the engineer.~~

~~51.3 The advance payment shall be repaid by deduction proportionate amount from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, variations, price adjustments, Compensation Events, or Liquidated damages.~~

51.4 Deleted

52. Securities

52.1 The performance Security (including additional security for unbalanced bids) shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Indian Rupees. The performance Security shall be valid until a date 60 days from the date of expiry of Defects Liability Period and the additional security for unbalanced bids shall be valid until a date 28 days from the date of issue of the certificate of completion.

53. Deleted

54. Cost of Repairs.

54.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start date and the end of Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damages arises from the Contractor's acts or omissions.

E: FINISHING THE CONTRACT

55. Completion

55.1 The Contractor shall request the Engineer to issue a Certificate of Completion of the works and the Engineer will do so upon deciding that the work is completed.

56. Taking Over

56.1 The Employer shall take over the Site and the Works within seven days of the Engineer issuing a certificate of Completion.

57. Final Account

57.1 The Contractor shall supply to the Engineer a detailed final account of the total amount that the Contractor considers payable as full and final settlement of all claims under the Contract for items before the end of the Defects Liability Period. The Engineer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate, within 56 days of receiving the Contractor's revised account.

57.2 If reversal in characteristic of tender (L1 becoming L2) on account of excesses and savings in final account is observed, the Engineer/Employer shall be at liberty to restrict the final payment of BOQ items to the lowest amount evaluated of the bids considering the final quantities and the rates quoted including the rebates if any. Payment of variation items shall however be made at the rates approved by the Employer, within 90 days from the physical completion of work.

58. Operating and Maintenance Manuals

58.1 If "as built" drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract data.

58.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract data, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

59. Termination

59.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

59.2 Fundamental breaches of Contract include, but shall not be limited to the following:

1. The contractor stops work for 28 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Engineer

2. The Engineer instructs the Contractor to delay the progress of the Works and the instructions is not withdrawn within 28 days;

3. The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstructions or amalgamation

4. A payment certified by the Engineer is not paid by the Employer to the Contractor within 56 days of the date of the Engineer's certificate

5. The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;

6. The Contractor does not maintain a security which is required;

7. The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and

8. If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this paragraph: "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. "Fraudulent practice" means a misrepresentation off acts in order to influence a procurement process or the execution of a contract to the detriment of the borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

59.3 When either party to the Contract gives notice of a breach of contract to the Engineer for a cause other than those listed under Sub Clause 59.2 above, the Engineer shall decide whether the breach is fundamental or not.

59.4 Notwithstanding the above, the employer may terminate the Contract for convenience.

60. Payment upon Termination

60.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a Certificate for the value of the work done less advance payment s received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

60.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Engineer shall issue a certificate for the value of the work done, the cost of balance material brought by the contractor and available at site, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the works, and the Contractor's cost of protecting and securing the Works and less advance payment received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to deducted at source as per applicable law.

61. Property

61.1 All materials on the Site, Plant Equipment, Temporary Works and Works are deemed to be property of the Employer, if the Contract is terminated because of a Contractor's default.

62. Release from Performance

62.1 If the Contract is frustrated by the outbreak of war of by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

F: SPECIAL CONDITIONS OF CONTRACT

63. LABOUR

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment of housing, feeding and transport.

The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the site and such other information as the Engineer may require.

64. COMPLIANCE WITH LABOUR REGULATIONS

During continuance of the contact, the Contractor and his sub-contractor shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notification and bye laws of the State or central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notifications that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to the construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have the right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point to time.

SALIENT FEATURES OF SOME MAJOR LABOUR AND OTHER LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTIONS WORK

A) **Workmen Compensation Act 1923**:- The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

B) **Payment of Gratuity Act. 1972**:- Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more on death, the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

C) **Employees P.F. and Miscellaneous Provision Act 1952:-** The Act Provides for monthly contributions by the employer plus workers @ 10% or 8.33% The benefits payable under the Act are:

1. Pension or family pension on retirement or death, as the case may be.
2. Deposit linked insurance on the death in harness of the worker.
3. Payment of P.F. accumulation on retirement/death etc.

D) **Maternity Benefit Act 1951** :- The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

E) **Contract Labour (Regulation & Abolition) Act 1970**: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer, if they employ 20 or more contract labour.

F) **Minimum Wages Act 1948 :-** The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act, if the employment is a scheduled employment. Construction of Building, Roads, Runways are scheduled employment.

G) **Payments of wages Act 1936:-** It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

H) **Equal remunerations Act 1979 :**- The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against female employees in the matter of transfer, training and promotions etc.

I) **Payments of Bonus Act 1965**:- The Act is applicable to all establishments employing 20 or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20 % of wages to employees drawing Rs. 3500/- per month or less. The bonus to be paid to employees getting Rs, 2500/- per month or above Rs. 3500/- per month shall be worked out by taking wages as Rs.2500/-per month only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.

J) **Industrial Disputes Act 1947** :- The Act lays down the machinery and procedure for resolutions of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

K) **Industrial employment (standing Orders) Act 1946 :-** It is applicable to all establishments employing 100 or more workmen (employment size

reduced by some of the State and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.

L) **Trade Unions Act 1926:-**The Act lays the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have given certain immunities from civil and criminal liabilities.

M) **Child Labour (Prohibition & Regulation Act 1986 :-**The Act prohibits employment of children below 14 years of age in certain occupations and process and provides for regulation of employment of children in all other occupations and processes. Employment of Child labouris prohibited in Building and Construction Industry.

N) **Inter – State Migrant workmen's (Regulation of Employment & Conditions of service) Act 1979:-** The Act is applicable to an establishment which employs5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The inter-state migrant workmen, is an establishment to which this Act become sapplicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.

O) **The Building and Other Construction workers (Regulation of employment and Conditions of Service) Act 1996 and the Cess Act of 1996:-** All the establishments who carry on any building or other constructions work and employ 10 or more workers are covered under this Act.

All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the government. The Employer of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as canteens, First Aid facilities, Ambulance, Housing accommodations for workers near the workplace etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officers appointed by the Government.

P) **Factories Act 1948 :-**The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in the manufacturing process.

Q) **Royalty charges-**The contractor shall pay the royalty to the competent authority as per rule. The **royalty** charges paid shall be borne by the contractor and shall not be reimbursed by the Employer.

R) **Following Pollution control Acts and amendments made the re of from**

time to time shall be applicable.

1. Water (Preservation and control of Pollution) Act,1974
2. Air (Prevention and Control of Pollution Act 1981
3. Environmental (Protection) Act 1986

The contractor must commit to adopting Environmental management plan for best energy use, waste management, the reduction of pollution as in EMS (Environmental Management system)ISO-14001- 2015

65. ARBITRATION (GCC Clause24)

The procedure for arbitration will be as follows:-

24.1 If the Contractor is of the view that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to #**Superintending Engineer** (Higher Authority) within 14 days of the notification of the Engineer's decision. If the issue is not resolved, any party can refer the matter for conciliation within 15 days from the decision given by the #Superintending Engineer.

24.2

(a) For the work up to Rs.100 Cr., if any of the parties is not satisfied with the decision of the #Superintending Engineer, both the parties have to refer to the #Chief Engineer concerned for the conciliation process.

(b) For the work more than Rs.100 Cr., if any of the parties is not satisfied with the decision of the Superintending Engineer, both parties have to refer to the #Secretary, Roads & Building Department, Government of Gujarat for the conciliation process.

If the dispute is not resolved through the conciliation process, contractor may refer the dispute to Gujarat Public Works Contract Dispute Arbitration Tribunal. If the Contractor fails to refer a claim /dispute to the Higher Authority within 14 days of the notification of the Engineer's decision, the Contractor shall not be entitled to any additional payment/claim if he doesn't follow the above sequence in stipulated time. However, during such period, he would not stop the work in any case.

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

SECTION-4: CONTRACT DATA

Clause Reference With respect To section 3

Item marked"N/A"do not apply to this Contract.

1. The Employers is [CL.1.1]
   Name: Executive Engineer(Mech.), Gujarat Maritime Board, PIU-Jamnagar / Gandhinagar
   Address: Office Of The Executive Engineer,(Mech.), 1st Floor, GMB office complex, near ST Bus Stand, Behind Chapatti Ground Jamnagar-360575
   Name of authorized Representative(will be intimated later)
2. The Engineer is……
   Name of Authorized Representative:……
3. The Defects Liability Period is 01(One)year from the date of Completion. [CL.1.1&33]
4. The Start Date shall be **1st** days for the date of issue of the Notice to proceed with the work. [CL.1.1]
5. The Intended Completion Date for the whole of the works is **03 (Three) Months** after start of work with the following milestones: [CL.1.1,17&2]
   Mile stone dates: [CL.2.2&49.1]
   Physical works to be completed Period from the start date Milestone1i.e. ….. % …. days.
   Milestone2i.e. …..% …days.
   Milestone3i.e. …..% …..days.
   Milestone4i.e. …..% ….days.
6. The Site is located at to be proposed by the bidder. [CL.1.1]
7. The name and identification number of the Contract is: [CL.1.1]
8. The works consist of **Dredger repairing work** with items as per B.O.Q. The works shall, interlay, include the following, as Specified or as directed: [CL.1.1]

(A)~~Road Works~~

~~Site clearance; setting – out and layout; widening of existing carriageway and strengthening including camber corrections; construction of new road/ Parallel service road; bituminous pavements remodeling/construction of Junctions, intersections, bus bays, lay bays; supplying and placing of drainage Channels, flumes, guard posts and guard other related items; construction/extension of cross drainage works, bridge, approaches and other related stones; protective works for roads/bridge; all aspects of quality assurance of various components of the works; rectification of The defects in the completed works during the Defects Liability Period; submission of "As- built" drawings and any other related documents; and other item of work as may be required to be carried out for completing the work in accordance with the drawings and the provisions of the contract and to Ensure safety.~~

~~**(B) Bridge Works**~~

~~Site clearance; setting out, provision of foundations, piers abutments and bearing; pre stressed / reinforced cement concrete superstructure; wearing coat, hand railings, expansion joints, approach slabs, drainages spouts/down take pipes, arrangements for fixing light posts, water mains, utilities etc; provision of suitably designed protective works; providing wing/return walls; provision of road markings, road signs etc.; all aspects of quality assurance; clearing the site and handing over the works on completion; rectification of the defects during the Defects Liability Period and submission of "As built" drawings and other related documents; and other items of work as may be required to be carried out for completing the works in accordance with the drawings and the provisions of the contract and to Insure safety~~ [CL.1.1]

(C) Other Items

Any Other Items as required to fulfill all contractual obligations as per the Bid documents. [CL.2.3(9)] [

10. The following documents also form part of the Contract:
    As per clause 2-3

11. The law which applies to the Contract is The law of Union of India
    [CL.3.1]

12. The language of the Contract documents is English
    [CL.3.1]

13. ~~Limit of sub contracting 25% of the Initial Contract Price~~
    [CL.7.1]

14. The Schedule of Other Contractors
    [CL.8]

15. The Schedule of Key Personnel As per Annex–II to Section I
    [CL.9]

16. The minimum insurance cover for physical property, injury and death is Rs 5 lakhs per occurrence with the number of occurrences limited to four. After each occurrence, the contractor will pay an additional premium necessary to make insurance valid for four occurrences always. [CL13]

17. Site Investigation report
    [CL.14]
18. The Site Possession dates shall be **Dated.....**
    [CL.21]
19. The period for submission of Programme for approval of the engineer shall be **21 days** from the issue of Letter of Acceptance. [CL.27.1]
20. The period between program updates will be.....days.
    [CL.27.3]
21. The amount to be withheld for late submission of an updated Programme shall be Rs ..... lakhs (i
22. The following events shall also be Compensation Events Substantially adverse ground conditions encountered during the Course of execution of work not provided for in the bidding document.

[CL.27.3]

(i) Removal of underground utilities detected subsequently

(ii) Significant changes in classification of soil requiring additional mobilization by the contractor, e.g. ordinary soil to rock excavation, [CL.44]

(iii) Removal of unsuitable material like marsh, debris dumps, etc. not caused by the contractor.

(iv) Artesian conditions

(v) Seepage, erosion landslide

(vi) River training requiring protection of permanent work

(vii) Presence of historical, archeological or religious structures, monuments interfering with the works

(viii) Restriction of access to ground imposed by civil, judicial, or Military authority.

23.	The currency of the Contract is Indian Rupees	[CL.46]
~~24.~~	**~~The formula (e) for adjustment of prices are as under:~~** • ~~If any of the commodities like Cement, Steel or Bitumen are not found applicable in a work, the weight component of that commodities (i.e. 'Cement' (Pc), 'Steel' (Ps) or 'Bitumen' (Pb) as indicated in SBD for the purpose of Price Adjustment) shall be clubbed with the weight component of 'Other Material' (Pm), such that the gross % weight of the components shall remain as 100%.~~ ~~R= value of work as defined in Clause47.1 of Conditions of Contract~~ **~~Adjustment for labour component~~** ~~(i) Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:~~ ~~VL= 0.85x(Pl/100) x R x (Li-L0)/L0~~ ~~VL= Increase or decrease in the cost of work during the month under consideration due to changes in rates for local labour~~ ~~L0 = The consumer price index for industrial workers for the State on 28 days preceding the scheduled date of opening of technical Bids as published by Labour Bureau, Ministry of Labour, Government of India~~ ~~Li= The consumer price index for industrial workers for the State for the month under consideration as published by the Labour Bureau, Ministry of Labour, Government of India.~~ ~~Pl= Percentage of labor component of the work.~~	~~[CL.47]~~
	~~Adjustment for cement component.~~ ~~(ii) Prices adjustment for increase or decrease in the cost of cement procured by the contractor~~ ~~Vc= 0.85x(Pc/100) x R x(Ci-C0)/C0~~ ~~Vc = Increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.~~ ~~C0 = The all India wholesale price index for Ordinary Portland Cement on 28 days preceding the scheduled date of opening of technical bid as published by the~~ **~~Office of the Economic Adviser,~~** **~~Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~**	

Ci= The all India average wholesale price index for Ordinary Portland Cement for the month under consideration as published by **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce &Industry.**

Pc= Percentage of cement component of the work

Adjustment for steel component

(iii) Price adjustment for increase or decrease in the cost of steel procured by the contractor shall be paid in accordance with the following formula

Vs=0.85 x (Ps/100) x R x (Si-S0)/S0

Vs= Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel

So= The all India wholesale price index for steel **(Mild Steel-Long Products Re bars)** on 28 days preceding the date of opening of Bids as published by the **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**

Si= The all India average wholesale price index for steel **(Mild Steel - Long Products Re bars)** for the month under consideration as published by **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce &Industry.**

Ps=Percentage of steel component of the work

Note : For the application of this clause, the index of **Mild Steel - Long products Re bars** has been chosen to represent the steel group.

Adjustments of bitumen component

(iv) Price adjustment for increase in the cost of bitumen shall be paid in accordance with the following formula

Vb=0.85x(Pb/100)x R x(Bi-B0)/B0

Vb=Increase or decrease in the cost of work during the month under consideration due to changes in rates for bitumen.

Bo = The official retail price of bitumen at the IOC depot at the nearest centre on the day 28 days prior to the scheduled date of opening of technical bid.

Bi= The official retail price of bitumen of IOC depot at the nearest centre for the 15th day of the month under consideration.

Pb=Percentage of bitumen component of the work

Adjustment of POL (fuel and lubricant) component

(v) Price adjustment for increase or decrease in cost of POL (fuel and lubricant) shall be paid in accordance with the following formula

Vf= 0.85 x (Pf/100) x R x (Fi–F0)/F0

Vf = Increase or decrease in the cost of work during the month under consideration due to changes in rates for fuel and lubricants.

Fo = The official retail price of High Speed Diesel (HSD) at the existing consumer pumps of IOC at the nearest centre on the day 28 prior to the date of opening of Bids.

Fi = The official retail price of HSD at the existing consumer pumps of IOC at the nearest centre for the 15th day of the month of the under consideration.

Pf = Percentage of fuel and lubricants component of the work

Note: For the application of this clause, the price of High Speed diesel Oil has been chosen to represent the fuel and lubricants group.

Adjustment for Construction Machinery

(vi) Price adjustment for increase or decrease in the cost of plant and Machinery spare procured by the Contractor shall be paid in accordance with the following formula

Vp=0.85 x (Pp/100) x R x (Pi– P0)/P0

Vp = Increase or decrease in the cost of work during the month under consideration due to changes in rates for plant and machinery spares

P0 = The all India wholesale price index for **manufacturer of machinery for mining, quarrying and Construction** for the month under consideration as published **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**

Pi= The all India average wholesale price index for **manufacturer of machinery for mining, quarrying and Construction** for the month under consideration as published **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**

Pp = Percentage of plant and machinery spares component of the work.

Note: For the application of this clause, index of Heavy Machinery and parts has been chosen to represent the Plant and Machinery Spares group

Adjustment of other materials Component

(vii) Price adjustment for increase or decrease in cost of local materials other than cement, steel, bitumen and POL procured by the contractor shall be paid in accordance with the following formula

$V_m = 0.85 \times (P_m/100) \times R \times (M_i - M0)/M0$

V_m = Increase or decrease in the cost of work during the month under consideration due to change in rates for local materials other than cement, steel, bitumen and POL.

M0= The All Indian wholesale price index (all commodities) on 28days preceding the scheduled date of opening of technical Bids, as published by the **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce &Industry.**

Mi= The All India wholesale price index (all commodities) for the month under consideration as published by the **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**

P_m= Percentage of local material components (other than cement, steel, bitumen and POL) of the work.

The following percentage will govern the price adjustment for the entire contract:

Sr. No	Description Of Material	Percentage
1	Labour Pl	%
2	Cement Pc	%
3	Steel Ps	%
4	Bitumen Pb	%
5	POL Pf	%
6	Plant & Machinery Spares Pp	%
7	Other Materials Pm	%
	Total	100%

25. The proportion of payments retained (retention money) shall be 6% {CL.48} from each bill subject to a maximum of 5% of final contract price.

26. Amount of Liquidated damages for Delay in Completion of work — For Whole of work {CL.49} (1/2000)th of the Initial contract price, rounded off to the nearest Thousand, per day. For sectional Completion (wherever specified In item 6 of Contract data) (1/2000)th of initial contract price for #5 km Section, rounded off to the nearest thousand per day.

27.	Maximum limit of liquidated damages For delay incompletion work		10 percent of the Initial Contract Price rounded off to The nearest thousand. L.D. AS per chapter 3 clause 3.37. {CL.49}
~~28.~~	~~Amount of Bonus for early completion~~		~~Amount of bonus for early Completion of work shall be given as per CL.50 of Section 3~~
~~29.~~	~~Maximum limit of bonus for early {CL.50} Completion of work~~		~~**5 percent** of the Contract Price~~

~~30. The amount of the advance payment are: {CL. 51 &52}~~

	~~#**Nature of Advances**~~	~~**Amount(Rs.)**~~	~~**Conditions to Be fulfilled**~~
~~i~~	~~Mobilization~~	~~10% of the contract Price~~	~~On submission of unconditional Bank Guarantee. (to be drawn before the end of 20% of the contract period). The contractor may furnish four bank guarantees of 2.5 % of each valid for the full period.~~
~~ii~~	~~Equipment~~	~~90% for new and 50% of depreciated value for old equipment. Total amount will be subject to a maximum of 5% of the Contract Price~~	~~After equipment is brought to site (provided the Engineer is satisfied That the equipment is required for performance of the contract) and on submission of unconditional Bank Guarantee for amount of advance~~
iii	Secured Advance for Non-persish able material Brought to ~~site~~	**Deleted**	

~~(The advance payment will be paid to the Contractor no later than 28 days after fulfillment of the above conditions).~~

31. ~~**Repayment of advance payment for mobilization and equipment** {CL.51.3}~~

~~The advance loan shall be repaid with percentage deduction from the interim payments certified by the Engineer under the Contract. Deduction shall commence in the next Interim Payment Certificate following that in which the total of all such payments to the Contractor has reached not less than 20 percent of the Contract Price or 6 (six) months from the date of payment of first installment of advance, whichever period concludes earlier, and shall be made at the rate of 20 percent~~ **~~(collectively for both Mobilization Advance and Equipment Advance)~~** ~~of the amounts of all Interim Payment Certificate until such time as the loan has been repaid, always provided that the loan shall be completely repaid prior to the expiry of the original time for completion pursuant to Clause 17 and28.~~

32. Deleted

33. The securities shall be for the following minimum amounts equivalent {CL.52} As a percentage of the Contract Price:
Performance Security for 5 percent of contract price plus Rs. ……. (to be decided after evaluation of the bid) as additional security in terms of ITB Clause 29.5

The standard form of Performance security acceptable to the Employer shall be an unconditional Bank Guarantee of the type as presented in Section 8 of the Bidding Documents.

34. The Schedule of Operating and maintenance Manuals…..N/A. {CL.58}

35. The date by which "as– built" drawings (in scale as directed) in 2 sets{CL. 58}are required within 28 days of the issue of certificate of completion of the whole or section of the work, as the case maybe.

36. Theamounttobewithheldforfailingtosupply"asbuilt"drawings{CL.58}by
The Date required is Rs….. Lacs.

37. The following events shall also be fundamentals breach of contract: {CL.59.2}
"The Contractor has contravened Sub- clause 7.1 and Clause 9 of GCC"

38. The percentage to apply the value of the work not completed representing {Cl 60}
The Employer's additional cost for completing the Works shall be 20 percent.

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

SECTION-5: TECHNICAL SPECIFICATION

As Per Separate Sheet Attached under CHAPTER-9

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

SECTION-6: FORM OF BID

Description of the Works:

---------- BID

To :

Address :

1. We offer to execute the Works described above and remedy any defects therein in conformity with the conditions of Contract, specification, drawings, Bill of Quantities and Addenda for the sum (s)of

   _____

   _____

   (----------)

2. We undertake, if our Bid is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works in the Contact within the time stated in the document.

3. We agree to abide by this Bid for the period of 120 Days from the date fixed for receiving the same, and it shall remain binding upon it and may be accepted at any time before the expiration of that period.

4. Unless and until a formal Agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

5. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this---------- day of ----------20

Signature---------- in the capacity of----------

-------duly authorized to sign bids for and on behalf of----------

---

_____

(in block capitals or typed)

Address

_____

_____

Witness

_____

_____

Address

_____

_____

Occupation

_____

_____

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

SECTION-7: BILL OF QUANTITIES

Preamble

1. The bill of Quantities shall be read in conjunction with the Instructions to Bidder, Conditions of Contract, Technical Specifications and Drawings.
2. The quantities given in the Bill of Quantities are estimated provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities ,where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
3. The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all constructional plant, layout, supervision, materials, erection, maintenance, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
4. The rates and prices shall be quoted entirely in Indian Currency.
5. A rate or prices shall be entered against each item in the Bill Quantities, whether quantities are stated or not. The cost of Items against which Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities (in case of Item rate contract).
6. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related items of Work.
7. General direction and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering rates or prices against each item in the Bill of Quantities.
8. The method of completed work of payment shall be in accordance with the specification for Road and Bridge works. For building works specifications for building are to be followed.
9. Errors will be corrected by the Employer for any arithmetic errors pursuant to **Clause 29** of the Instructions to Bidder.
10. Rock is defined as all materials which, in the opinion of the Engineer, required blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for its removal, and which cannot be extracted by ripping with a tractor of at least 150 kw with a single rear mounted heavy duty ripper.

BILL OF QUANTITIES

(A) Percentage Rate Tender (Up to INR 50 Cr.)

Item No	Description of Item (with brief specification and reference to book of specifications)	Quantity	Unit	Rate In figures	Amount
AS PER SEPARATE ATTACHED SHEET UNDER CHAPTER-8					

I/We am/are willing to carry out the work at..... %above/below percent (Should be Written in figures and words) of the estimated rate mentioned above. The Amount of my/our tender works out as under.

Estimated amount put to tender

Estimated amount put to tender

Deduct……% below	Add……%Above
Net	Net
In words	In words

(B) For Item Rate Tender (For above INR 50 Cr.):

Item No	Description of Item (with brief specification and reference to book of specifications)	Quantity	Unit	Rate		Amount
				In figures	In Words	

(A)Total Tendered Amount

(B)Rebate on above tendered amount (if any)%(in figure)…… (in words)…… ……

(C)Net Tendered Amount (A-B)(in figure) …… (in words)…… ……

#

1	TheContractorshallexhibitaboardwithdetailedspecificationanddetailsofworkas directed by the Engineer-In-Charge for which no extra payment shall be made.
2	The labour cess will be deducted as per prevailing rules i.e.1% of the work done.
3	GST and Income tax TDS will be deducted at a source while making payments of bills
4	InallR.C.C.ItemsinRateAnalysisStandardCementConsumptionhasbeentakenasper Govt. G.R.: PRC-10/2017 Cement Consumption/16/C Date:11/05/2017 as stated in S.O.R. therefore in R.C.C. items where there is a change as per actual mix design the cost Of difference of cement consumption have been deducted from the rate of original item at the rate of input rate mentioned in all the tender.

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

SECTION-8: SECURITIES AND OTHER FORMS

BID SECURITY (BANKGUARANTEE)

WHEREAS, ---------- (name of Bidder) (hereinafter called the "The Bidder") has submitted his bid Dated ---------- (Date) for the construction of (Name of Contractor hereinafter called "the Bid")

KNOW ALL PEOPLE by these presents that We----------

(nameof Bank)of---------- (name of country)having our

Registered office at----------(herein after called

"the bank")are bound unto----------(name of Employer)

(herein after called "The Employer")in the sum of----------*

For which payment well and truly to be made to the said Employer the Bankitself ,his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this----------day of 20

THE CONDITIONS of these obligations are:

(1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid;

Or

(2) If the Bidder has been notified of the acceptance of his bid by the Employer during the period of Bid Validity:

A Fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or

B. Fails or refuse to furnish the Performance Security ,in accordance with the Instructions to Bidders ;or

C. Does not accept the correction of the Bid Price pursuant to Clause27 (Correction of Errors)

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred conditions or conditions.

This Guarantee will remain in force up to and including the date ---------- ** days after the deadline for submission of Bids as such the dead line is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension (s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date

DATE---------- SIGNATURE----------

WITNESS---------- SEAL----------

(Signature, name and address)

* The Bidder should insert the amount of the guarantee in words and figures denominated in Indian Rupees. This figure should be the same as shown in Clause 16.1(Bid Security) of the Instructions to Bidders.

****45 days** after the **end of the validity period** of the Bid. Date should be inserted by the Employer before the Bidding documents are issued.

PERFORMANCE SECURITY

TO,
Name: The Executive Engineer (Mech.), PIU, Jamnagar
4th floor, Saru section road,
Jamnagar- 361 006 (Gujarat) India.

WHEREAS ----------(name and address of contractor)(hereaftercalled"theContractor")hasundertaken,inpursuanceof Contracts No.----------dates----------toexecute---------(name of Contract and brief description of Works) (hereinafter called "The Contract")

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract.

ANDWHEREAS we have agreed to give the Contractors such a bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of----------

(amount of guarantee)* ---------- (in words),such sum being payable in types and proportions of currencies in which the Contract prices is payable, and we undertake to pay you ,upon your first written demand and without cavil or argument ,any sum or sums with in the limits of----------

(amountofguarantee)asaforesaidwithoutyourneedingtoproveortoshowgrounds or reasons for your demand for the sum specified therein.

Weherebywaivethenecessityofyourdemandingthesaiddebtfromthecontractor before presenting is with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract to of the Works to be performed there under or of any of the Contract documents which may be made between your and the Contractor shall in any way release us from any liability under this guarantee, and we here by waive notice of any such charge, addition or modifications.

This guarantee shall be valid until 60 days from the date of expiring of the Defect Liabilities period.

Signature and Seal of the guarantor----------

----- Name of Bank ----------

Address ----------
Date ----------

*An amount shall be inserted by the Guarantor, representing the percentage the Contract price specified in the Contract denominated in Indian Rupees.

ADDITIONAL PERFORMANCE SECURITY

[Clause34.1.(A)]

TO,
Name: The Executive Engineer (Mech.), PIU, Jamnagar
4th floor, Saru section road,
Jamnagar- 361 006 (Gujarat) India

.

WHEREAS ----------(Name and address of contractor)(hereaftercalled"TheContractor")hasundertaken,inpursuanceof Contracts No.----------dates----------toexecute---------- ---
---------(Name of Contract and brief description of Works) (hereinafter called "The Contract")

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract.

AND WHERE AS we have agreed to give the Contractors such a bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, upto a total of---------- ----------
(amount guarantee)----------(inwords),such sum being payable in types and proportions of currencies in which the Contract prices is payable, and we undertake to pay you ,upon your first written demand and without cavil or argument ,any sum or sums with in the limits of----------
(amountofguarantee)asaforesaidwithoutyourneedingtoproveortoshowgrounds or reasons for your demand for the sum specified therein.

Weherebywaivethenecessityofyourdemandingthesaiddebtfromthecontractor before presenting is with the demand

We further agree that no change or addition to or other modification of the terms of the Contract to of the Works to be performed there under or of any of the Contract documents which may be made between your and the Contractor shall in any way release us from any liability under this guarantee, and we here by waive notice of any such charge, addition or modifications.

This guarantee shall be valid until **28 days** from the project completion date.

Signature and Seal of the guarantor----------

-------- Name of Bank ----------

Address ----------

Date ----------

BANK GUARANTEEF OR ADVANCE PAYMENT

TO,
Name:

- ---------- (Name of Contractor)

Gentlemen:

InaccordancewiththeprovisionsoftheConditionsofContract,sub-clause 51.1("Advance Payment")of the above mentioned Contract,----------
---------- (name and address of Contractor)(herein after called "the Contractor")shall deposit with (name of Employer) a bank guarantee his proper and faithful performance under the said Clause of the Contract in an amount of (amount of Guarantee)*-
- ----------inwords).

We, the ---------- (bank of financial institution),as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to----------
---------- (name of Employer) on his first demand without whatsoever right of obligation on our partand without his first claim to the Contractor ,in the amount not exceeding---
---------- (amount of guarantee)*words) ----------

We further agree that no change or addition to or other modifications of the terms of the Contractor or Works to be performed there under or of any of the Contract documents which may be made between ----------
------- (name of Employer) and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modifications.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until ----------
---- (name of employer) receives full repayment of the same amount from the contractor.

YOUR'S TRULY

Signature and Seal_____
_____Name of
Bank/Financial Institution _____ Address ___
Date _____

---

*AnamountshallbeinsertedbythatBankorFinancialInstitutionrepresentingth e amount of the Advance Payment, and denominated in Indian Rupees.

Letter of Acceptance

(Letter head paper of the Employer)

_____(date)

To,

_____(Name and address of the Contractor)

_____

_____

Dear Sirs,

This is to notify you that your Bid dated_____for execution of the_____(Name of the contract and identification number,as given in the Instructions to Bidders)for the Contract Price of Rupees _____(_____) (amount in words and figures) as corrected and modifiedinaccordance with the Instructions to Bidders* is hereby accepted by our agency.

You are requested to furnish performance security, in the form detailed in para34.1 of ITB for an amount equivalent to Rs.___ within **10 days** of the receipt of this letter of acceptance up to beyond **60 days** from the date of expiry of defects Liability period i.e.upto_____and the Additional Performance Security for an amount equivalent to Rs.___shall be valid beyond 28 (twenty-eight) days of Project Completion Datei.e.upto__ _____and sign the contract, failing which action as stated in Para 34.3 of ITB will be taken.

Yours Faithfully

Authorized
Signature Name
and title of
Signatory Name of
Employer

---

* Delete "Corrected and" or and modified if only one of these actions applies. Delete as corrected and modified in accordance with the Instructions to Bidders, if corrections or modifications have not been affected.

Issue of Notice to proceed with the work

(Letter head of the Employer)

---------- (date)

To,

_____(Name and address of the Contractor)

_____

_____

Dear Sirs,

Pursuant to your furnishing there quisite security in ITB Clause34.1 and signing of the Contract for the work of_____

_____

_____At a bid Price ofRs.

_____.

You are here by instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully

(Signature, name and title of signatory
authorized To sign on behalf of Employer)

AGREEMENT FORM

This agreement, made on the _____day of_____ between _____ (name and address of Employer) (Hereinafter called "the Employer) and _____(name and a

Where as the Employer is desirous that the Contractor execute

_____

Name and identification number of contract (hereinafter called "the works") and the employerhasacceptedtheBidbytheContractorfortheexecutionandcompletion of such works and the remedying of any defects therein, at a cost of Rs.

_____

NOWTHISAGREEMENTWITNESSETHASFOLLOWS

1. In this Agreement, words and expression shall have the same meanings as are respectivelyassignedtothemintheconditionsofcontractthereinafterreferred to and they shall be deemed to form and be read construed as part of this Agreement.

2. In Consideration of the payment to be made by the Employer to the contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to executive and complete the works and remedy any defects therein in conformity in all aspects with the provisions of the contracts.

3. The employer hereby covenants to pay the Contractor in consideration of the execution and completion of the works and the remedying the defects wherein contract price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the contract.

4. TheFollowingdocumentsshallbedeemedtoformandbereadyandconstrued as part of this Agreementviz

i) Letter of Acceptance

ii) Notice to proceed with the works:

iii) Contractor'sBid
iv) Conditions of contract :Generaland Special
v) Contract Data
vi) Additional conditions
vii) Drawings
viii) Bill of Quantities and
ix) Any other documents listed in the Contract

Data as forming part of the Contract.

In witness where of the parties there to have caused this Agreement to be executed the day and year first before written

The Common seal of---------- Was hereunto affixed in the presence of:

Signed, sealed and Delivered by the said_____

In the presence of

Binding signature of Employer_____

Binding Signature of Contractor_____

UNDERTAKING
(For Investment)

I, the undersigned do hereby undertake that our firm M/s … ..... would invest a minimum cash up to **25%** of the value of the work during implementation of the contract.

_____

(Signed by an Authorized officer of the firm)

_____

Title of officer

_____

Name of firm

_____

DATE

UNDERTAKING
(For BID Validity)

I ,the undersigned do hereby undertake that our firm M/s……
……agree to a bid e by this bid for a period ..... days
For date fixed for receiving the same and it shall be binding on us and may be accepted at any time before the expiration of that period.

_____
(Signed by an Authorized officer of the firm)

Title of officer_____

_____
Name of firm

_____

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER – 8

TENDER FORM FOR ELECTRICAL WORK

Roads & Building Department
Government of Gujarat

Division : _____ "As per NIT" _____

TENDER
FOR
ELECTRICAL WORK

Name of work :-	As per NIT

Name of Work _____ As per NIT _____

_____

_____

INDEX

	Tender document contain Pages 1 to 55	Page No
A	Addendum	
B	Memorandum	
C	Instructions to tenderers	
D	Form of tender for electrical work (induplicate) with schedule of time limit	
E	General Conditions	
F	Data Sheet for E-tendering	
G	General Condition of contract for electrical works	
H	Schedule-A	
I	Schedule-B	
J	Specification for electric works	
K	List of approved Electrical Products	
(i)	Amount put to tender Rs.	
(ii)	Tender fee Rs.	
(iii)	Earnest Money Rs.....	
(iv)	Security Deposit Rs..... Performance Bond Rs.....	

Last Date ___/____/_____

As per NIT

Downloading of ten /____/_____

Start End Date **Upto date** ____/____/_____ **Till** _____ : _____ **hrs.**

Issued to M/s. _____

Divisional Account/D.A.O.
Executive Engineer

(Only in case of Tender above Ten lakhs)

MEMORANDUM

1. Name of Work ... .As per NIT.....
2. Estimated Cost ... .As per NIT.....

3.	Earnest Money	1%	.....As per NIT.....
4.	Validity period of tender offered	...	(~~90~~/120*) days from the stipulated date of receiving tender if tenders are invited off line and no modification shall be allowed after handing over the to postal authorities. In case of on line tenders, the validity period shall be counted from the date of opening on line tenders, in case of single cover system tenders and from the date of opening technical bid in case of two cover system tenders
5.	Security Deposit -		
	(i) In the form of small Savings or Narmada Bonds or FDR of schedule bank (of minimum one year time limit)	2.5%	.....As per NIT.....
	(ii) To be deducted from bills (Security Deposit) (Deduction at rate of 5% from each Running Bill shall be made till stipulated maximum amount is recovered).	2.5%	.....As per NIT.....
	(iii) Performance bond of schedule Bank (In case of tender estimating Rs. 30 lacs or more)	5%	.....As per NIT.....
	Total	10%	.....As per NIT.....
6.	Time limit	...	.....As per NIT..... Months

*** Strike out whichever is not applicable**

* Vide R & GD G. R. No. TNC – 1088 – 1B/1 (13) / C dated 4-5-1993 & revised vide G.R. No. TNC-1088/IB/18(13)-C, dated 31-8-94. & TNC-10-2013-3-(Part-1)-C, dated 19/11/2013 & TNC -10-2013-3 (Part 2)-C dated 20-11-13

Deposit furnished in the form of interest bearing document as per Item .4 (i) can further be extended for renewal if so desired and communicated by the Contractor in writing before one month from the date expiry date. Similarly Security Deposit deducted as the Item No.4(ii) can also be converted into interest bearing fixed term securities of schedule and Nationalised Bank. If so desired and communicated by the contractor in writing. The security Deposit will be released against Bank Guarantee as provided in Clause 3.8 of General Condition of Contract.

Should this tender be accepted, I/We hereby agree to abide by and fulfil all the terms and Provisions of the conditions of the contract annexed here to so far as applicable and in default thereof to forefeit and pay to Government in office the sums of money mentioned in the said conditions.

(Receipt No. _____ dated _____ from the Government Treasury or Sub-Treasury at _____ in respect of sum Rs.* _____ is forwarded herewith representing the earnest money + (a) the full of value of which is to be absolutely forfeited to Government should I/We not deposit the full amount of security deposit specified in the above memorandum in accordance with Clause-I of the said conditions, otherwise the said sum of above Rs. _____shall be refunded).

Date :
Place : *Digital signature of contractor
**Signature of the contractor

(witness)*** (At the time of execution of contract document)
Name and Address _____(Occupation) _____

*Digital signature of contractor before submission of tender.
**Signature of contractor at the time of execution of contract document.
***Signature of witness to Contractor's signature at the time of execution of Contract document

The above tender is hereby accepted by me on behalf of the Government of Gujarat
Dated the _____day of _____ 20 _____

Signature of The Executive Engineer,
_____ Division

Note: The normal rate of Security Deposit is 5 percent for works upto Rs. 30 lacs and further 5 % as performance bond for works above Rs. 30 lacs. Out of 5 % of Security Deposit 50 % is Payable at the time of acceptance of tender and the balance by deduction from progress bills.

Instructions to Tenderers

1. Tenders, sealed and marked 0n the outside for

"will be received by undersigned
Upto the day of 20
In the form of "Tender for Electrical Works" hereto annexed

2. The tendererd shall state precisely in his tender the type and description of the materials, plant and stores he proposes to use for the work. If he proposes to use materials, plant or stores of other than Indian manufacture he must clearly state this in his tender, together with the name, manufacturer and of the country of origin of the same.

3. The office with whom cash deposits are to be made, or to whom securities are to be endorsed accordance with clause 3 of General Condition of Contract for Electrical Works, is the Ex Engr._____

4. The work must be carried out in accordance with the General Condition of Contract for Electrical Works. and the general specification for electrical works in Government building.

5. Plans may be seen, in the office of the Ex. Engr._____ Division.
Department_____

6. The Governor of Gujarat does no undertake to accept the lowest or any tender.

Date: - -20

Executive Engineer.

ORIGINAL

Form of Tender for Electrical Works

_____Department

1. I/We do hereby tender to execute the whole of the work Described in the accompanying tender for the several sums, and in the case of measured works, at the several rates, set forth in the tender hereto attached and signed by me/us and should this tender be accepted. I/We further undertake to complete the work within the time stated below reckoned form the date of acceptance of tender, namely.

2. I/We do agree and bind myself/ourselves to abide by and fulfil the general conditions of contract and the Special Conditions of Contract annexed to the Specification or in default thereof to pay to the purchaser, as reasonable compensation for such breach of such conditions, the sums of money mentioned in the said condition.

3. I/We further agree to make good at my/our own expense all defect in the installation which appear within twelve months from the date bringing the installation into beneficial use when such defects are due to defective workmanship or material executed or supplied by me/us.

4. I/We hereby declare that my/our near relative are not working in this Division or in its sub-division as an Ex. Engineer, Deputy Executive Engineer, Additional Assistant Engineer, Overseer, Divisional Accountant, Store Keeper, Manager of Atithi/Vishram Gruha and in the circle as a Superintending Engineer in additional for Panchayat Works not working nor having posting as Chairman of P.W. Committee or as incumbent in Jilla Panchayat at today.

Signature(s)
Dated at

The date of 2020

The above tender is hereby accepted by me for and on behalf of the Governor of Gujarat.

Dated at

The date of 2020

Executive Engineer,

Duplicate

Form of Tender for Electrical Works

_____Department

1. I/We do hereby tender to execute the whole of the work Described in the accompanying tender for the several sums, and in the case of measured works, at the several rates, set forth in the tender hereto attached and signed by me/us and should this tender be accepted. I/We further undertake to complete the work within the time stated below reckoned form the date of acceptance of tender, namely.

2. I/We do agree and bind myself/ourselves to abide by and fulfil the general conditions of contract and the Special Conditions of Contract annexed to the Specification or in default thereof to pay to the purchaser, as reasonable compensation for such breach of such conditions, the sums of money mentioned in the said condition.

3. I/We further agree to make good at my/our own expense all defect in the installation which appear within twelve months from the date bringing the installation into beneficial use when such defects are due to defective workmanship or material executed or supplied by me/us.

4. I/We hereby declare that my/our near relative are not working in this Division or in its sub-division as an Ex. Engineer, Deputy Executive Engineer, Additional Assistant Engineer, Overseer, Divisional Accountant, Store Keeper, Manager of Atithi/Vishram Gruha and in the circle as a Superintending Engineer in additional for Panchayat Works not working nor having posting as Chairman of P.W. Committee or as incumbent in Jilla Panchayat at today.

Signature(s)
Dated at

The date of 2020

The above tender is hereby accepted by me for and on behalf of the Governor of Gujarat.

Dated at

The date of 2020

Executive Engineer,

GENERAL CONDITIONS

1. The work of the Electrical Installation shall be carried out as per I.S Specifications I.S. 732-Code Part I, II & III - 1982-82 of practice of Electrical wiring and fitting in building.

For Hospitals I.S. 7732 of 1985
For Educational Installation I.S. 108941-1984
For Aluminium Conductor I.S. 398-1984 Part III

2. The fitting should be fixed with mild steed hooks to be supplied and erected and duly grouted in the cement concrete by the contractor wherever possible the decision of the Ex. Engr. in respect of the feasibility of providing such hooks in the cement concrete, shall be final and binding on the contractors.
3. The work shall have to be completed within the prescribed time limit unless the extension in the time limit at the instance and the request of the 'contractors is granted by the authorities in which case, the application for the extension in time limit have to be made by the contractors by registered post before the date of expire of the schedule time limit under the agreement.
4. The amount of Rs. 1-00 for each empty wooden box of ceiling fan and 0-50 paise for each empty wooden box of Table fan issued to the contractors for* the work as per Schedule B of the work shall be recovered from the Contractors.
5. Materials required for the work shall be supplied to the contractor as per rates mentioned in the Schedule 'A' attached herewith and the cost of materials will be recovered form their bills.
6. The tender documents required shall have to be filled in either in ink or by ballpen.

(G.R.B.& C. Dept. No. TNC-1175-1113-853/198 V. dtd.8-6-79.)

7. In addition to the above the tender will also be liable to be rejected outright if
   (i) Any of the pages of the tender is/are removed or replaced.
   (ii) In the case of "item rate" tender, the rates are not entered in ink. in figures and words and the total of each item and grand total are not struck by the tender or in ink in the last column of schedule 'B' under his signature.
   (iii) All corrections, additions or pasted slips are not initialed by the tenderer,
   (iv) Any eresure is made by him in the tender AND
   (v) The tenderer in the case of a firm, each partner or the person holding the power of attorney thereof does not sign or the signature is/are not attested by witness on page 8 of the tender in the space provided for purpose.
8. A certificate of registration as approved contractor should be attached with the tender.
9. In respect of tenders from the co-operative society a solvency certificate of an amount equal to 20% of the amount of the work put to tender plus cost of work in hand 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.
10. The several documents forming the contract are the essential parts of the contract and 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.
11. In the event of any discrepancy the several documents forming the contract or in any one document the following order of procedure should apply:
    (a) Dimension and quantities:
        (i) Drawing
        (ii) Schedule 'B' of the tender form
        (iii) Specification

    On drawing figures, dimensions unless obvious in contract will be followed in preference to sealed dimension.

    (b) Description:
        (i) Schedule 'B' of the tender form
        (ii) Drawings
        (iii) Specifications

    In case of defective description or a ambiguity, the Ex. Engineer in charge should issue further instructions directing in what manner the work is to be carried out is being understood that the last modern practice is to be followed. The contractor should forthwith comply with such instruction.
12. The contractor should take no advantage of any apparent error, omission in drawings or a specifications and the Ex. Engineer in charge should be permitted to make fulfill the intent of the plans and specifications.
13. Controlled materials (Essentially certificate)
    (i) As regards "Controlled materials, the R. & B. Dept. will help to arrange for the permits as far as possible and hold the contractor in securing the same. All incidental charges in procuring these

materials shall be borne by the permit as far as possible by the contractor himself. Though the R. &, B. Dept. will help to arrange for the permit as far as possible and help the contractor in obtaining the materials, it shall not accept any responsibility for any delay or loss or account of delay caused to the contractor while obtaining the same.

(ii) The contractor shall submit the monthly returns in the prescribed forms at to the receipts and actual use of the controlled materials during the month to the Ex. Engr. of every calendar month.

(iii) The contractor shall submit the Ex. Engineer or his representatives to inspect the stock of the controlled materials by him at any time whenever the Ex. Engineer or his representatives so desire.

14. The tender shall remain open for a period of 90/120* days. The validity period shall be counted from the stipulated date of receiving tenders if tenders are invited off-line. In case of online tenders th validity period shall be counted from the stipulated date of opening online tenders in cae of single cover system tenders and from date of opening technical bid in case of two cover system tenders. (R & B.D. G.R. No. TNC-10-2013(2)-C dated 10-5-2013). If any tenderer withdraws or makes any modifications or additions in the terms and conditions of this tender not acceptable to the Government (Public Works Department) as above then the Government shall without prejudice to any right remedy be at liberty to fofeit in full the said earnest money absolutely.
15. The contractor shall employ only such labourers who shall produce a valid certificate of having been vaccinated against small pox within a period of last three years.
16. The contractor shall provide drinking water facilities to the workers, labourers to comply with the provisions, the engineer in charge shall gives notice facility to the workers, Labourers within a period of ten days from the date of the notice in writing, the Engineer in charge shall there upon make the arrangement for the drinking water at the cost of the contractor.
17. The contractor shall provide the amenity of shade and shelter to the workers, labourers and their children on Govt. work as soon as the work starts" If the contractor fails to provide shade and shelter than the Govt. Shall provide the same at the cost of the contractor.
    (Govt Resolution PWD No. TNC-2172 (i) 76-C Dt. 4-7-1973)
18. Challan for earnest money @ 1% of the estimated cost must accompany the tender. Tenderer may pay earnest money up to Rs. 50,000 in cash or on the form of Crossed demand Draft or in case of tenderer is member of only IEEMA DEPOSIT AT CALL receipts of Nationalized of scheduled Bank drawn in favour if Executive Engineer, Divisional Officer concerned. However in respect of the works estimated to cost above Rs. 50 lacs, the amount of earnest money in excess of Rs. 50,000 Can be offered by the contractor, at his choice, in the form of Bank Guarantee of the Scheduled Bank only. The Bank Guarantee in such cases will be furnished in the following form. In such cases also, the amount of first Rs. 50,000 will paid in the form of cash or crossed demand drafts or fixed deposit receipts or deposit at call receipts worth the validity period of not less than the 6 Months of the nationalized or Scheduled Banks.

    The Contractors, who have secured exemption Certificate for payment of earnest money by depositing Lump Sum earnest money Deposit need not pay earnest money, but produce the certified copy of the exemption certificate along with the tender.

BANK GUARANTEE

Where as M/s._____ (hereinafter called the Tenderer) is desirous and preferred to tender for works in accordance with the terms and conditions of tender for the work of _____and where as We, Bank agree to give the tenderer a guarantee for the Earnest Money.

1. Therefore, we hereby affirm that we are guarantors on behalf of the Tenderer up to total rupees _____ in words) Rs._____(in figures) and we undertake to pay to Executive Engineers _____ Division _____ Department of Government of Gujarat the _____ (name of Govt. previous notice of judicial or to be specified). up to his first written demand, without demur, without delay and without the necessity of a previous notice of judicial or administrative procedures and without the necessity to prove to the Bank the defects or shortcomings or debits of the contractor any sum within the limit of Rs._____
2. We further agree that the Guarantee herein contained, shall remain in full force and effects during the period that would be taken for the acceptance of tender.

However, unless a demand of claim under this Guarantee is made on us in writing on or before the _____ (Date to be specified-will not be less than 180 days from the date of opening the tender) we shall be discharged from all liabilities under the guarantee thereafter.

3. We undertake not to revoke the guarantee during currency except with the previous consent of the Executive Engineer _____ Division _____ in writing.
4. We lastly undertake not to revoke the guarantee for any charge in constitutions of the Tenderer or of the Bank.

Date: **Signature & Seal of Guarantor** _____

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* Strike out whichever is not applicable

19. Wires of I.S.I. mark will be allowed to be used on the work.
20. The rates should be written both in words and figures inclusive of all taxes and duties.
21. The percentage additions in total amount tendered of any items is not allowed however if over all reduction in percentage is offered the same should be stated in the prescribed clause added at the end of, schedule 'B' in words and figures. If no reduction is to be made the gap should be filled in by the word 'NIL'.

Note : As per Govt. Resol. No. CDN/1269/PAC/51-C.dt. 15/4/1978

22. Safeguards :
    (a) That the percentages and the tender amount by each contractor shall actually be shown to the other contractors who may be present at the time of opening the tenders.
    (b) That a tender with any erasures and/or over writing in percentage (both in word and in figures) shall be rejected outright.
    (c) That insertions and or correction in the percentage quoted (both in words and in figures) resulting into increase in the value of the work shall be liable to be rejected outright unless it is authenticated by the officer opening the tender at the time of opening tender as well as the contractors they may be present at the time of opening tender and.
    (d) That any other correction or insertions shall be authenticated by the officer opening the tender and the intending bidders who may be present.
23. Any error in quantity or amount in Schedule 'B' showing items of works to be carried out shall be adjusted in accordance with the following rules:
    (a) In the event of a discrepancy between description in words and figures quoted by a tenderer in the rates column, the description in words shall prevail.
    (b) In the event of an error occurring in the amount column of the Schedule 'B' showing item 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 totalling in the amount column, and in carrying forward totals shall be corrected.
    (d) Any rounding off of amounts against items of in totals shall be ignored. The tendered sum so altered shall for the purpose of tendered be substituted for the sum original tendered and considered for acceptance.
24. Battens shall be teakwood for acceptable quality and shall be varnished before fixing in position.
25. Wooden-cup board should be polished on both the sides.
26. Whenever Government materials are issued, the contractor shall be responsible for the safe custody and proper use of the materials.
27. Loose electric fitting connection should be done at the time of handing over possession of building to the concerned civil or administrative department and accordingly after taking over possession of these connection concerned Civil/Administrative department is responsible for fittings.
28. (i) Late tenders (i.e. tender received after the specified time of opening) Delayed tender (i.e. tenders received before the time of opening but after the due date time or receipt of tenders)'and post tender offers shall not be opened and considered at all.
29. (ii) The tenders received (by registered post after the time of date specified in the tender notice) shall not be received by the concerned office from the postman, for which date and time may be recorded on the cover of the tender as to when tender was refused by the Divisional Accountant or the Divisional Head or any other person in charge.
30. GST where recoverable / payable shall be deducted from bills for payment according to rules Prevailing at the time of payment.

Pages for E-tendering of Electrical Tender Form only
DATA SHEET FOR Electrical E-TENDERING

(A) Details of Tender Item :

Sr. No.	Name of Work	Estimated Tender Value in (Rs. _____)	EMD in (Rs. _____)	Tender fee Deposit	Total Security of Work	Period of Completion
1	2	3	4	5	6	7
	As per NIT					

(B) Eligibility : Registered in _____ Class or above / Pre-qualification.

(C) Schedule of E-Tendering is fixed as under:

(i)	Site Visit (If any)	~~On Date : __/__/____ ; ____;____ hrs. Venue :~~
(ii)	Downloading of tender documents Start & End Date	~~From Date : __/__/____~~ As per NIT
(iii)	Online submission of bid	~~Upto Date : __/__/____ Till __:__ hrs.~~
(iv)	Submission of EMD & Tender fee and other documents	~~Submission in electronic format only through online by scanning and then the same should be sent in original to Superintending Engineer _____ Cicle_____ at the time of Tender Opening or sent the same through R.P.A.D. So as to reach Executive Engineer(M), PIU, _____ Division _____ within 7 days from last date of Opening.~~
(v)	Online Opening of Bid	~~On Date : __/__/____ & __:__ hrs. Venue :~~
(vi)	Bid Validity period	120 Days counted from the date of opening of the price bid.

- Bidders can download the tender documents free of cost from the website. www.gmb.nprocure.com
- Bidders have to submit bid in Electronic format only on above mentioned website till the Date & time shown above.
- Offers in physical form will not be accepted in any case.

Bidders who wish to participate in online tenders will have to procure/ should have legally valid Digital Certificate (Class-III) as per Information Technology Act-2000 using which they can sign electronic bids. Bidders can procure the same from any of the license certifying Authority of India or can contract (n) code solution - a division of GNFC Ltd., who are licensed Certifying Authority by Govt. of India.

(D)	(i)	Bid Inviting Authority	As per NIT
	(ii)	Bid Opening Authority	As per NIT
(E)		Mode of Quoting Rate	Percentage premium or rebate in words and figures at the end of Schedule B

The list of certifying agencies are as mentioned under :

Sr. No.	Name of Certifying Agency	Website Address
1.	(n) Code solution (G.N.F.C.)	www.gnvfc.com.
2.	Safecrypt	www.safescrypt.com.
3	TCS	www.tcs.-ca.tcs.co.in
4.	MTNL	www.mtnltrustline.com

As a result of E-tendring the information / Instructions on Pages 4 to 6 following may be read as modified below : -

General Conditions from Page 4 to 6 are substituted for E-tendering as below :

6. Deleted
7. In addition to the above the bid will liable to be rejected if :-
   (i) The bidder proposes any alteration in the work specified or in the time allowed for carrying out the work or any condition in the covering letter.
   (ii) The bidder or the person authorized to sign on behalf of the bidder does not digitally sign the bid offer.
8. A Certificate of registration as approved contractor should be incorporated in electronically transmitted bid.
14. The tender for the work shall remain open for a period of 90 /120 days counted from the last date of online submission of bid.
20. The rates should be expressed both in words and figures inclusive of all taxes and duties.
21. The bid will also be liable.
   (i) The bidder proposes any alteration the work specified or in the time allowed for carrying out the work or any condition or correction made in any code or mode of Schedule-B or Specifications.
   (ii) The bidder or the person authorized to sign on behalf of the bidder does not digitally sign the bid offer.
31. (i) The Bids shall be offered in Electronic format only on online website www.gmb.procure.com/ www.gmbports.in till the date and time shown on Page 2 supra.
31. (ii) **Payment of Tender Fee and Earnest Money Deposit :** "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 for purpose of opening the bid. 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 Superintending Engineer _____ Circle _____ at the time of tender opening or send the same through R.P.A.D. So as to reach Executive Engineer _____ Division _____ within 7 days from the last date of opening. Penaltative action for not submitting D.D. in original to E.E. by bidder shall be initiated. D.D. for Exemption Certificate is not necessary. However Exemption Ceritificate shall have to be submitted ekectronically through online. If the contractor does not remit the tender fee & the earnest mony within the specified time his registration will be held in abeyance for one year & his tendering code will be cancelled for one year.
   Any documents in supporting of tender bid shall be submitted in electronic format only through online (by scanning etc.) & hard copy will not be accepted separately." (R&B Circular No. પરચ-૧૦૨૦૦૮-પ-ચ, dated 18-1-2008 & R.&B.D.G.R. No. Parach-102008-5-C (Partfile) dated 27-11-08)

GENERAL CONDITIONS OF CONTRACT FOR ELECTRICAL WORKS IN THE BUILDING AND COMMUNICATION DEPARTMENT

GENERAL CONDITIONS OF CONTRACT

1. Definitions of terms:

In construing the general conditions and the annexed specification the following words shall have the meaning here assigned to them unless there is something in the his successors and assigns.

The "GOVERNOR OF GUJARAT" shall include his successors and assigns.

The "ENGINEER" shall mean the Ex. Engineer, Electrical Division, for the time being attached to the Public works Department of the Gujarat State or such other officer as may be appointed by the Ex. Engineer, Electrical Division to supervise the work on behalf of the Governor of Gujarat.

The "CONTRACTOR" shall mean the Tenderer whose tender, shall be accepted by the Governor of Gujarat and shall include the tenderer's legal personal representatives of successors and assigns.

"PLANT" shall mean and include any machine any machine fixed of movable, use for the generation or transmission of power of actuated by power.

"WORK" or "WORKS" shall mean the whole the plant and material to be provided and work to be done executed of carried out by the contractor under the contract.

The "CONTRACT" shall mean all the documents by which the agreement by the contractor to be provided to execute of carry out the plant work or works shall be constituted or in or by which the terms of such agreement or any of them are contained or set forth specially as per these General conditions, any special conditions attached to or issued with these conditions. The specification, the Drawing, the invitation for Tenders (if any) of any other letter. notice or document upon or with reference to which the Tender is made and the Schedule of prices (if any) furnished by the contractor with these his Tenders.

The "SPECIFICATION" shall mean the specification annexed to these General conditions and the Schedule thereto (if any).

The "SITE" shall mean the whole of the premises, buildings and grounds in or upon which the Plant works or works is or are to be provided, executed, erected, done or carried out.

The "DRAWINGS" shall mean the drawings issued with the specification which will ordinarily be identified by being signed by the Engineer and any further drawings submitted by the contractor with his tender and duly signed by him and accepted or approved by the Engineer and all other drawings supplied or furnished by the contractor or by the Engineer in accordance with these General conditions.

The "SPECIAL CONDITIONS" shall mean the special conditions of contractor (if any) attached to general condition.

The "SCHEDULE" shall mean the schedule or schedule attached to the specification.

2. Contractor to inform himself fully :

The contractor shall be deemed to have carefully examined the invitation for Tender (if any) the general and any special conditions, the specification and Drawings and the Schedule of price(in any). In case off discordance or want of agreement between or amongst the several things herein described as the grounds or data of the contract then these conditions shall have precedence of and be held to be more correct and binding and in like manner detailed drawings shall be held to be more correct. and binding then general drawings and in like manner drawing made to a large scale, or for special instruction, shall be held to be ore correct and binding than drawing made to a smaller scale, or for general instruction and figured dimensions shall be held to be more correct than dimensions by scale but subject nevertheless in case of doubt or dispute as to any of the matters aforesaid to the determination and decision of Engineer as hereafter is more particularly mentioned and provided always that nothing herein contained shall limit the powers of the Engineer herein after mentioned.

~~**3. Security Deposit:**~~

~~3.1 Security Deposit is required to be furnished by the contractor as guarantee money for performance of the contract and observance of Contract Conditions.~~

~~3.2 The person/ persons whose tender is accepted (hereinafter called the "Contractor" which expression shall, unless excluded by, or repugnant to the context include his Legal heirs, executors, administrators and assignees shall pay the total amount of Security Deposit:~~

~~(a) In respect of the tender up to Rs. Thirty lacs, equal to 5 (Five) percent of the estimated cost of the work put to tender.~~

~~(b) In respect of the work above thirty lacs, equal to 10 (Ten) percent of the estimated cost of the work put to tender.~~

~~3.3 In respect of the tenders up to Rs.30 lacs the contractor shall pay Five percent of Security deposit in two parts as tender:~~

~~*Part I :* 2.5 percent in the from of Narmada Bond of Sardar Sarovar Narmada Nigam Ltd. or in any form of National Small saving (N.S.S.) Schemes or F.D.R. of any Schedule Bank to be paid within 10 days from the date of receipt of Acceptance letter of his offer.~~

~~*Part II :* 2.5 percent in the form of cash/ Security Deposit to be deducted from Running Bills that become payable to the contractor from time to time.~~

3.4 In respect of the tenders above Rs. Thirty lacs the contractor shall pay first five percent of Security deposit as specified in part 3.3 above and for the remaining five percent, the contractor shall have to give Performance Bond to be produced within 10 days from the date of receipt of acceptance letter of is offer.

3.5 The work order to commence to work shall be issued only after the security deposit as per Para 3.3 and 3.4 is paid/ furnished by the tenderer. If the tenderer fail to produce the security deposit as above the earnest money paid by him shall be forfeited and his registration shall be held in abeyance for three years from the date of such default

3.6 All compensation, liquidated damages or other sums or money payable by the contractor to Government under the terms of this contract shall be deducted from or recouped by the realization of a sufficient part of his security deposit, or from the interest arising there from or performance bond or from any sums which may due or may become due by Government to the Contractor on any account whatsoever and whether in respect of this contract, any other contract, or otherwise. In the event of his security deposit being reduced by reason of any such deduction or recoupment as aforesaid, the contractor shall within ten days thereafter, make good in cash or in Government securities transferred as aforesaid any sum or sums required to make good the shortfall in the amount of the security deposit.

3.7 The portion of security deposit deducted at 2.5 percent from running bills as security deposit can be converted in to interest bearing securities or F.D.R. of Schedule Bank in the Name of Executive Engineer provided that the recovery of full amount of 2.5% is made and that the contractor has expressly desired this in writing.

3.8 The full amount of Security Deposit deducted in cash from running bills will be released proportionally as indicated in table below on production of Bank Guarantee of schedule Bank provided the contractor produces Bank Guarantee for the period of six months beyond the stipulated period of completion of work. Further if the time limit of contract is extended the period of Bank Guarantee shall have to be extended for six months beyond the proposed extension of time limit and the contractor shall have to furnish the undertaking for this alongwith the application for extension in time limit.

Table of Proportionate release of Security Deposit:

	ary Progress	n of Security Deposit to be released	ot production of Bank guarantee of
	f Tender cost	to the amount retained from Running Bills or 0.625% of the estimated cost of work, whichever is less.	to the amount to be released
	f Tender cost	to the amount retained from Running Bills or 1. 25% of the estimated cost of work, whichever is less.	to the amount to be released
	f Tender cost	to the amount retained from Running Bills or 1.88% of the estimated cost of work, whichever is less.	to the amount to be released

3.9 It will have to be ensured that the ten percent amount of security deposit in any form as permissible above is kept available with the employer till the actual date of completion of work.

3.10 Fifty percentage of the Security Deposit along with performance bond shall become refundable within fifteen days after the final completion certificate issued a per Clause 25. All dues under this contract or other contract. or otherwise, shall be recoverd from the aforesaid amount of fifty percentage of the said security deposite and the balance shall be refunded within fifteen days after the final certificate is issued as per clause 25. The remaining fifty percentage of the security deposit shall be refunded after expiry of the Defect Liability period as per clause 33 after deducting there form the amount of expenses, is any Government under this contract.**(See Performance bond below)** (Modified as per R & B Circular No. TNC-10-2013-3 (Part-1)-C dated 19-11-2013 and GR. No. TNC-10-2013-3 (Part-2)-C dated 20-11-2013)

ANNEXURE

PERFORMANCE BOND

(The date of this bond must not be prior to the date of the instrument in connection with which it is given).
__-
_____
_____
Principal (Contractor)
__-
_____
_____
Surety (Bank)
__-
_____
_____
Sum of bond (express in words and figures)
__-
_____
_____
Contract No. and date of contract
__-
_____
_____

KNOW ALL MEN BY THESE PRESENTS, THAT WE, THE PRINCIPALS AND SURETY above named are held and firmly bound upto the_____ hereinafter called the Employer in the amount stated for payment of which sum, well and truley to be made, we bind ourselves, our heirs, executors, administrators and successors jointly and severally, firmly by these presents subject to the provisions of which the aforesaid Contractor on demand and without demand on a claim being made by the Employer.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principals have entered in to a contract with the Employer numbered and dates as shown above and hereto attached for the execution of work _____
_____

NOWTHEREFORE, if the Principal shall well and truly perform and fulfil all the undertakings, convenants, terms, conditions and agreements of said contact during the original terms of the said Contract and any extensions thereof that may be granted by the Employer with or without notice to the surety and during the life or any guarantee required under the contract and shall also well and truly perform and fulfil all the Undertakings, convenants, terms, conditions and agreements of any all duty and unduly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the surety being hereby waived or shall pay over, make good and reimburse to the Employer all loss and damages which the employer may sustain by reason of failure or default on the part of said Principal so to do.

We _____ further agree that the guarantee herein Contained shall remain in full force and effect during the period that would be taken for the validity of the said Contract, and that it shall continue to be enforceable till all the dues of the employer under or by virtue of the Contract have been fully paid and its claims satisfied or discharged or till the Employer certifies that the terms and conditions of the Contract have been fully and properly carried out by the said Contractor and accordingly discharges the guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the _____ we shall be discharged from all liability under this guarantee thereafter.

IN WITNESS WHERE OF, the above bounded parties have execute this instrument under their several seals on the date indicated above the name and corporate seal of each corporate partly being hereto affixed and these presents duly signed by its undersigned representatives, pursuant to authority of its governing body.

In the presence of witness individual
Principal
1. _____ as to _____ (Seal)
2. _____ as to _____ (Seal)
3. _____ as to _____ (Seal)
4. _____ as to _____ (Seal)

by _____ affix Corporate Seal

Attested Corporate surety
Business address
Affix by _____ corporate Seal

Title

For and on behalf of the Employer

4. Mistake in contractor's Drawings

The Contractor shall submit such drawings as may be required and shall be responsible for any discrepancies, errors omissions in any drawings other particulars supplied by him notwithstanding that such drawings or particulars may been approved by Engineer.

5. Patent Rights etc.

The contractor shall fully indemnify the Governor of Gujarat against all actions, suits claims demands, costs, charges expenses arising from or incurred by reason of any infringement or alleged infringement, of any letters patent, design, trademark or name copyright or other protected rights in respect of any machine, plant, work materials thing or system or method of using fixing working or arrangement used or fixed or supplied by contractor but this indemnity shall not extend or apply to any action suit claim, demand cost charges or expenses arising from or incurred by reason of the use of the work or any part thereof otherwise then in the manner of for a purpose contemplated by the contract all royalties and other similar payments which may have to paid for the use of any machine, plants, work, material thing system or method as aforesaid (whether payable in one sum or by installment or otherwise) shall be covered by the contract price and payable by the contractor.

In the event of any claim or demand being made or action or suit brought against the Governor of Gujarat in respect of any such matter or matters as all negotiations for the settlement of such claim or demand and such action aforesaid the contractor shall be duly notified, thereof, and he shall conduct or suit also be conducted by him subject if and so far as Governor of Gujarat shall think proper under the Supervision & Control of Governor of Gujarat through the officer duly authorized on his behalf.

6. Excess over Tender quantities, Extra items & Variations in Specifications, Drawings etc.

6.1 The Engineer-in-charge shall have power to make any late rations additions in or to the original specifications drawings design instructions that may appear to him to be necessary of advisable during the progress of the work and contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by the Engineer-in-charge and such alternation shall not invalidate the contract and additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the manner above specified as part of the work shall be carried out by the contractor in the same conditions in all respect on which he agreed to do the work and at the same rate as are specified in tender for the main work.

6.2 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 S.O.R. of the year during which the excess in quantity is first executed or tender rate whichever is less.

6.3 If the additional or altered work includes any class of work for which no rate is specified in these contract, then such class of work shall be carried out.

(i) At the rate derived from the item within the contractor which is comparable to the one involving additional altered class of work where there are more than one comparable items, the item of the contract which in nearest in comparison with regard to class or classes of the work involved shall be selected and the decision of the superintending Engineer as to the nearest comparable item shall be final and binding on the contractor.

(ii) If the rate cannot be derived in accordance with (i) above, such class of works shall be carried out at the rate angered in the Schedule of Rates of the Division for the year in which, the tender was received, increased or decreased by the percentage by which the tender received increased or decreased by the percentage by which the tender amount is more or less as compared or decreased by the percentage by which the tender amount is more or less as compared to the amount arrived at the rates in the "Schedule of Rates" Divisions in the year in which the tender was received. If the Schedule of rates calculated considering such items which were included in the "Schedule of Rates of the Division for the year and or materials consumed on such item the rate to be charged would be the basic rate taken into account for fixing the rate in S.O.R. referred to above instead of the rate.

(iii) If it is not possible to arrive at the rate form(i) and (ii) above, such class of work shall be carried out at the rate decided by the competent authorities on the basis of detailed rate analysis after hearing the contractor before as committee of two superintending Engineers stationed at the same place or the nearest place.

6.4 If the additional or altered work, for which no rate is entered in the "Schedule or Rates" of the Division is ordered to be carried out before the rate is agreed upon, then the contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer-in-charge does not agree to this rates, he shall by notice in writing be at liberty to cancel his order to carryout such class of work and arrange to carry it out in such manner as he may consider fit

advisable, provided always that if the contractor shall commence work or incure any expenditure in regard thereof before the rates shall have been determined as lastly herein before mentioned, then in such cases he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of the dispute the decision the Superintending Engineer of the Circle shall be final.

Where, however, the work is to be executed according to the designs, drawings and specifications recommended by the contractor and accepted by the competent authority, the alternation above referred to shall be within the scope of such designs drawings and specifications appended to the tenders.

The time limit for the completion of the work shall be extended in the proportion that the increase in the cost occasioned by alternations bears to the cost of the original contract work and the certificate of the Engineer-in-charge as to such proportion shall final and conclusive.

7. Work man ship and materials :

The works shall be carried out in all respects with workmanship and materials of the best and most substantial and approved qualities to the entire satisfaction of the Engineer who may reject any plant, apparatus of material or workmen ship which slab in his opinion be of defective quality any such rejection to be final and conclusive. The contractor shall at his own expenses provide all material labour, haulage, power, tools, tackles and apparatus necessary to execute and complete the works and plant in the manner aforesaid.

8. Use of work pending completion :

The Governor of Gujarat shall be at liberty at any time to put into beneficial use the whole or any part of the work he may desire to use pending the formal completion and taking over of the same.

9. Subletting of contract :

The contractor shall not without the consent in writing of the Governor of Gujarat under the hand of the Engineer assign or sublet the contract nor make any sub contract with an person or persons for the execution of any portions of the work other than for raw materials, or for any part of the work of which the manufacturers are named on his contract.

10. Protection and liability for a accidents, Theft and Damage :

The contractor shall at all items until the commencement of the period maintenance as provided in clause 16 property and sufficiently cover up and protect all materials delivered on site from damage or injury by exposure to the weather and shall take every proper precaution against accident, damage or injury on the same from any cause. The contractor shall be and remain answerable and liable for all accident and damage thereto which until the commencement of the period of maintenance as provided for under clause 16 may arise or be occasioned by the acts or omissions of the contractor or his workmen, agents, servants or sub-contractors and all looses and damages arising from such accidents damage or injuries and aforesaid shall be made good in the most complete and substantial manner by and at sole cost of the contractor and to the satisfaction of the Engineer.

Provided that should the Engineer certify, that the work has been completed but that owning to circumstances over which the contractor has no control the work cannot be taken over the contractor shall nor be held liable for any loss of or damage to the work occasioned by such delay in taking over and occurring more than one month after date of completion of the work as certified by the Engineer.

Until the work shall be or deemed to be taken over as hereafter provided the contractor shall also indemnify to Governor of Gujarat from and against all claims and demands, suits proceedings, cost and expenses in respect in respect of or in connection with any injury to person or damage to property by whomsoever sustained or by defective design work for thefts of any property of the Governor of Gujarat or of other committed by any employees of his own or his subcontractors and shall be liable for the costs of replacing any property stolen.

11. Insurance :

Subject as hereinafter provided the contractor shall at his own expense insure and at all times prior to the commencement of the period of maintenance keep insured against destruction or damage by fire or earthquake storm and tempest such plant and materials ordered for the work as may for the time being be upon the site for the full value of such plant and materials.

12. Materials brought on the site :

All materials tools and tackle brought to and delivered upon the site for the purpose of the work shall from the time of their being so brought vest in and be the property of the Governor of Gujarat but may be used for the purpose of the work but for that purpose only and not on any account be removed or taken away by the contractor or any other person without the express permission in writing of the

Engineer but the contractor shall nevertheless (subject as hereinafter provided) be solely liable and responsible for any loss or destruction thereof or damage unless resulting from causes beyond the contractor's control not being causes insurance against destruction or damage from which is provided for in clause 11.. The Governor of Gujarat shall have a lien on such materials, tools and tackle for any sum which may to any time prior to the completion of the works be due or owing to him the contractor under in respect of or by reason of the contract and shall be at liberty to sell and dispose of any of such materials, tools and tackle remaining after the completion of the works in such manner as he shall think fit, and to apply the proceeds in or towards the satisfaction of such sum or sums so due or owing as aforesaid but subject to such lien and power of sale and disposal such surplus materials, tools and tackle shall being to the contractor and may be removed and disposed of by him as he shall think fit after the lien is withdrawn by the Engineer-in-charge.

13. Default :

If the contractor shall at any time fail in the opinion of the Engineer to proceed with the work with due diligence and expedition or shall refuse, neglect or omit to comply with any orders given to him in writing by the Engineer- in-accordance with the provisions of the conditions or shall commit any other breach of the provision of the contract, the Engineer shall be at liberty to give notice in writing to the contractor to make good the failure neglect. omission or breach complained of and should be contractor shall fail to comply with any such notice within such period as may be prescribed in such period as may be prescribed in such notice then and in such case the Governor of Gujarat shall be at liberty to employ workmen other than those of the contractor to perform and execute the work in respect of which the failure neglect or omission referred to in such notice shall have been committed or occurred. If the Governor of Gujarat shall think fit, it shall be lawful for him to enter into a new contract with any other persons, or person, for the execution of such part of the work as may not have been executed and in that event the Governor of Gujarat shall without incurring any liability to the contractor be entitled to use all or any of the materials, tools, tackle or there things which may then be on site for the purpose of completing the work or any part there of and to provide any additional materials, tools, or tackle required for the purpose and the cost of executing any such work and providing any such materials shall be paid by the contractor to the Governor of Gujarat on demand.

Subject to and after satisfaction of the lien of the Governor of Gujarat for any sum due to him by the Contractor for any expenses cost or charges incurred in the completion of the work, all materials , tools, tackle or other thing remaining on the site and unsold after such completion shall forthwith hereafter be removed by the contractor.

14. Replacement of Defective work or material :

If during the progress of the work the Engineer shall notify in writing to the contractor that in his opinion the Contactor has executed any unsound or imperfect work, or has supplied any materials inferior in quality to those stipulated for by the contractor, the contractor shall at his own expense, within ten days of his receiving the notice proceed with due expedition to remove or after and reconstruct or replace the work or as the case may be supplied fresh materials up to the standard of the specification. In place of the work or materials complained of by the notice (as the case may be) and in case the contractor shall fail to do so the Governor of Gujarat may after expiration of ten days from giving of such notice give a further notice in writing stating that the Governer of Gujarat intention so to do forthwith at the cost of the contractor remove the work or materials complained of and perform all such work or (as the case may be) supply all such materials in place of those complained of as may be necessary or proper in order to comply with the contractor and the cost as certified by the Engineer of any such removed and performance of work or supply of materials shall be paid by the contractor to the Governor of Gujarat on demand provided always that nothing in this clause shall be deeded to derive the Government Gujarat or effect any other rights or remedies under the contract or otherwise which he may have in respect of such defects of deficiencies. No payment which have been made on account of materials delivered or work executed shall be looked on as acceptance of such or any work or materials.

15. Cutting away & making good :

The tender is include all necessary cutting and making good for the purpose of the contract of the wood work, walk, floors etc. of the site. The contractor win be held responsible for and will have to make good at his own expanse to the satisfaction of the Engineer, any damages to or disfigurement of the site which may have been caused the acts or omissions of himself or his servants or agents in connection with the carrying out the contract.

16. Maintenance :

The Contractor shall make good at his own expense all defects "due to faulty design material, or workmanship on the part of the contractor which may during a period of 6 calendar months form the date of which the work is certified by the Engineer to have been brought into beneficial use or if no such certificate is given from the date of the final payment for the work under clause 20 (which period

is hereinafter called the "the period of maintenance") develop under proper use in the work or any part thereof by replacing plant materials or work or otherwise as a may be necessary. Any such making good by the contractor shall in no case relieve him form his liability to make good any further defect in these work made good of replace which made develop during the reminder of such period of twelve months, if any such defects are clearly caused by the fault of the contractor and are liable to recurrence the contractor shall make such alterations as are required to prevent any recurrence of such defects. If any defects or alterations which contractor shall become liable make good or make under this clause be not made good or made good or make the same (as the case may be) a the risk and expense of the Contractor, but without prejudice to any other right or remedies which the Governor of Gujarat may have against the Contractor in respect of his default in making good or making the same as aforesaid/and the cost of any such making good or making shall be paid by the contractor to the Government of Gujarat on demand.

17. Contractor's Representative & workmen :

The contractor shall employ at least one competent representative, whose name or names shall have previously been communicated in writing to the Engineer by he contractor to Superintend the carrying out the works. The said representative of if more then one shall be employed then, one of such representative shall always be present on the site during working hours and any written orders or instruction which the Engineer or his duly authorized representative, whose name shall have been previously communicated in writing to the contractor, may give to the said representative of contractor shall be deemed to have been given to the contractor.

The Engineer shall be at liberty to object to any representative or person employed by the Contractor in execution of or otherwise about the work who in the Engineers opinion, shall misconduct himself or be incompetent or negligent and the contractor shall remove every person so objected to forthwith upon receipt from the Engineer of notice in writing requiring him to do so.

17.A Minimum age of persons employed and employment of donkeys or other animals :

(i) The contractor shall not employ any person who is under the age 15 years.
(ii) The contractor shall not employ donkeys or other animals with breaching of string or thin rope. The breaching must be attest three inches side and should be tape (Nawar).
(iii) No animal suffering from sores, lameness or emaciation or which is immature shall be employed on the work
(iv) If contractor does not accept the proceeding condition No. (i), (ii), & (iii) his tender shall not be accepted and his name shall be removed from the list contractors.
(v) The Engineer shall remove form the work any person or animal found working which does not satisfy these conditions and to responsibility shall be accepted by the Governor of Gujarat for any delay caused in the completion of the work by such removal.

17.B One percent of work done and payable in bills be recovered as contribution towards building and other construction workers welfare cess the certificate of deduction of walfare cess shall be issued to the contractor
(R.&B.D. G.R. No. S.S.R. -10-2004-IB-41(24)-C dated 2-12-2006)

18. Submission of Samples :

The contractor shall not without written sanction of the Engineer use for the execution of the work any materials plant or stores of any type of description other than those specified in his tender. He shall if required to do so or at his options, deposit samples, at the Office of the Engineer for approval and the Engineer shall within 14 days or the receipt of the samples, express in writing contract to his approval or otherwise of the samples deposited and all materials, plant and stores used in the execution of the work, must be in every away equal to the deposited samples. All the deposited samples will be returned to the contractor within one month of the work being takenover.

19. Deduction from contract Price :

The amount or all cost of work, expenses; or other sums which under the contract shall be payable by the contractor to the Governor of Gujarat from any moneys due or becoming due by him to the contractor under contract, without-prejudice to the Governor of Gujarat. right to recover the same by the ordinary process of law.

20. Terms of Payments :

Subject to any deduction which the Governor of Gujarat may be authorized to make under the contract, the contractor shall be entitled upon the certificate of the Engineer to the effect hereinafter stated **payments of R.A. Bills shall be made to contractor as per items, in measurable units executed according to the specifications.**

It at any time the contractor shall be prevented for any period of not less than 30 days from causes within the control of the Governor of Gujarat either first, from delivering on the site any plant or materials ready in India for delivery or secondly from proceeding with the erection at any plant or materials which he had already delivered on the site, the Governor of Gujarat shall bear the cost of storage and protection, including insurance in accordance the clause ii, of the plant and materials during such period in the first of such of contractor shall be entitled to payment of 80% of the value certified as aforesaid of the plant or materials delivery of which shall have been so prevented within one month from the date on which as certified by the Engineer such plant or materials are so ready as aforesaid provided that all portions thereof have been suitably and sufficiently marked as being property of the Governor of Gujarat and are delivered into the custody of some person approved by the Engineer who has granted a receipt thereof.

Instalments shall be due and payable by the Governor of Gujarat within one month from the date of each certificate of the Engineer.

21. Certificate of Engineer :

Every application to the Engineer for a certificate must be accompanied by a detailed claim in duplicate setting forth (in the order of the Schedule of price if any) particulars of the Plant or materials delivered and work executed to the date of the claim, and the certificate as to the plant and work mentioned in the claim as is in the opinion the Engineer in accordance with the contract shall be issued within 14 days of the application. No application for a certificate shall be made within 14 days previous applications.

22. Certificate not to affect rights of the Governor of Gujarat of contractor :

The Engineer may be any certificate make any correction or modification in any certificate previously issued by him any payment shall be regulated and adjusted accordingly, No certificate of the Engineer shall nor shall any payments on accounts by the Governor of Gujarat the Contractor, nor extension of time for the execution of the work by contractor which may be ranted by or behalf of the Governor of Gujarat affect or prejudice any of the lights, of the Governor of Gujarat against the contractor under or relieve him any of his obligations for or in respect of the due performance of the contract, or be interpreted as approval of work done or of materials supplied.

23. Suspension of work :

The Governor of Gujarat shall any to the contractor all proper expenses arising from suspensions of the work by order in writing of the Engineer or any other officer on behalf of the Governor of Gujarat unless such suspension is due of some default on the part of the contractor or any subcontractor under him.

24. Damages for delay in completion :

(i) If the Contractor fails to complete the work under contract by the stipulated date, he shall pay liquidated damages of Rs.0.1 percentage of the contract value per day from the date of delaying the said work up to the date of completion and banding over to the Government.

(ii) However also if the contractor fails to complete and part of the work Proportionate to by the time in relation to the value of such part, he shall pay Liquidated damages per day from the date of delaying the said part of the work up to the date of completion or the said designated part at the rates shown in the said schedule of the contract value of such part for such failure till the said designated part is completed.

(iii) The agree gate maximum of liquidated damages payable under this clause shall not exceed Rs. 0.1 percentage of contract value per day and shall be subject to the maximum amount of ten percent of the estimated amount put to tender.

(iv) Delays requiring payment of ten percent liquidated damages of the amount put to tender for performance shall be sufficient cause for termination of contract and for forfeiture of security deposite. (including amount of performance bond in forfeiture of works estimated to cost more than Rs. 15 lacs, for performance) and registration of the contractor shall also be kept in abeyance of three years form the date as fixed in all such cases.

24.A If the contract shall desire an extension of the time for completion of work on the ground of his having been unavoidably hindered in it execution or on any other ground he shall apply in writing to the Ex. Eng. before the expiration of the period stipulated in the tender or before expiration of 30 days from the date on which he was hindred as aforesaid on with the cause for making for extension occurred which ever is earlier and the Ex. Eng. may if in his opinion. There are reasonable and bona fide grounds for granting. And extension grant such extensions as the thinks necessary or proper. The decision of the Ex. Eng. in his matter shall be final.

No applications for extension of time for completion of work shall be considered unless it is received by registered post in the office of the Executive Engineer or left at his office and obtained receipt there of

duly signed by the Executive Engineer or his nominee authorized in this respect.
The date of receipt of application by the Executive Engineer, shall be considered as the date of application for the purpose of counting the period as mentioned above.

24.B "If the contractor or his workmen or servants shall break, deface injure or destroy and part of the building or the work in question in/or which they may be working or any building road fence, enclosure or glass-land or cultivated round contingence to the premises on which the work or any part there is being executed or if any damage shall be done to the work from any cause whatever before completion of the work or before the completion of the maintenance period whichever is later or any damages occurred caused due to normal flood or rain or if any imperfection become apparent in it within three months from the grant of a certificate of completion, final or otherwise by the Engineer-in-charge, the contractor shall make good the same at his own expenses or in default, the Engineer-in-charge may cause the same to be good by other contractor and deduct expenses (of which the certificate of the Engineer-in-charge shall be final) from any sums that may then be due or may thereafter become due to the contractor or from his security deposit or the proceeds of sale thereof a sufficient portion thereof".

24.C Force Major Clause :

Neither party shall be liable to the other for any loss or damage occasioned by or arising out of acts of God such as Unprecedented flood, Volcanic eruption, earthquake or other convulsion of nature and other acts such as but not restricted to general strike invasion, the acts of foreign countries, hostilities, or war like operations before or after declaration of war, rebellion military or usurped power which prevent performance of the contract and which could not have been foreseen of avoided by a prudent person.
Note : Unprecedented flood means *here flood crossing the Hi Flood Level of the past-year (s) which is on the available record. (Modified Vide R&BD.G.R. No. TNC-1096-IB-143-(16)-C dated 11-1-99)

25. Time of taking over :

The work shall for the purpose of all the provisions of these conditions be deemed to have been completed and taken over by the Governor of Gujarat when the Engineer, shall have certified in writing that it has been completed in accordance with the contract conditions and such certificate shall not be unreasonable withheld nor shall the Engineer delay its issue on account of commissions of defects which in his opinion do not effect the efficient use of work but such issue shall be without prejudice to the contractor's liability to make good any such omission and defects with the greatest possible expedition.

26. Death or Bankruptcy :

The if the contractor shall die or become insolvent or bankrupt or have a receiving order made against him or compound with or make on proposal carrying on his business under inspection or for the benefit of his creditors or commit and act of insolvency or bankruptcy, or being a corporation bordered to be wound up or have a received of its business appointed the Governor of Gujarat shall be entitled forthwith by notice in writing to the contractor his legal representative to determine the contract and the Governor of Gujarat may in that event complete the contract in such time and manner and by such person as he shall think fit.

27. Disputes to be referred to Gujarat Public Works Disputes Arbitration Tribunal :

The disputes relating to this contract in so far as they fall within the jurisdiction of Gujarat public works Disputes arbitration tribunal shall be referred to the said tribunal of Gujarat State.

However the reference to Arbitration Tribunal under this clause will not stay fulfilment of obligations of the contractor or rights of the Engineer-in-charge under this contracts, unless otherwise ordered to the contrary by the said Tribunal as Interim Relief measure.

(The following clause is to deemed included in this conditions only when Plant or Machinery is included in the contract.)

28. Contract Drawings :

The contractor shall submit to the Engineer for his approval on or before the dates stipulated for the purpose in the specification copies of all the drawings of the general arrangements of the plant as set out there in and of such detail drawings as may be reasonably necessary.

Within Fourteen days from the receipt, by him of such copies the Engineer shall signify his approval or otherwise of the same and if he does not do so he shall be doomed to have approved thereof. Within Fourteen days from the notification by the Engineer to the contractor of his approval such copies, or in the absence of such notification within-thirty days from the receipt of such copies, the copies in ink on tracing cloth, or Ferro Gallic prints mounted on cloth, of ail drawings as approved shall be supplied to the engineer by the contractor respective and shall there upon the signed by the contractor and become there property of the Governor of Gujarat.

Such signed copies of the drawing shall not be departed from in any way whatsoever except with

the written permission of the Engineer, during the execution of the works of the signed copies shall be always kept available for reference on the site.

In the event of the Contractor desiring to keep in his own possession a signed copy of the drawings as approved he shall supply three copies instead of two and in this case the Engineer shall sign the third copy and I return the same to the Contractor.

29. Manner of Execution, Quality of materials etc. :

The plant shall be manufacture, constructed, provided, put in position and maintain in-the best and most substantial and workmen like manner and materials of the best and approved qualities having regard to the respective uses.

30. Test on site :

In all cases where the special conditions are provided for tests on the site where there of plant materials on workmanship the Governor of Gujarat except where otherwise specifically stipulated shall provide free of charge such labour materials fuel stores, apparatus and instruments as may be requisitioned from time to time efficiently to carry out such tests in accordance with the condition.

Where electrical energy is required for tests on site and supply is available on the site form an existing installation such electrical energy shall be supplied to the contractor by the Govt. free of charge at the pressure and frequency of the ordinary supply is available the electrical energy necessary for such tests shall be provided by the contractor.

31. Delivery of plants & materials :

No. plant materials shall be tendered for delivery until and intimation is writing shall have been given to the contractor by the Engineer that Governor of Gujarat is ready to take delivery.

32. Tests on completion :

On the completion of the works on the site is accordance with the contract the contractor shall give the Engineer notice in writing of such completion. The Engineer shall after receipt of such notice by notice in writing under his hand for date and an hour on that date for the making of the test on site if any such are provided for the contract".

The contractor shall carry out such tests upon the date and at the hour so fixed and if the Engineer or his authorized representative shall attend on that date at that hours such test shall be carried out in the presence the Engineer or such representative.

If any portion of the plant fails under the tests to satisfy the contract conditions similar tests according to the contract of the portion so failing shall if required by the Engineer or by the Contractor be repeated within a time to be fixed by the Engineer and the provisions of this clause shall apply to such repeat 20 test as if they were the original tests and the contractor shall pay to the Governor of Gujarat all reasonable expenses to which he may be put by such test.

If the test or any repeated tests so required as aforesaid be not made by the contractor on the date fixed as aforesaid or the same by the Engineer may proceed to make such test himself at the contractor's risk and expense.

If in any test under this clause the plant tested shall fail to satisfy the contract conditions the Governor of Gujarat shall as from the date stipulated by the contract for completion nevertheless have the right of using such plant until the same shall satisfy such conditions and such Use shall be at the contractor's risk. In the event of the question whether the works have been completed in accordance with the contract or any question regarding such completion being submitted to Arbitration as any portion of the plant the Engineer may certify to be capable of being use on condition of paying to the contractor a sum calculated (according the period of the use) at the rate of 5 percent per annum upon the amount with held or deducted in respect of such plant.

33. Rejection of Defective Work :

If the works, or any portion thereof shall not the opinion of the Engineer on the stipulated tests (if any) being made is accordance with the contract satisfy the contract conditions, after the date of completion the engineer may give notice in writing to the contractor setting for the particular of the defects of particularts in respect of which the works in his opinion fail to comply with the contract conditions and requiring the contract to make good, after or replace the same within such time to be specified in the notice as the engineer may consider reasonable and the contractor shall make good, after or replace the same as required by such notice and such as to make it employ with the requirements of the contract condition within the time so specified. Should be he fail to do so within that the Governor of Gujarat may make good after of replace the same as so required any the cost of such making alteration good or replacement (less) in case of any replacement any such, which would have become due to the contractor under the contract in respect of the works replaced and which shall not have been paid to him shall be paid by the contractor to the Governor of Gujarat demand or should the Governor of Gujarat not make good after of replace any defective works in respect of which notice as aforesaid shall be given within six weeks from the date of the given of such notice the contractor shall

repay the Governor of Gujarat all sums (in any) paid by him to the contractor in respect of such works. Nothing contained in this clause shall prejudice or affect the rights of the Governor of Gujarat under the contractor whether in the way of enforcement of penalties of otherwise in respect of any delay in the completion of this work.

34. Use of plant of works pending making good :

If at expiration of the time specified for making good, altering or replacing the plant of works in any notice given by the engineer to the contractor under the last proceeding clause the contractor shall not have duly made good. altered or replaced the same in accordance with the contractor the Governor of Gujarat shall be at liberty if he thinks fit to make use of the same for such time as shall be reasonably sufficient according to the circumstances enable him, to make good after or replace the same (whichever he may see fit to do) provided that in respect of the period of such user, the Govt. of Gujarat shall not be entitled to any damages under clause 24 of these conditions land in the case of complete replacement the contract shall be entitled to be paid reasonable sum for same.

35. Workmen's compensation in case of injury :

The contractor shall be responsible for any compensation and shall pay to his workmen compensation payable for injuries under the workmen's compensation Act 1923 (VIII of 1923) hereinafter called the said Act. If such compensation is paid by Government as principal under sub-section. (1) of section 12 of the said Act, on behalf of the contractor. It shall be recoverable by Government from the contractor under sub section (2) of the said section such compensation shall be recovered in the manner laid down in clause 3 and 19 of the condition of contract.

36. The Apprentices :

The contractors shall afford or procure as the case may be every facility to Indian apprentices for practical training in the factory.

Owned managed controlled or patronized by them so as to enable the Indian apprentices to acquire full knowledge of the technique and work of their trade industry calling or profession.

37. Set off Clause :

Any sums of money due to the contract (including the security deposit returnable to the contractor under this contract shall be appropriated by the Government and shall be set off against any claim of the Government for the payment of such of a money arising out of or under any other contract made by the contract with the Government. When no such amount for purpose of the recovery form the contract against any claim of the Government is available such a recovery shall be made from the contractor as arrears of land revenues.

38. Appointment of Local Labourers :

The contractor should as far as possible obtain the requirement of labourers skilled and unskilled from the nearest employment exchanges so as to utilize the local employment potential. If there are no local employment exchange or such exchanges are not able to provide the required labourers locally. suitable local labours should be utilized to the maximum extent possible.

39. Fair wages :

If a contractor fails to pay within 7 (seven) days to the labours(s) worker(s) the minimum wages prescribed by the Government under the minimum wages Act.1949 as in force from time to time the Executive Engineer or the officer of a equal rank shall be at liberty to deduct the amount payable to the labourer(s) workers form his (contractor's) bill or deposit(s) payable by the contract after making due inquiries and shall not be entitled to any payment or compensation on account of any loss that he (contractor) may have to incur of the action as aforesaid. Before the action as aforesaid is enforced notice in writing to the contractor shall be issued by the Executive Engineer or the officer of the equal rank to pay the wages as per minimum wages Act enforce at the relevant time. If the contractor does not act as aforesaid within seven days then the action contemplated as above shall be taken against him.

40. License for contract labour :

Before starting the work, the contractor will have to obtain the licence from the District Assistant Labour Commissioner under the Contract Labour (Regulation and Abolition) Act, 1970 and contract Labour (Regulation and Abolition) Gujarat Rules 1972 after paying necessary fees and deposit on the basis of the number of labourers to be employed on the work and will have to supply two true copies of the said licence to the Deputy Executive Engineer before the work is started.

41. Deduction of GST from bills:

The following tax deduction shall be made from each bill payable to the contractor (1) 1% of the value of amount payable towards SGST. (2) 1% of the value of amount payable towards CGST. TDS

certificate for taxes deducted will be issued to the contractor (F.D.G.R. No GST/1017/1097/GST Cell dated 15-09-2018)

Signature of contractor/s

Executive Engineer.
Division

SCHEDULE 'A'

Schedule showing (approximately) the materials to be supplied from the Public works Store for work Contracted to be executed and the rates at which they are to be charged for

Particulars	Approximate quantity	Rate at which the materials will be charged to the contractor unit Rate in Rupees.		Place of delivery
1	2	3	4	5
		Unit	Rate in Rupees	

Note : 1. The person or firms submitting the tender should see that the rates in the above schedule are filled up by the Engineer-in-charge before the issue of the form prior to the submission of the tender.
Note : 2. Store to be supplied to contractors for a work free of cost should be mentioned in Schedule 'A' in addition to schedule 'B' and the specification attached to the contract agreement form.

Signature of contractor/s

Executive Engineer.
Division

SCHEDULE 'B'

Memorandum showing items of works to be carried out :

(For works Estimated below Rs. 5 lakhs)

Items No.	Quantities estimated but may be more or less	Item of work	Estimated Rates		Unit	Total amount according to estimated quantities
			In figures Rs. Ps.	Inwords		
1	2	3	4	5	6	7
---	**AS PER**	**ATTACHED**	**SEPERATE**	**SHEET**	**-----**	**---------**

I/We am/are willing to carry out the work at ..... % above/below percent (should be written in figures and words) of the estimated rates mentioned above. Amount of my/our tender works out as under

* Estimated amount	* Estimated amount
Put to tender Rs.....	Put to tender Rs. .....
Deduct :.....% below Rs.....	Add.....% above Rs.....
Net Rs.....	Total Rs.....
In words.....	In words .....

* (Please strike out whichever is not applicable)

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 columns is Schedule should be filled in ink and the total of the entries in the last Column should be struck be 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, weather etc.

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

Signature of Contractor	

SCHEDULE 'B'

Memorandum showing items of works to be carried out :

(For works Estimated above Rs. 5 lakhs)

Items No.	Quantities estimated but may be more or less	Item of work	Terendered Rates		Unit	Total amount according to estimated quantities
			In figures Rs. Ps.	Inwords		
1	2	3	4	5	6	7
---	**AS PER**	**ATTACHED**	**SEPERATE**	**SHEET**	**-----**	**---------**

(A) Total Tendered amount Rs.....

(B) Rebate on above tendered amount (if any).....% (in figure) Rs.....
.....(in words)

(C) Net tendered amount (A - B) Rs.....
In words (Rupees.....)

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

Note 2 - 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, weather etc.

Signature of contractor/s

Executive Engineer.
Division

SPECIFICATIONS FOR ELECTRICAL WORKS IN GOVERNMENT BUILDINGSUBJECT TO THE GENERAL CONDITION OF CONTRACT IN FORCE (1986)

GENERAL

1. Wirings Rule :

The installation generally shall be carried out in conformity with relevant Indian standard. Specification and code of practices prevalent, Indian Electricity Rules, 1956 and Indian Electricity Act. 1910 as amended from time to time.

2. Definition :

The definition of terms shall be in accordance with Indian standard code of Practice for Electrical wiring installation IS-732-1982 except for the definition of point in case of internal Electrical Installation. For definition of point wiring and measurement of Electrical works IS-5908-1970 shall be referred to.

3. Voltage and Frequency of supply :

All current consuming devices shall be suitable for frequency of 50C/s and systems of voltage meant for unless otherwise specified.

4. Layout of wiring and its description :

(i) The wiring shall be carried out as per schedule "Power" wiring must be in screwed conduit and shall be kept separate and distinct from lighting wiring. All wiring must be done on the distribution system with main and branch distribution boards at convenient centers and without isolated fuses. All conductors shall be run as far as possible along the walls and ceiling as to be easily accessible and capable of being thoroughly inspected. The balancing of circuits will be arranged before hand by the Ex. Engineer Electrical Division.

(ii) Within one month of the taking over the installation, the contractor shall supply to the Ex. Engineer Elect. Division a complete set of wiring diagrams of the same on drawings to be supplied when available by the Executive Engineer Electrical Division and to the satisfaction of the Ex. Engineer, Elect. Dept. and these wiring plans shall be "Drawings" within the meaning of the term as used in the General conditions of contract.

5. Conductors :

All conductors unless otherwise specified shall not be less than 1.5 sq. mm. for point wiring and 2.5 sq. mm for mains conductors for power and lighting circuits shall be of adequate size to carry the designed circuit load without exceeding the permissible thermal limits for the installation, and such sizes will be stipulated in specifications and or drawings.

6. Cables :

6.1 All cables shall conform to relevant Indian Standards.

6.2 Conductors of all cables except the flexible cable shall be of alluminium. The smallest aluminum conductor for the final circuit shall have nominal cross sectional area of not less than 1.5 sq. mm. The minimum size of the aluminum conductors for power wiring shall be 4 sq. mm.

6.3.1 Conductors of flexible cables shall be of copper the minimum cross sectional area of such a cables shall be 14.0193 mm. the Flexible cable shall have uniform and adequate insulation.

6.3.2 Unless the flexible cables and conductors are protected by armounr or though rubber of PVC Sheath, theses shall not be used in workshops and other places where they are liable to mechanical damage.

6.3.3 Core flexible cables shall be used for connecting single phase Appliances for phase, natural & earth connections.

7. Fall of Potential :

The Cross sectional area of all conductors inside buildings shall be so proportioned to their lengths that the drop in voltage between main fuses and the farthest point or any lamp shall not exceed three percent of the voltage of the consumer's with all the consuming devices in use.

7.1 If the Cable Size is increased to avoid the voltage drop in circuit current rating of the cable shall be more than that for which circuit is designed. In each circuit or sub circuit or sub circuit every cable shall have current rating not less than that of the fuse whichprotects the circuit or sub circuits respectively for current higher than the full load current.

8. Ratings of lamps and fans socket outlets : Points and exhaust fans

8.1 Incandescent lamps installed in residential and non-residential buildings shall be rated at 60 watts & 100 watts respectively.

8.2 Table fans and ceiling fans shall be rated at 60 watts, exhaust fan shall be rated according to their capacity

8.3 5Amp. Socket outlet points and 15Amp. Socket outlet points shall be rated at 100watts and 1000 watts respectively for the purpose of load assessment unless actual values of the load are, know or specified.

9. Tests :

9.1 Before the installation is commissioned following tests shall be carried out.

(1) Insulation Resistance Test.
(2) Polarity Tests of Switches
(3) Earth continuity tests
(4) Earth electrodes Resistance test.

9.2

9.2.1.1 The insulation Resistance shall be measured between earth and the whole system of conductors or any section there of with all fuses in place and all switches closed, and except in earthed concentric wiring all lamps in position or both poles of installation otherwise electrically connected together. A direct current pressure of not less than twice the working pressure provided that it need not exceed. 500 volts for medium voltage circuits where the supply is derived from three wire D.C or a ploy phase A.C. system, the neutral pole of which is connected to earth either direct or through added resistance, the working pressure shall be deemed to be that which is maintained between the phase conductor and the neutral.

9.2.1.2 The insulation resistance shall also be measured between all conductors to one pole or phase conductor of the supply and all the conductors connected to the neutral or to the order pole or phase conductors of the supply with all lamps in position and switches in "OFF" position and its value shall be not less than in that specified in sub-clause 9.2.1.3.

9.2.1.3 The insulation resistance in Mega-ohms measured as above shall no be less than 50 mega ohms divided by the number if outlet or when PVC insulated cables are used for wiring 12.5 mega ohms divided by number of outlets.

9.2.1.4 Where a whole installation is being tested a lower value than that given by the formula subject to a minimum of 1 mega ohm is acceptable.

9.2.1.5 A preliminary and similar test may be made before lamps, ect., . are installed and in this event the insulation resistance to earth should be not less than 100 mega ohms divided by the number of outlet or when PVC insulated cables are used for wiring 25 mega ohms divided by number of outlets.

9.2.1.6 The term "Outlet" includes every switch except that a switch combined with a socket outlet appliance or lighting, fitting is regarded as one outlet.

9.2.1.7 Control rheostat heating and power appliance and electric sign may, if required, be dis-connected from the circuit during the test, but in that event the insulation resistance between the case or frame work, and all live parts of each rheostat, appliance and sign, shall be not less than that specified in the relevant Indian Standard Specification or where there is no such specification shall be not less than half a mega ohm.

9.2.2 Polarity Test :

9.2.2.1 In a two wire installation a test shall be made to verify that all switches in every circuits have been fitted in the same conductor through out & such conductor shall be labelled or marked for connection to the phase conductor or to the non-earthed conductor of the supply.

9.2.2.2 In a three wire or a four wire installation a test shall be made to verify that every non-linked single pole switch is fitted in a conductor which is labeled or marked for connection to one of the phase conductor of the supply.

9.2.2.3 The installation shall be connected to the supply for testing. The terminate of all switches shall be tested by a test lamp one lead of which is connected to the earth. Glowing of test lamp to it's full brilliance when the switch is in on position irrespective of appliance in position or not shall indicate that the switch is connected to the right polarity.

9.2.3 Earth Continuity Test :

The earth continuity conductor including metal conduits and metallic envelops of cables in all cases shall be tested for electric continuity and the electrical resistance of the same along with the earthing lead but excluding any added resistance or earth leakage circuit breaker measured form the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

9.2.3.1 **Earth Electrode Resistance Test :**

Earth electrode Resistance test may be carried out by magger Earth Testers containing a direct reading ohmmeter, a hand driven generator and auxiliary electrodes.

9.3 On completion of an electric installation (addition and alteration) a certificate shall be furnished by the contractor countersigned by the certified Supervisor under whose direction supervision the installation was carried out. This certificate shall be in the prescribed form as given in Appendix-B in addition to the test certificate required by Local Electrical Supply Authorities.

10. Joint and looping back :

Unless with the sanction of Ex. Engineer, Electrical Divisions all joints in conductor shall be means of approved mechanical connectors in suitable and approved junction boxes but looping back system shall be preferable.in wiring unless otherwise specified phase and live conduct shall be looped at the switch box where a neutral conductor can be looped from light, fan or socked in non-residential buildings neutral and earth continuity wire shall be brought to each of 'the switch boards should be of adequate size to accommodate at least one number of 5 Amps, socket outlet and control switch in future.

11. Switches :

Main Switchgears, Switch Board and their location :

11.1 All main switches (other hart lose of iron clad pattern) carrying current of 10 Amp. and above shall be twitted for back connections and shall be suitably protected.

11.2 AH switches and circuit breakers shall be constructed in accordance with the I.S. 4237-1967. General requirement for switchgear and control gear for voltage not exceeding 1000 volts and other relevant I.S. provided also that spring shall be either of phosphor bronze or if steel shall be copper or Nickel plated and that handle shall the so fastened that they do not tend to unscrew or become boss.

11.3 All main switches shall be either of metal cad enclosed pattern of any insulated enclosed pattern which shall be fixed at close proximity to the point of entry of supply.

11.4 Switch boards shall not be erected above gas, stoves, sinks or within 2.5 m of any washing unit in the washing rooms of laundries or in the bath rooms, lavatories, toilets or kitchens.

11.5 Switch boards, if unavoidably fixed in places likely to be exposed to weather, to drip or to abnormal moise temperature the outlet casing shall be weather proof and shall be provided with glands or bushing of adopted to receive screwed" conduit according to the manner in which cables are run PVC and double flanged bushes shall be fitted in the holes of the switches for entry and exit of wires.

11.6 A Switch board not be installed so that its bottom is within 1.25 m above the floor unless the front of the switch board completely enclosed by a door or the switch board is located in a position to which only authorized persons have access.

11.7 Switch boards shall be recessed in the wall if so specified in the schedule of work or in the special specification. The front shall be fitted with hinged panel of other suitable material such as bakelite in wood frame with locking arrangement, the outer surface of door being flush with the walls. Ample room shall be provided at the back for connections and at the front between the switchgear mountings and the door.

11.8 Equipments which are on the front of a switch board shall be so arranged that inadvertently personal contact with live parts is unlikely during the manipulation of switchgears. changing of fuses or like operations.

11.9 No holes other than the holes by means of which the panel is fixed shall be drilled closer than 1.3 cms from any edge of the panel.

11.10 The various live parts, unless they are effectively screend by substantial barriers of non-hydroscopic, inflammable insulating material, shall be so spaced that space shall not be maintained between such parts and earth.

11.11 The arrangement of gear shall be such that they shall be readily accessible and their connections to all instruments and apparatus shall also be traceable.

11.12 In every case in which switches and fuses are fitted on the same pole, these fuses shall be so arranged that the fuses are not alive when their respective switches are in the off position.

11.13 No fuses other than fuses in instrument circuit shall be fixed on the back of or behind a switch board panel of frame.

11.14 All the metal switchgears and switch boards shall be painted, prior to erection with one coat of antirust primer, After erection they shall be painted with two coats of approved enamel or aluminum paint as required on all sides wherever accessible.

11.15 All switch boards connected to medium voltage and above shall be provided with "Danger Notice Plate" conforming to relevant Indian Standards.

12. Control at Point of Commencement of Supply :

12.1 There shall be a linked man switchgear with fuse on each live conductor of the supply mains at the point of entry. The wiring through out the installation shall be such that there is no break in the natural wire except in the form of the linked switchgear the neutral shall also be distinctly

marked. In this connections Rule 32(2) of the Indian Electricity Rules, 1966 (See Appendix-A_ shall also be referred.

12.2 The main switchgear shall be situated as near as practicable to be termination of services line and shall be easily accessible without the use of any external aid.

12.3 On the main switchgear, where the conductor of a two wire system or an earthel neutral conductor of a multi wire system or a conductor which is to be connected thereto, an indication of a permanent nature shall be provided to identify earther neutral conductor. In this connection Rule 32(1) of Indian Electricity Rules, 1956 (see appendix 'A') shall be referred.

13. Switch Board & Distribution Boards :

Metal clad switch gear shall preferably be mounted on any of the following types of Board.

13.1 **Hinged type Metal Board :**

There shall consist of a box made of sheet metal not less than 2 mm thick and shall be provided with a hinged cover to enable the board to swing open for examination of the wiring at the back. The joints shall be welded. A teak wood board, thoroughly protected both inside and outside with good insulating varnish conforming to IS : 347-1952 specification for varnish shellac for General purpose and of not less than 6.5 mm thickness shall be provided at the back for attachment of incoming and outgoing cables. There shall be a clear distance of not less than 2.9 cm between the teak wood board and the cover, the distance being increased for larger boards in order that on closing of the cover, the insulation of the cables in not subjected to damage and no shoat length of cables is subjected to excessive twisting or bending in any case.

The board shall be security fixed to the wall by means of rag bolts, plugs or wooden Gutties and shall be provided with a locking arrangement and an earthing stud. All wires passing through the metal board shall be bunched. Alternatively, hinged type metal boards shall be made of sheet covering mounted on channel or angle iron frame.

Note : Such type of boards are particularly suitable for small switch-boards for mounting metal-clad switchgear connected to supply at low voltages.

13.2 Fixed type Metal Boards :

These shall consist of an angle or Channel of iron frame fixed on the wall or on floor and supported on the wall at the top if necessary. There shall be a clear distance of one metre in front of the switch board. If there are attachments of base connections at the back of the switch board Rules 51(1)c) of Indian Electricity Rules, 1956 shall apply

NOTE : Such type of boards are particularly suitable for large switchboard for mounting large number of switchgears or higher capacity metal clad switchgears of both.

13.3 **Teak wood Boards :**

For small installation connected to a single phase 230 volts supply teak wood boards may be caused as main boards or sub-boards. These shall be of seasoned teak or other durable wood with solid back impregnated with varnish of approved quality with all joints dovetailed.

13.4 In large size medium voltage installations, before proceeding with the actual construction of the boards, a proper drawing showing the detailed dimensions and design including the disposition of the mounting a which shall be symmetrically and neatly arranged for arriving at the overran dimensions shall be prepare and approved by the engineer-in-charge.

13.5 **Recessing of Boards :**

Where so specified the switch boards shall be recessed in the wall. The front shall be fitted with a hinged panel of teak wood or other suitable materials, such as bakelite, or with unbreakable glass doors in teak wood frame with locking arrangement, the other surface off the doors being flush with the walls, ample room shall be provided at the back for connection and at the front between the switchgear mountings.

13.6 **Arrangement of Apparatus :**

a) Equipment which is on the front of a switch board shall be so arranged that inadvertently personal contact with live parts is unlikely during the manipulation of switches, changing of fuses or like operation.

b) No apparatus shall project beyond any edge of panel. No fuse body shall be mounted within 2.5 cm of any edge of the panel and no hole other than holes by means of which the panel is fixed shall be drilled closer than 1.3 cms from any edge of the panel.

c) The various live parts unless they are effectively screened by substantial barriers of non-hydroscopic, non inflammable insulating material, shall be so spaced that an are cannot maintain between such parts and earth.

d) The arrangement of the gear shall be such that they shall be readily accessible and their connection to all instruments and apparatus shall also be easily traceable.

e) In every case in which switches and fuses are fitted on the same pole, these fuses shall be so arranged that the fuses are not alive when their respective switches are in the 'OFF' position.
f) No fuses other than fuses instrument circuit shall be fixed on the back of or behind a switchboard panel or flame.

13.7 **Marking of Apparatus :**

a) Where a boards is connected to voltage higher than 250 volts, all the apparatus mounted on it shall be marked in the following colours to which the apparatus or its different terminal may have been connected.

Alternating Current	**Direct Current**
Three-phase-red	Three wire system-2 otherwise
Yellow & blue	Positive red & negative blue
Natural-black	Natural-black

Where fuse-wire three phase wiring is done, the neutral shall be in one colour and the other three wires in another colour

b) Where a board has more than one switch shall be marked to indicate which section of the installation it controls)
c) All markings required under the rule shall be clear permanent.

13.8 **Main & Branch Distribution Board :**

13.8.1 Main and branch distribution boards shall be any type mentioned in 13.1, 13.8.1. Main and branch distribution boards shall be of any type mentioned in 13.1

13.8.2 Main distribution boards shall be provided with a switch or air circuit breaker on each pole of each circuit, a fuse on the phase or live conductor and a link on the neutral or earthed conductor of each circuit. The switches shall always be linked.

13.8.3 Branch Distribution Board :

13.8.3.1 Branch distribution boards shall be provided with a fuse of a miniature circuit breaker of both the (adequate rating-setting chosen on the live conductor of each circuit and the earthed neutral conductor shall be connected to a common line and be capable of being disconnected individually for testing purposes. At least one spare circuit of the same capacity shall be provided on each branch distribution board.

13.8.3.2 In residential installations, lights and fans may be wired on a common circuit such sub circuit shall not have [more than total after points of lights, fans and socket outlets/The load of such circuits shall be restricted to 800 watts. If a separate Fan circuit is provided the number of fans in the circuit shall not exceed ten. power sub-circuits shall be designed according to the load but in no case shall there be more than two outlets on each sub-circuits

13.8.3.3 In industrial an other similar installations requiring the use of group control of switching operation, circuits, for (socket outlets may be kept separate from fans and lights. Normally fans and lights may be wired on a common circuit, however, if need is felt separate circuits may be provided for the two. The road on any low voltage sub circuit shall not (exceed 3000 Watts.) In case of new installation, all circuits and sub-circuits shall be designed by making provision of 20 (percent increase in load due to any future modification. Power sub-circuits shall be designed according to the load but in no case shall there be more than four outlets in each sub-circuits

13.9 **Installation of Distribution Boards :**

13.9.1 The distribution fuse-boards shall be located as near as possible to the centre of the load they are intended to control.

13.9.2 These shall be fixed on suitable stanchion or wall and shall be accessible for replacement of fuses.

13.9.3 These shall be of either metal-clad type, or all insulated type. But if exposed to weather or damp situations, they shall be of the weather proof type and if installed where exposed to explosive dust, vapour or gas, they shall be of flame proof type

13.9.4 Where two or more distribution fuse boards feed low voltage these distribution boards shall be
(1) Fixed not less than 2 m apart or
(2) Arranged so that it is not possible to open two at a time, namely they are interlocked and the metal case is marked Danger 415 volts or
(3) installed in a room or enclosure accessible to only authorized person.

13.9.5 All distribution boards shall be marked lighting, power as the case may be and also marked with the voltage and number of phases of the supply Each shall be provided with a circuits list giving details of each circuit which it controls and the current rating of the circuit and size of fuse element.

13.9.6 Triple pole distribution boards shall not be generally used for final circuit distribution unless specification approval of Engineer-in-charge is obtained in special cases where use of Tripple pole distribution boards are inevitable they shall be of H.R.C. fuse type only.

13.10 **Wiring and Distribution Board :**

13.10.1 In wiring a branch board, total load of the consuming devices shall be divided as far as possible, evenly between the number of ways of the boards leaving the spare circuit for future extension.

13.10.2 All connections between pieces of apparatus or between apparatus and terminals on a board shall be neatly arranged in a definite sequence following the arrangement of the apparatus mounted thereon, avoiding unnecessary crossing.

13.10.3 Cables shall be connected to a terminal only by soldered or welded or crimped lugs using suitable sleeve, lugs or ferrules unless the terminal is such a form that it is possible to securely clamp them without the cutting away of cable strands.

13.10.4 All bare conductor shall be rigidly fixed in such a manner that a clearance of at least 2.5 cms. is maintained between conductor of opposite polarity or phase and between the conductors any material other than insulating material.

13.10.5 If required a pilot lamp shall be fixed and connected through on independent single-pole switch and fuse to the bus-bars of the board.

13.10.6 In a hinged type board, the incoming and outgoing cables shall be fixed at one or more points according to the number of cables on the back of the board leaving suitable space in between cables and shall also, if possible be fixed at the corresponding points on the switch board panel. The cables between these points shall be arranged to form a "U" or "S" shaped loop which shall be of such length as to allow the switchboard panel to swing through an angle of not less then 90

14. Capacity of Circuits :

14.1 Lights and fans may be issued on a common circuits and such a circuit shall not have more than a total of ten points of lights, fan and socket outlets or a load of 800 watts whichever is less. The power circuits shall be designed with a maximum of two outlets per circuits generally when load is not known or specified. In non-residential buildings at important District centers however one outlet per circuit may be preferred. The circuit shall be designed based on the loading of the Circuit where not specified the load shall be taken as 1 kw per outlet, where the load is more than 1 kw it should be controlled by a isolator switch or miniature circuit breeder.

15. Passing Through walls and floors :

15.1 Where conductors pass through walls one of the following methods shall be employed. Care shall be taken to see that wires pass very freely through protective pipe of box and that the wires pass through in a straight line without any twist of cross in wires, on other ends of such holes.

(a) A teak wood box extending through the whole thickness of the wall shall be buried in the wall and casings or conductors shall be carried so as to allow 1.3 cms air space on three sides, of the casing conductor.

(b) The conductor shall be caned either in a rigid steel conduit conforming to *IS : 1653-1964 specification for Rigid Steel conduits of Electrical wiring (Revised) or a rigid non - metallic conduit conforming to *IS : 2509-1963 specification of Rigid Non-Metallic conduits for Electrical Installations, or in a porcelain tube of such size which permits easy drawing in. The end of conduit shall be neatly bushed with porcelain, wood or other approved material.

(c) Insulated conductors while passing through floors shall be protected from mechanical injury by means of rigid steel conduit (see *IS 1653-1964) to a height not less than 1.5 m above the floors and flush with the ceiling below. This steel conduit shall be earthed and securely bushed.

15.2 Where a wall tube passed outside a building so as to be exposed to weather the outer end shall be belt mounted and turned downwards and properly bushed on the open end.

16. Fixing to Walls and Ceilings :

Plugs for ordinary walls or ceilings shall be of while seasoned teak or other approved hardwood not less than 5 cm long 2.5 c.m. square on his inner end and 2 c.m. square on the outer end. They shall be cemented into walls to within 7.5 mm of the surface, the remaining being finished according to the nature of the surface with plaster of lime punning.

16.1 Where owing to irregular crossing or other reasons the plugging of the walls or ceiling with wood plugs presents difficulties, the wood casing wooSd pattern, metal conduit or cleat (as the case may be) shall be attached to the wall or ceiling in an approved manner in the case of new building wherever possible teak wood plugs shall be fixed in the walls before they are plastered.

16.2 To achieve neatness, plugging of walls or ceiling may be done by an approved type of asbestos metallic or a fiber fixing plug.

17. Branch Switches :

Where the supply is derived from a three-wire of four-wire source, and distribution is done on the two wire system all branch switches shall be placed in the outer or live conductor of the circuit and no single-phase switch or use shall be inserted in the middle wire, earth or earthed natural

conductor of the circuit. Single pole switches (Other than for multiple control) Carrying not more than 15 amperes any be of tumbler type which shall be 'ON' when the handle known is down.

18. Fittings :

Where conductors are required to be threaded through tubes or channels formed in the metal work of fittings this must be free form sharp angles or projecting edges and such size that will enable them to be wired with the conductors used for the final sub-circuits without removing the boarding taping or outer covering as far as possible all tubes and channels should be of sufficient size of permit 'Looping bank' of wires cables and flexible cords other than those designed for high temperature shall not be used for wiring fittings except for portable fit limits. All fittings must have not less than a half inch male nipple Fittings and lamp holders for gas filled lamps shall be adequately ventilated.

18.1 Where light fitting is supported by one or more flexible cords the maximum weight to which the twin flexible cords may be subjected shall be as follows.

Nominal cross sectional Area cord mm2	No. & Dia in mm of wires.	Max. Permissible weight Kg.
0.5	16/0.2	1.7
0.75	24/0.2	2.6
1.0	32/0.2	3.5
2.5	48/0.2	5.3
3.5	80/0.2	8.8
4	128/0.2	14.0

18.2 No inflammable shade shall form a part of light fitting unless such shade is well protected against all risks or fire. Celluloid shade or light fitting shall not be used under any circumstances.

18.3 Fitting of wire :

The use of fitting wire shall be restricted to the internal wiring and the lighting fittings. Where fitting wire is used for wiring, for the sub-circuit loads shall be terminated in a ceiling zone or connector from which they shall be carried into the fittings.

19. Lamp Holders :

Lamp holders for use on brackets and the like shall be in accordance with *IS : 1258-1967 specification for Boyonet lamp holders and all those for use flexible pendants shall be provided with cord grips. All lamp holders shall be provided with shade carriers. Where centre contact Edison screw lamp holders are used, the outer or screw contacts shall be connected to the middle wire, the natural and the earthed conductor of the circuit.

20. Outdoor Lamps :

External and road lamps shall have weather proof fittings of approved design so as to effectively prevent the admission of moisture. An insulating distance piece of moisture proof materials shall be inserted in the fittings. Flexible cord and cord grip lamp holders shall not be used where exposed to whether in veranda's and similar exposed situations where pendants are used, they shall be of fixed rod type

21. Lamps :

All incandescent lamps, unless otherwise required an suitable protected, shall be hinge at a height of not less than 2.5 m above the floor level. They shall be in accordance with IS : 418 : 1957 specification for Tongsten Filament General Service electric lamps

22. Fans, Regulators and Clamps

22.1 **Ceiling fans :**

Ceiling fans including their suspension shall conform to *IS 374-1960 specification for electric ceiling fans and regulators (Revised) & to the following requirements

(a) All ceiling fans shall be wired to ceiling rouses or to special connector boxes to which fans rod wires shall be connected and suspended from books or shackles with insulators between hooks and suspension rods. There shall be no joint in the suspension rod. but if joints be avoidable then such joints shall be screwed to special couplers of 5 cm minimum length and both ends of pipes shall touch together within couplers and shall in addition be secured by means of split pins alternatively the two pipes may be welded.

(b) Fans clamps shall be of suitable design according to the nature of construction of ceiling on which these clamps are fitted in all cases fan clamps shall be fabricated from tested new metal of suitable sizes and they shall be as close fitting as possible Fan clamps for rainforced concrete roots shall be buried with the casting and due care shall be taken that they shall serve the purpose. Fan clamps for wood beams shall be of suitable flat iron fixed on two sides of the beam

and according to the size and section of the beam one or two mild steel bolts passing through the beam shall hold both flat irons together Fan clamps for steel join shall be fabricated from tested flat iron to fit in rigidly to the bottom flange of the beam. Care shall be taken during fabrication that the metal does not crack while hammering to shape. Other fan clamps shall be made to suit the position, but in all cases care shall be taken to see that they are rigid and safe.

Note : All fan clamps shall be so fabricated that fans revolve steadily.

(c) Canopies on top and bottom of suspension rod shall effectively hide suspensions and connections to fan motors, respectively.

(d) The lead-in wire shall be of nominal cross-sectional are a not less than 1.0 sq mm with copper and 1.5 sq mm with aluminium and shall be protected from abrasion.

(e) Unless otherwise specified the clear distance between the ceiling fan and the floor shall be less than 2.75 m

22.2 Exhaust Fans :

For fixing of an exhaust fan a circular hole shall be provided in wall to suit the size of the fan which shall be fixed by the means of rag-bolts embedded in the wall the hole shall be neatly plastered with cement and brought to the original finish of the wall. The exhaust fan shall be connected to exhaust fan point which be wired as neat to the hole as possible by means of a flexible cord, care being taken that the blades in the proper direction.

23. Attachment of fittings and accessories :

23.1 In other than conduit wiring all ceiling crosses, brackets, pendants and accessories attached to watts or ceiling shall be mounted on substantial teak wood block twice Varnished after all fixing holes are made in them. Blocks shall be not less than 4 cms deep. Brass screws only shall be used for attaching finings and accessories to their base blocks.

24. Interchangeability :

Similar part of all switches, lamp holder, distribution, fuse board, ceiling rouses, brackets, pendants, fans and all other fittings of same type shall be interchangeable in each installation.

25. Conduit Wiring System :

25.1.1 **Type and size of conduit** - All conduit pipes shall be conforming to *IS : 1653-1964, furnished with galvanised or stove enamelled surface. All conduit accessories shall be of threaded type and under no circumstances pin grip type or clamp type accessories be used. No steel conduit less than 16 mm in diameter shall be used. The number of insulated conductors that can be drawn into rigid steel conduit are given in Table II.

25.1.2 **Bunching of cables** - Unless otherwise specified, insulated conductors of AC supply and DG supply shall be bunched in separate conduits.

25.1.3 Conduit-Joints-Conduit pipes shall be joined by means of screwed couplers and screwed accessories only (*IS : 2667-1964)

Specification for Fittings for Rigid Steel Conduits for Electrical Wiring. In long distance stance straight runs of conduit inspection type couplers at reasonable intervals shall be provided or running threads with couplers and jam-puts (in the latter case the bare threaded portion shall be treated with anti - corrosive preservative) shall be provided. Thread on conduit pipes in all cases shall be between 11 mm to 27 mm long sufficient to accommodate pipes to full thread portion of couplers or accessories. Cut ends of conduit pipes shall have no sharp edges nor any or buries left to avoid damage to the insulation of conductors while puling them through such pipes.

TABLE-II MAXIMUM PERMISSIBLE NUMBER OF 250-V GRADE SINGLE CORE CABLES THAT CAN BE DRAWN INTO RIGID STEEL CONDUIT

(CLAUSE 6.5.1.1)

Size of cable		Size of conduit(mm)													
Nominal Cross sectional area	Number and Diameter in mm of wires	16		20		25		32		40		50		63	
		(No. of cable Max)													
		S	B	S	B	S	B	S	B	S	B	S	B	S	B
1.0	1/1.12	5	4	7	5	13	10	20	14	-	-	-	-	-	-
1.5	1/1.40	4	3	7	5	12	10	20	14	-	-	-	-	-	-
2.5	1/1.80	3	2	6	5	10	8	18	12	-	-	-	-	-	-

4	1/1.24 (3/1.06*) (7/0.85)	3	2	4	3	7	6	12	10	-	-	-	-	-	-
6	1/2 .80 (7/1.06*)	2	-	3	2	6	5	10	8	-					
10	1/3.55+	-	-	2	-	5	4	8	7	-	-	-	-	-	-
	7/1.40*	-	-	2	-	4	3	6	5	8	6	-	-	-	-
16	7/1.70	-	-	-	-	2	-	4	3	7	6	-	-	-	-
25	7/2.24	-	-	-	-	-	-	2	-	4	3	7	6	9	7
35	7/2.50	-	-	-	-	-	-	-	-	2	-	5	4	6	5
50	7/3.00+	-	-	-	-	-	-	-	-	2	-	5	4	6	5

* For Cu. Conductors only
+ For Al Conductors only

Note-1 The cable shows the maximum capacity of capacity for the simultaneous drawing-in of cables. The table applies to 250 volts grade able the columns heads 'S' apply to runs of conduit which have distance not exceeding 4.25 M between draw in boxes and which do not deflect from the straight by angle of more than 15^0. The columns headed 'B' apply to runs of conduit which deflect from the straight by angle more than 15^0.

Note-2 In case of inspection type draw-in-box has been provided and if the cables is first drawn through one straight conduit, then through the drawn box, and then through the second straight conduit, such systems may be considered as that of a straight conduit even if the conduit deflects through the straight by more than 15^0.

25.1.4 **Protection against dampess** - in order to minimize condensation or seat in inside the tube, all outlets of conduit system, shall be property drained and ventilated, but in such a manner as to prevent the entry of insects as far as possible

25.1.5 **Protection of conduit against rust** - The outer surface of the conduit pipes including all bends, unions, tees junction boxes, etc., forming part of the conduit system shall be adequately protected against rust particularly when such system is exposed to weather in all cases no bare threaded portion of conduit pipe shall be allowed unless such bare threaded portion is treated with anti-corrosive preservative or covered with approved plastic compound.

25.1.6 **Fixing of Conduit** - Conduit pipes shall be fixed by heavy gauge saddles, secured to suitable wood plugs or any other approved plug with screws in an approved manner at an interval of not one than one meter but on either side of coppers or bends or similar fittings, saddles shall be fixed at a distance of 30 cm. from the centre of such fittings.

25.1.7 **Bends in conduit** - All necessary bends in the system including diversion shall be done bending pipes, or by insuring suitable solid or inspection type normal bends, elbows or similar fittings or by fixing cast iron inspection boxes whichever is more suitable. Conduit fitting shall be avoided as far as possible. On conduit system exposed to weather, where necessary, said type fitting shaft be used. Radius of such bends in conduit pipes shall be not less than 7.5 cm. No length of conduit shall have more than the equivalent of four quarter bends from outlet, the bends at the outlets not being counted.

25.1.8 **Outlets** - All outlets for fitting switches etc., shall be boxes, of .suitable metal or any other approved outlet boxes for other surface mounting or flush mounting system.

25.1.9 **Conductors** - All conductors used in conduits wirings shall preferably be stranded. No single core cable nominal Cross - sectional area greater than 130 mm shall be enclosed In a conduit and used for alternating current.

25.1.10 **Erection and earthing of conduit** - The conduit of each circuit or section shall be completed before conductors are drawn in. The entire system of conduit and permanently" connected to earth conforming the requirements specified under pipe in a workman like manner for a perfect continuity between each wire and conduit. Gas or water pipes shall not be used as earth medium. If conduit pipes are liable to mechanical damage, they shall be adequately protected.

25.2 **Recessed Conduit wiring system with Rigid Steel conduits** - Recessed conduit wiring system shall comply with all the requirements for surface conduit wiring system specified in 6.5.1.1 to 6.5.1.10 and in addition, conform to the requirements specified in 6.5.2.1 to 6.5.2.4.

25.2.1 **Making of chase** - The chase in the wall shall be neatly made and be of ample dimensions to permit the conduit to be fixed in the manner desired In the case of buildings under construction chases shall be provided in the wall, ceiling etc., at the time of their construction and shall be filled up neatly after erection of conduit and brought to the original finish of the wall.

25.2.2 **Fixing of conduit in chase** - The conduit pipe shall be fixed by means of staples or by means of soft saddles not more than 60 cm apart. Fixing of standard bends or elbows shall be avoided as far as practicable and all curves maintained by bending the conduit pipe itself with a long radius which will permit easy drawing in of conductors. All threaded joints of rigid steel conduit shall be treated with some approved preservative compound to secure protection against rust.

25.2.3 **Inspection boxes** - Suitable inspection boxes shall be provided to permit periodical inspection and to facilitate removal of wires, if necessary. These shall be mounted flush with the wall Suitable ventilating holes shall be provided in the inspection box covers.

25.2.4 **Type of accessories to be used** - All outlets such as switches and wall sockets, may be either of flush mounting type of surface mounting type.

(a) **Flush mounting type** - AlI flush mounting outlets shall be of cast iron mild steel boxes with a cover of approved insulating material or shall be a box made of a suitable' insulating material. The switches and other outlets shall be mounted on such boxes as would be approved. The metal box shall be efficiently earthed with conduit by an approved means of earth attachment.

(b) **Surface mounting type** - If surface mounting type outlet box is specified, it shall be of any approved insulating material and outlet mounted in an approved manner.

25.2.5 When crossing through expansion joints in buildings, the conduit sections across the joint may be through flexible conduits of the same size as the rigid conduit.

25.3 **Conduit Wiring System with Rigid Non-Metallic Conduits:**

Rigid Non-Metallic conduits are used for surface recessed and concealed conduit wiring.

25.3.1 **Type and size -** All non-metallic conduits used shall conform to IS : 2509-1963 and shall be used with the corresponding accessories (See IS : 3419-1965) specification for Fittings for Rigid Non - Metallic Conduits).

25.3.2 **Bunching off cables** - Conductors of AC supply and DC supply shall be bunched in separate conduits. The number of insulated cables that may tie drawn into the conduits are iveri In Table III. In this table space. factor does not exceed 40 percent.

TABLE-III MAXIMUM PERMISSIBLE NUMBER OF 250 VOLTS GRADE SINGLE, CORE CABLE THAT MAY BE DRAWING INTO RIGID NON-METALLIC CONDUITS

Size of cable		Size of Condits (mm)					
Nominal Cross sectional Area mm^2	Number and Diameter in mm of wires	16	20	25	32	40	50
					(No. of cable Max)		
1.0	1/1.12*	5	7	13	20	-	-
1.5	1/1.40	4	6	10	14	-	-
2.5	1/1.80 (3/1.06*)	3	5	10	14	-	-
4	1/1.24 (7/0.85)	2	3	6	10	14	-
6	1/2 .80 (7/1.06*)	-	2	5	8	11	
10	1/3.55+ 7/1.40*	-	-	4	7	9	-
16	7/1.70	-	-	2	4	5	15
25	7/2.24	-	-	-	2	2	6
35	7/2.50	-	-	-	-	2	5
50	7/3.00+ 19/1.80	-	-	-	-	2	3

*For copper conductors only

+For aluminium conductors only.

25.3.3 **Conduit joints** - shall be joined by means of screwed or plain couplers depending on whether the conduits are screwed or plain. Where there are long runs of straight conduit. Inspection type couplers shall be provided at intervals. For conduit fittings and accessories reference may be made to IS : 3419-1965.

25.3.4 **Fixing of conduits** - The provision of 25.1.6 shall apply except that the spacing between saddles or supports is recommended to be 60 cms for rigid non-metallic conduits.

25.3.5 **Bends in conduit** - wherever necessary, bends or diversions may be achieved by bending the conduits (See 6.5.3.9) or by employing normal bends, inspection bends, impaction boxes elbows or similar fittings.

25.3.6 Conduit fittings shall be avoided, as far as possible on outdoor system.

25.3.7 **Outlets** - All the outlets or fittings, switches, etc. shall be boxes of substantial construction. In Order to minise is condensation or sweating inside in side the conduit, all outlets of conduit system shall be properly drained and ventilated, but in such a manner as to prevent the entry of insects, etc. as far as possible.

25.3.8 For use with recessed conduit wring system the provisions of 6.5.2.1 to 6.5.2.4 shall apply

25.3.9 Heat may be used to soften conduit for bending and forming joints in case of plaint conduits. As the material soften when heated fitting of conduit in close proximity to hot surfaces should be avoided. Caution should be exercised in the use of the conduit in locations where the ambient temperature is 50° C or above Use of such conduits in place where ambient temperature is 60° C or above is prohibited.

PVC INSULATED AND P.V.C. sheathed or T.R.S wiring SYSTEM

26. GENERAL

This system of wiring is suitable for low pressure installation and shall not be used in places exposed to sun and rain nor in damp places. Provided they are sheathed in the special approved protective covering and well protected to withstand dampness.

26.1 **Attachment to walls and ceiling :**

26.1.1 All cables on brick walls, stone or plastered walls and ceiling shall be run on well-seasoned perfectly straight and well-seasoned, perfectly straight and well varnished on four sides, teak wood or any approved hard wood battens not less then 10 mm finished thick, width of which shall be such as to suit total width of cables laid on the batten, prior to election, these shall be painted with one coat of varnish or approved paint of colour to match with surrounding. These battens shall be secured to wall and ceilings by flat head wood screws to raw plug or Phil plug at an interval not exceeding 75 cm. Wood plug can be used only with special approval of the Engineer in charge. The flat head wood screws shall be counter within wood batten and smoothed down with file

26.1.2 Where wiring is to be carried out along the face of the rolled steel joints a wooden batten adequate width shall first be laid on the same and dipped to it as inconspicuously as possible. The wiring should then be fixed to this backing shall be suitable bushed to prevent the abrasion of the cables.

26.1.3 Attachment to false ceiling: In no case, the open wiring shall be run above the false ceiling without the approval of Engineer-in-charge

26.2 **Link dips:** Only aluminum alloy clips/joint clips shall be used. The thickness shall be 0.32 mm (30 SWG) for lengths of 25 mm to 40 mm (28 SWG) for lengths of 50 mm to 80 mm. The width shall not be less than 8 mm in all these cases. Link clips/joint clips shall be so arranged that one single clip shall not hold more than two core or three single core TRS of PVC insulated and PVC sheathed up to 2.5 sq. mm above while-a single clip shall hold a single twin core or two single core cables. The clips shall be fixed on varnished wood batten switch iron pins and space at interval of 15 cm bet in the case of horizontal and vertical runs.

26.3 **Bends in wiring:** The wiring shall not in circumstances be bent so as to form and abrupt right angle but must be rounded off at the corners to a radius not less than six times the overall diameter of the cable.

26.4 **Protection of wiring from Mechanical Damage:**

26.4.1 In cases where there are chances of any damage to wiring such wiring shall be drawn complying with all the requirements of conduit wiring system.

26.4.2 Such protective covering shall in all cases be fitted on all down drops within 1.5m from the floor. or from floor level upto the switch board whichever is less.

26.5 **Passing through floors:** All cables taken through floor shall be enclosed in heavy gauge steel conduit extending 1.5m above the floor or upto the switch board whichever is less and flush with the ceiling below or by means of any approved type metallic covering. The ends of all conduits or

pipes shall be neatly bushed with porcelain wood or other approved material. The conduit pipes shall be security earthed.

26.6 **Passing through walls:** When conductors pass through walls, anyone of the following methods shall be employed. Care should be taken to see that Wires pass very freely through protective pipe or box and that wires pass through in a straight line without any twist or cross in wires on either ends of such holds.

(a) A box of teak wood or approved hard wood extended through the hole thickness of the wall shall be buried In the wall and casings or conductors and casing or conductors shall be carried so as to allow 1.3 cm air space on the three sides of the casing or the conductor.

(b) The conductors shall be carried in. an approved heavy huge solid drawn or lap weld conduit or in a porcelain tube of such a size that it permits easy drawing in, the end of conduit shall be neatly bushed with porcelain, wood or other approved material. 26.6.1 Where a wall tube passed outside a building so as to be exposed to weather, the outer end shall be mounted end turned downwards and property bushed or the open end, the conduit shall be neatly arranged so that the cables enter them without bending.

26.7 **Buried cables:** Tile TRS or PVC sheathed cable shall not normally be burring directly in plaster. Where so specified in the special in the specification they may be taken in task wood channeling of .ample capacity or conduit pipe buried in the wall.

26.8 **Stripping of outer covering**: While cutting and stripping of the outer covering of the cable care shall be taken that the sharp edge of the cutting instrument does not touch the inner insulation of the conductors. The protective outer covering of the cables shall be stripped off near connecting terminal and this protective covering shall be maintained upto the close proximity of connecting terminals as far as practicable. Care shall be taken to avoid hammering on link clips with any metal instrument after the cables are laid. Where junction boxes are provided they shall be made moisture proof with a plastic compound.

27. PAINTING WORK IN GENERAL:

27.1 **Paints**: paints, oils varnishes etc. of approved make in original to the satisfaction of the Engineer -in charge shall only be used.

27.2 **Preparation of surface**: The surface shell be thoroughly cleaned and dusted before painting is started. The proposed surface shall be inspected by Engineer-in-charge or his authorized agent and shall have received the approval before painting is commenced.

27.3 **Application**: Paint shall be applied with brush. The paint shall be spread as smooth & even as possible particular care shall be paid to rivets, nuts bolts and cover lapping before drawing cut, it shall be continuously stairred, in the smaller containers with a smooth stick while it is being applied. Each coat shall be allowed to dry out sufficiently before a subsequent coat is applied

27.4 **Scope**: painting on old surface is in/door Situations will not include prier. coat except where specially mentioned in the schedule of work or special specification. However, where rust has formed on iron and steel surfaces the spots win be painted with one anti-rust primer coat.

27.5 **Precautions**: All furniture fixtures, glazing floors, etc. shall be protected by covering, all stains smears, plashing, and dropping of every kind shall be removed. While painting of wiring etc. it shall be ensured that painting of wall ceiling etc. is not spoiled in any way.

28. Painting of conduit and accessories: After installation surface of conduit pipes, fittings switch and regulator boxes, etc. shall be painted with two coats of approved enamel I paint or aluminum paint as required to match the finish of surrounding wall, trusses, etc.

29. Link clip: The clip for batten wiring shall be of Aluminum conforming to I.S. specification No. 2415-1975.

APPENDIX - 'A'

Important Clauses of Indian Electricity Rules, 1956. Following clauses of Indian Electricity Rule, 1956 shall in particular be taken care of in the execution of electrical works.

Clause No.	Subject
3.	Authorisation:
29.	Construction, installation, protection, operation and maintenance of electric supply lines and apparatuses.
31.	Cut-out on consumer's premises.
32.	Identification of earthed and earthed neutral conductors and position of switches and cut outs therein.
33.	Earthed terminal on consumer's premises.
34.	Handling of electric supply lines and apparatus.
41.	Distinction of circuits of different voltages.
42	Accidental charge.
43.	Provisions applicable to protective, equipment.
44.	Instruction for restoration of persons suffering from electric shock.
45.	Precautions to be adopted by consumers, owner's electrical contractors. Electrical workmen and suppliers.
46.	Periodical inspection and testing of consumer's installation.
48.	Precautions against leakage before connection
50.	Supply to consumers.
51.	Provisions applicable to medium high voltage installations.
58.	Point of commencement of supply.
59.	Precautions against failure of supply; Notice of failures.
61.	Connection with earth, (low and Medium Voltage system.)
64.	Use of energy at high and extra-high voltage system.
67.	Connection with earth. (High & Extra-high voltage system)
68.	General conditions as to transformation and control of energy.
All clauses under Chapter VIII on Overhead Lines.	
137.	Mode of entry.
138.	Penalty for breaking seal.
139.	Penalty for breach of rule 45.
140.	Penalty for breach of rule 82.
141.	Penalty for breach of rules.

APPENDIX - 'B'

Form of Completion Certificate

I/We certify that the installation detailed below has been installed by me/us and tested and that to the best of my/our knowledge and belief, it complies with Indian Electricity Rules. 1956, as well as the C.P.W.D. General Specification for Electrical Works, 1972.
Electrical Installation at Voltage and system of supply

(1) **Particulars of works:**

(a) Internal Electrical installation — No. Total Load Of wiring. — Type of system

- (i) Light point
- (ii) Fan point
- (iii) Plug point
  - (a) 3 pin 5 Amp.
  - (b) 3 pin 15 Amp.

(b) others:

Description		HP/KW
(a) Molars:	(i)	
	(ii)	
@X1	(iii)	

(c) Other plants:

(d) If the work involves installation of overhead line/or underground cable:

(a) (i) Type & Description of overhead line.
(ii) Total length & No. of spans,
(iii) No. of street light & its description

(b) (i) Total length of underground cable & its size

(ii) No. of joint.

End joint:
Tee Join
St. through joint:

(2) **Earthing:**

(i) Description of earthing electrode
(ii) No. of earth electrodes:
(iii) Size of main earth lead:

3) Test Results:

(a) Insulation Resistance:

(i) Insulation resistance of the whole system Megaohms.
Of conductors to earth.

(ii) Insulation resistance between the Megaohms.
Phase conductors and neutral.

Between phase R and neutral. Megaohoms
Between phase Y and neutral Megaohorns
Between phase B and neutral Megaohoms

(iii) Insulation resistance between the phase conductors in case of polyphase supply.

Between phase R & phase Y Megaohoms
Between phase Y & phase B Megaohoms
Between phase B & phase R Megaohoms

(b) Polarity Test:

Polarity of non-linked single pole braches switches.

(c) Earth continuity Test:

Maximum resistance between any point in the earth continuity conductor including metal conduits & main earthing lead.

(d) Earth Electrode Resistance.

Perestance of each electrode.

(i) ohms
(ii) ohms
(iii) ohms

(iv) ohms

(e) Lighting protective System:

Resistance of the whole of lighting protective system to earth before any bonding is effected with electrode and metal in/on the structure.

Ohms

Signature of Supervisor

Signature of Contractor

Name &Address

Name &Address

SPECIFICATIONS

All Specification standard publication etc. specified mean the latest standards, publication etc. pertaining to electrical and should conform to the following wherever applicable.

1) Indian Electricity Act. 1910 with its amendments.
2) Indian Electricity Rules 1956 and its amendments.
3) Indian Electricity supply Act 1948.
4) Regulation for Electrical Equipment in building by l.E.F. Landon.
5) The Factory Act, 1948 and its amendments.
6) I.S. 732* 1982 Part -1, II & III code of practice for Electrical wiring and fittings in buildings for low and medium voltages
7) I.S. 4064-1976 H.D. Air break switches and fuses for-Voltages not exceeding 1100 volts.
8) I.S. 3043 - Earthing code of practice for
9) I.S. - 1554 Part-11970 PVC insulated (Heavy duty) Electrical Cables for working voltages upto and including 110 volts
10) I.S. 694-1964 Part-II - PVC insulated cable with Alluminium conduits (revised) for voltages upto 110 volts.
11) I.S.: 5908 -1970 - Electrical installations in buildings method of measurements of.
12) I.S.: 4237 -1967 - General requirement for switchgear and control gear for voltage not exceeding 1000 volts.
13) I.S.: 1653 -1964 - rigid steel conduits for electrical wiring (revised)
14) I.S.: 2509 -1973 - Rigid steel conduits for electrical installation (First revision)
15) I.S.: 1258 -1967 - Bayonet landholders (First revision)
16) I.S.: 418 -1957 - Tungsten - Filament General service-electric lamps (Third revision)
17) I.S.: 374 -1966 - Fans and Regulators, ceiling type, electric (second revision)
18) I.S.: 2667 -1964 - Filings for rigid steel conduits for electrical wiring.
19) I.S.: 3419-1976 - Fining for rigid non-metallic conduits (First revision)
20) National Electric Code, 1986.

ANNEXURE-I

Abstract of the Wiring Rules of the Institution of Electrical Engineer
(Referred to in the specification)
DEFINITIONS (See clause 2 of the specification)

Systems:

All electrical system in which all the conductor and apparatus are electrically connected to a common source of supply.

1) **Earthed:** Effectually connected, to the general mass of the earth. Solidly earthed without the Intervention of a fuse. switch, circuit - breaker, resistor reactor or solenoid.

2) **Un-insulated Conductor:** A conductor without provision, by the Interposition of a dielectric or otherwise. for its insulation from earth.

3) **Bare**: Not covered with insulating material.

4) **Dielectric**: any material which offers high resistance to the passage of an electric current.

5) **Bunch Conductor**: When more than one conductor is contained within a single duct or groove or when they are run enclosed and spaced and not spaced apart from each other;

6) **Points:** In wiring as per IS: 5908 -1970 - Method of measurements of electrical installation in buildings.

7) **Switch board:** An Assemblage pf switchgear with or without instruments, but the term does not apply to a group of local switches in a final sub- circuit where each switch has its own insulating base.

Note : In the electricity (Factories Act) special regulations, 1908. and 1944 the term “Switchboard” includes “Distribution board.”’

8) **Single pole switch**: A switch suitable for closing and or opening a circuit on one phase or pole only.

9) **Linked switches**: A switch the blades of which are so linked mechanically as to make break all poles simultaneously or in a definite sequence.

10) **Fuse Switch**: A switch the moving part of which carries one or more fuses.

11) **Three Wire System :**

a) **Outer Conductor:** Those between which there is the greatest difference of potential. This use of the word outer must not be confused with the use of the work when applied to the external conductor of a concentric main.

b) **Neutral Conductors**: The term includes the neutral conductor of a 3 phase 4 wire

system, the conductor of a single phase or d. c. installation which is earthed by the supply undertaking (or otherwise at the source of the supply) and the middle wire or common return conductor of a 3 wire d.c. or single phase a.c. system.

12) **Semi enclosed machine**: One in which the ventilating openings in the frame are covered with -

a) Girds expanded metal or wire gauche, with openings of less than 1/4 Inch but not less than so as to obstruct free ventilation.
b) Wire gauge. in which the openings are less than 1/4 inch but not less than 3/32 inch (diameter or width):
c) Screens with smaller openings than the above.

13) **Totally - enclosed Machine**:
One in which the enclosing case and bearings are dust proof and which does not allow circulation of air between the inside and outside of the case.

14) **Pipe Ventilated Machine**: An enclosed machine in which, the frame is so arranged that the ventilating air may be conveyed to it through a pipe attached to the frame the ventilation opening maintained by the fanning action produced be the machine itself.

15) **Forced draught machine**: An enclosed machine in which the ventilating air supply is maintained by an independent fan external to the machine itself.

16) **Protected Machine**: One having end shall bearings and in which is free access to the interior without opening doors or removing covers.

SWICHES AND CIRCUIT BREAKERS

(See clause II of Specifications)

17) **Switches and Circuits Breakers:**
Switches and circuit breakers (rules 2b. 36 and 37) whether fixed separately or combined with lamps, holders of fittings, must comply with the following requirements:

(a) Overheating must not take place at the point of contract or elsewhere, when the full current flows continuously.
(b) They must be so constructed or arranged that the contracts cannot accidentally close when left open.
(c) The basis must be of incombustible, nonconducting and moisture proof material.
(d) Circuit breaker as must be so arranged and placed that no combustible material is endangered by their action.
(e) Unless placed an engine room or in compartment especially arranged .for the purpose, they must their live parts covered. The covers must be incombustible material and, must be either non-conducting or of rigid metal and clear of all internal mechanism. For more than 6 amperes, ai pressures exceeding 125 volts metal covers must be lined with insulating material.
(f) In positions where they are liable to injure or come into contract with goods, they must be further protected by an open fronted box or other suitable guard.
(g) Handles must be insulated so arranged that the hand cannot touch live metal, or be injured through and adjacent fuse blowing.
(h) Switches having a handle protecting through an, open slot in the cover, must not be used.

Signature of contractor/s Executive Engineer.

SECTION F-1A

GENERAL REQUIREMENTS

1.1 Scope of works:

The work covered by electrical specification consists supplying and installing, electrical wiring system complete in strict accordance with this specification and the applicable drawing and subject to the terms and conditions of the contract. / It includes.

(a) Conduit and wiring system for fans, lighting points bells, clocks sockets, etc. including fixing of lighting fixtures and fans etc. and miscellaneous points.
(b) Conduit and wiring system for exhaust fans, power sockets etc.
(c) Panel boards, distribution boards, switch fuse units.
(d) Complete power and lighting cable systems.
(e) Grounding system.
(f) Conduits system.
(g) Street lighting system.
(h) Other miscellaneous electrical work.

1.2 Completeness of Contract;

Any work fittings accessories or apparatus which may not have been specifically mentioned in the specification but which are necessary in the equipment for efficient working of the plant should be deemed to be included in the contract and should be executed and provided by the contractors. All plant and apparatus should be complete in all the details, where such details, are mentioned in the specifications or not.

Three prints and one permanent negative of each of the finally approved drawings incorporating all the modifications proposed by the Department should be submitted. No modifications should be made in a drawing already approved by the Engineer-in-charge without his prior consent.

Approval of the contractor's drawing will not relieve the contractor of any part of his obligation to meet all the requirements of .the contract.

1.3 Guarantee:

The performance of all the equipment's and the installation should be guaranteed at least a minimum period of one year from the date of taking over the installation by the Department. All equipment's must comply with the relevancy IS-BS specifications.

1.4 Interchangeability:

All corresponding parts of similar plant and equipment should be interchangeable in every way.

1.5 Tools;

All special tools required for dismantling and assembly of the equipment covered by the contract shall be supplied as obligation under the contract.

A list of to be supplied by the Contractor should be submitted along with the tender.

SECTION F-2A

Specifications for Electrical Installation in Buildings

1. GENERAL:

1.1 These specifications relate to the electrical installations in the buildings of P.W.D. Electrical. The specifications cover general requirements to be fulfilled. These general specifications are supplemented by the specifications for the particular buildings separately attached.

1.2 These specifications are governed by the General conditions of the contract attached hereto.

1.3 APPLICABLE RULES AND REGULATIONS:

1.3.1 Installation shall be carried out IN conformity with regulations for electrical equipment's of buildings, published by the Institute of Electrical Engineers London (14th Edition 1966 and as amended upto date) herein after referred to as the I. E. E. wiring regulations Where these specifications, or the special specifications for the particular building attached hereto are at variance with the I.E.E. regulation these specifications or special specifications as the case may be, shall also be followed. The installation shall also comply with the requirements of the Indian Electricity Act, 1910 as amended upto date rules issued there under and also the regulations for the Electrical Association of India Where not specified otherwise, the installation should generally follow the Indian standard codes of practice and in their absence the relevant British Standard of practices. All the materials shall comply with the relevant Indian Standard of British Standard specifications

1.4 DEFINITIONS:

1.4.1 The definitions of terms in the I.E.E. Regulations shall apply in general.

1.5 DRAWINGS:

1.5.1 The preliminary drawings only indicate the general scheme of requirement. The exact position of all points, control switch boxes, runs of wiring and/or conduits joint boxes, inspection boxes, Mains, and sub-distribution boards, mains etc shall be got approved Engineer-in-charge. All circuits shall be clearly numbered in wiring diagrams and building plans. The detailed design of a switch-board, special fixture or any other part of the electric installation as may be called for by the engineer-in-charge shall also be supplied by the Contractor and should be got approved by the Engineer-in-charge. Three sets of completion drawings and wiring diagrams showing the installations as executed shall be supplied by the contractor along with the completion certificate.

1.6 MATERIALS:

All materials shall be new and of the best quality conforming to the relevant I.S.B.S. specifications. They must be the products of reliable manufacturers of many years or standings, All like parts of materials shall be interchangeable. In case of equipment's such as circuit breakers; switch fuses etc. a descriptive and illustrated literature shall accompany the tender. The names of manufacturers' of various materials shall be furnished in proform in Appendix-1. Samples of materials wherever required should be deposited with the Engineer-in-charge. All materials shall be rust-proof or rendered rust proof by application of suitable paints. The supply of all equipments, switchgears etc. shall be complete with accessories. filings and mountings as may be required for their proper performance, and as specified in the relevant IS-BS Code of Practice and standards.

1.7 WORKMANSHIP:

1.7.1 Good workmanship and neat finished appearance are the prerequisites for complying with the clauses. of these specifications. With a view to ensure fine workmanship the Tenderer shall employ licensed wiremen with an experience of not less than 5 years in the type of work they are engaged. The work should be done under supervisions of licensed Electrical Supervisors with good educational qualifications and considerable experience.

1.7.2 Tenderer shall furnish the names of Supervisor and their wiremen. who will be engaged in this work, with details of their experience.

1.8 CO-OPERATIVE WITH CIVIL AND OTHER WORKS CONTRACTORS:

1.8.1 The Tenderer after the award of the contract, shall co-operate with the civil and other contractors and shall coordinate his work of the other contractors with the least amount of dislocation and interference to the other works. Tenderer shall go through the drawings carefully and shall furnish the Engineer-in-charge with all the details of openings in the walls etc. they

may be required for concealing any of the electrical equipments or accessories. Where the contractor fails to furnish such information as may be required for the purpose of concealing the equipments etc. they shall be made at his (Contractor) cost and expense. Any alteration to parts of the building shall be made good at the contractors expense and brought to the original shape finish and colour.

1.9 TESTING

The electrical contractor shall be completely responsible of the testing and commissioning of those installations covered by these specifications in compliance with the standard procedure, in obtaining permission of the Government Electrical Inspector. Any modification which is demanded by Government Electrical Inspector shall have to be carried out within the scope of the contract. The contractor shall submit four copies of drawings of installations as per regulations for shall be provided by the contractor for carrying out the
installation work. All test shall be carried out in the presence of the Engineer-in-charge or his authorized representative and his approval obtained for the test results.

1.10 COMPLETION CERTIFICATE AND MAINTENANCE GUARANTEE:

1.10.1 After the completion of the installation and contractor should furnish a certificate in the proforma in Appendix-III, at the time of taking over the installation by the Department. The installation shall be guaranteed for period of 12 months from the date of taking over by the Department. During the period of guarantee all defects in material or workmanship shall be rectified or replaced free of cost to the Department.

1.11 TENDERER'S ABILITY :

1.11.1 In order to enable the Department to asses the ability of the Tenderer to execute the work, the Tenderer shall furnish evidence of his experience and capacity to carry out the magnitude and nature.

1.12 RATES:

1.12.1. The rates of items shall include all traces, transport, loading and unloading charge and all such charges that may be required to be incurred for the supply and installation of materials at site. The rates shall be firm and variations in the market are not entertained Break up figure as required in the schedule of work shall also be furnished. As far as possible indigenous materials only shall be included for supply. Where It is unavoidable, imported items may be included and Tenderer should dearly indicate materials, quantity, rate and amount of these items.

1.13 STORAGE SPACE:

No covered storage space will be provided-by the Department. The contractor has to make his own arrangement. However, the Department may give an open space near the place of execution where the contractor can build his own stores for executing the work.

1.14 DEPARTURE FROM SPECIFICATIONS:

The Tenderer should clearly indicate departure, if any from the specifications with reasons for the same.

1.15 EXTRA ITEMS:

Rates for extra items shall generally be derived from the rates already available in the schedule. Where it is not possible, the rates shall be mutually agreed upon and contractor shall furnish a detailed analysis of the rates claimed by him.

2. TECHNICAL SPECIFICATION:

2.1 Supply System:

The wiring installation shall be suitable for 3 phase 4 wire, 400-440 V 50 cycles system of supply Colour code of different phase shall be followed as per standard.

2.2 Wiring for Light and Fans:

Looping system to wiring shall be adopted. No joints shall be made at intermediate runs of cables and where they are unavoidable. such joints shall be through approved mechanical connections.

2.2.1 Point wiring:

Point wiring shall consist to the branch wiring from the board together with the controlling

switch or push as far as and including the ceiling rose or any other approved connector or socket, outlets. In case of more than one light being controlled by one switch, the wiring upto the ceiling rose of the first light including the switch shall be considered as a Primary point. Loop wiring from light shall be considered as a' Secondary' point and rates shall be quoted separately, including final connections to fixtures and plugs.

2.2.2 Conductors:

No conductor for final sub circuit wiring for light and socket outlets shall across-section less than **that of 2.5 sq.m (aluminium)**

2.2.3 Loading:

No final sub-circuit radiating from the fuse board of a sub-distribution board and wires with 25 sq. m. (AI) cable shall carry more than 10 lights, fans or socket outlets or a connected load of 800 watts whichever is greater. The following wattages may be assumed for estimating the load on each sub-circuit unless otherwise known or specified.

Incandescent lamps	100 watts
Ceiling fans	60 watts
5-A Socket Outlets (lighting)	100 watts
4. ft. fluorescent tube	50 watts
5. ft. fluorescent. tubes	100 watts

In each sub-distribution board at least-one way preferably two ways shall be left spare for future requirement. A wiring diagram giving the exact Utilization of the ways shall be prepared and fixed in the sub-distribution board itself or any other easily accessible place. The ways of sub distribution boards shall be accordingly numbered.

2.2.4 Local Control Switches (General) :

Local control switches for circuit carrying net less than 5-5 shall be piano type and shall conform to relevant I.S. Standards. The switch shall be "ON' when the knob is in the down position. All local control switches shall be connected in the phase or live conductor only and not in the neutral conductor, switches shall be fixed in iron clad box and shall is so placed that the centre of the switch box is 1.3 Mtr. from the finished floor level unless otherwise stated. All switch boxes shall be provided with 1 /8" thick Perspex cover fixed to the switch box with chromium plated counter sunk screws (brass).

2.2.5A Switches (Two Way) :

a) Two way swatches shall be piano type single pole, double throw, 250V, suitablefor flush mounting and of 5A capacity as per the drawings. All switches shall be recessed in an embedded metal box.
b) Each box shall have suitable outlet for fixing conduts directly.
c) Each box shall have Perspex cover painted inside with the wall colour, if required.
d) Each switch shall have suitable for the position in a corridor stairway wiring.

2.2.5.B Switch Boxes (General)

Electrical circuits shall be written suitable on the cover of all switched boxes, as approved by the Engineer-in charge (elect) whenever different phase are terminated in a switch box bakelite partition shall be provided. Each cash shall be provided with a G.I. Earth stud nut and washers for earth connectors.

2.2.5 Ceiling Rose:

Ceiling rose shall be used on circuits having a normally exceeding 200V. Only one flexible cord shall be attached to a ceiling rose. Only 3-pin 5A socket outlet shall be provided in lighting circuits. All socket outlets be provided with a control switch and they shall be mounted in switch boxes in an approved manner.

2.2.6 Fittings:

These shall be of approved type as specified in the tender schedule. The subcircuits leads should terminate in a ceiling rose or conductor in the fitting and internal connection made there from. Wherever these fitting are suspended they shall be done so through the conduits and ball and socket joint. All fittings shall be grounded by a G.I. conductor not less than 16 S.W.G.

2.2.7 Flexible wiring:

Flexible cords of not less than .23/0076 size be shall be used, The weight of suspension road shall be governed by I.E.F. Regulations.

2.2.8 Ceiling Fans:

All ceiling fans shall be wired to ceiling rose and suspended from a hook shackle or clamp and insulated from the same. All joints in the suspension, road shall be screwed and means of split pins. The fan clamps supplied by the Contractor shall be suitable for the ceiling or proof member as the case may be For concrete roofs, fan hooks shall be buried in concrete during concrete during construction in an approved manner and secure bound to the reinforcement.

2.2.9 Conduits and Earthing:

All conduits feeding lighting and circuits shall be provided with earth continuity G.I. conductor as specified for power wiring. All conduits shall be as specified for power wiring.

2.3.1 Point wiring:

Point wiring power shall be as defined under section 2.2.2 and shall include the switches and sockets.

2.3.2 Loading:

All distribution board for power wiring shall be not less than 15 A per way. Loading per way shall not exceed normally 100 watts. The following loads may be assumed if exact figure are not known.

3-Pin 15A	Outlets	1.000	Watts
3-Pin 5A	Outlets	100	Watts

2.3.3 Wiring for Motors :

2.3.3.1 Final sub-circuits loop in motors shall be connected to separate ways of the Distribution board even if the current in the sub-circuit is less then 15A. No looping is permissible.

2.3.3.2 All wiring shall be carried in H.G. conduit as specified in I.S. specification for gauge for different sizes of conduit. When the motor is resiliently mounted fixable with approved adopters shall be used for the last few feet. Where cables are used sufficient loop shall be left.

2.3.3.3 All switch fuse units controlling circuits feeding motor .shall be provided with H.R.C. fuses or as specified:

2.3.3.4 The frame of every motor and its association contra gear shall be earthed by two separate and distinct connections to earth connector shall be capable of earring 3 times the rating of fuse or 1.1/2 time the setting or the circuit breakers but in no case than NO.8 S.W.G. or 7064" or equivalent cross section of copper. Where practicable, the earth connections shall be visible for periodical inspection. Gas or water pipes shall not be used for earth connections.

2.3.3.5 **Socket Outlets and Control Switches f A and 15A :**

All socket outlets shall be of 3 pin type, the third pin being connected to the earth stud of nearest distribution board by separate earthing wire: The socket shall conform to I.S.: 1293/1938,'single pole, piano type. Each socket pubets shall be provided with a control switch of appropriate rating and as specified. The switch and socket shall be mounted inside the iron clad box provided with 1/8" Perspex cover as directed by the Engineer-in-charge or as specified in schedule of quantities. Inside switch box ample space shall be available around switches for connection wires to switches. All socket outlets for power shall be mounted at the skirting level otherwise specified or as directed by the Engineer-in-charge.

The three phase plug receptacles shall have their earth terminals connected by independent earth wires to ring main strip on the building. In buildings where explosion proof fixtures are installed single phase plug receptacles as well as light points shall be connected to ring main ground bus installed in the building by separate earth wires of approved size.

Socket outlet shall have some provision not to receive the matching plug unless the grounding pin is in correct position. The grounding pin of the plug shall make the contract first and break the contract last at the time of inserting or removing the plug respectively.

The grounding terminal shall be connected to the enclosed metal body providing G.l.Stud, nut washers welded to the box.

Each unit shall be suitable for flush mounting as required and indicated in the applicable drawings.

Combination unit socket outlet and switch shall be complete with necessary internal wiring. The switch/socket shall be mounted on M.S. bracket enclosed in a box.

2.4 Conduit Wiring:

2.4.1 Where conduit wiring is adopted type and size of the conduit shall be as indicated in the drawing. The minimum of the conduit shall be 19 mm.

2.4.2 The contractor shall thoroughly study the structural arrangement of the buildings and wherever, necessary shell in consolation with Department's representatives at site, make suitable adjustments in the cable routings, earthing arrangements, and location boxes, fitting

etc. with a view to avoid interference with any part of the building, structure, equipment or any other work in the building or to effect any improvement in the arrangement.

2.4.3 **Protection of conduit against rust:**

Conduit shall be given two coats of oxide paint before they are placed in position. All exposed conduit shall be planed after installation with the colour as approved by the Engineer-in-charge. This do not apply to galvanized conduit.

2.4.3.A. Protection against insects arid damp:

In Order to minimize cocensation or sweating inside the conduit, system shall be properly drained any ventilated in such a manner as to prevent the entry of insects.

2.4.4 Conduit shall first be installed as a complete system without cables and shall be continuous from outlet to outlet from fitting to fitting and mechanically and electrically connected to all boxes and fittings.

2.5 SPECIFICATION FOR POWER CONTROL AND TELEPHONE CABLES:

1. SCOPE:

i. The specifications cover the supply and medium voltage"Power and control cables either in ground or trench depending on the conditions at sate including accessories for the same. The work in general, consists of supplying, laying jointing terminating and connecting at. 1.1. KV APLSTS PVC power and control cables.

ii. The contractor shall supply all accessories including jointing and terminating materials, compound, tapes supporting materials, cleats cables lugs, concrete stable, bricks sand, cable-markers etc. as required to make the installation work including digging and filling of the trenches as required.

2. SPECIFICATION:

i. All power cables to be supplied mentioned as 'APLSTS' in the Schedule should be mass impregnated, non draining, paper insulated lead sheathed, double steel tape armored and must comply with the latest IS1BS specifications.

ii. All cabling materials such as cable compound, cable lugs, taped shall be of approved quality acceptable to the type recommended by the manufacture of the cable for which it is used and approved by the Department.

iii. installation of all equipment shall also conform to the applicable. Codes and practice as per the IS and shall be executed to comply with the lates Indian Electricity rules as regards the safely, payable of equipments and other essential provisions specified therein.

iv. Only approved make of cable shall be used. ICC and CCI will be preferred,

v. The cables shall generally be laid as per is Code of practice.

3. GENERAL RULES CABLE LAYING:

i. Installation shall be carried out in a neat workmen like manner by skilled experienced and competent workmen in accordance with the standard practices.

ii. Cables shall be laid preferably in one length to avoid joins. If straight joints are found-necessary, these can be introduced with prior approval of the Engineer-in-charge. The cost of the straight joint however, shall not be borne by the Department. But in no case joint shall be within the conduit G.I. pipe and duct.

iii. Proper care should be exercised in handling the cable to avoid formation of kind etc. and should it become necessary a cable be bent to a radius not less than 20 times the overall diameter of the cable.

iv. Method of installation, routing of cable etc. shall in every case be subject to the Department's approval and the contractors shall modify and or certificate no extra cost to the Department's any portions of the installation which do not meet with the Department's approval. All damages to the civil and other works on this account shall be made good by the contractor at no extra cost to the Department.
The electrical contractor while notifying the building contractor for such work shall furnish the proper draws, dully explaining the work involved of indicate at suit actual work to be carried out as may be required by the building contractor. The electrical of any such work as the electrical work with this to the same has been completed.

v. Where cables pass through hume pipes, contractor shall fix hard wood bushed round the cables at the ends of hume pipes. Where the cables pass through the floors or chambers and in such situation's the Engineer shall require, the contractor shall seal cable holes in a manner approved by Engineer-in-charge. Where cable. pass through roads nallahs. etc. cables must be protected by class 'A' Hume pipe of diameters not less than 6". (15cms).

vi. The cable routs shall be the shortest and these shall be minimum inference with built up areas, lawns etc.

vii. Care shall be exercised for providing suitable props other service lines on earth at the time of excavation. Where cutting of a lawn inevitable it should be with the approval of the Engineers-in-charge.

viii. Excavation of the trenches shall be executed with vertical sides and the trenches shall be kept as straight as possible. The exact location of each trench shall be settled by the Engineer-in-charge. On the site when the contract is in a position to commence each portion of the work.
The trench shall be not less than 1/2 meter wide and 90 cms deep. If more, cables are to be laid, .the width should be suitably increased.

ix. After the cables are laid, the trench shall be filled in layers, the each layer being weal rammed by spraying. water and consolidated and sufficient alloviance made for settlement. The extra earth over the trench should be removed from the place of trench to a place as decided by the Engineer-in-charge at site.

x. Ends of cables shall be property sealed to prevent entry of moisture prior to installation.

xi. Where it is as specified as 1/2 core cables the 1/2 core shall be a neutral conductor having reduced section.

xii. For all multi core cables each core and tails shall be brought not, marked and or colored in on approved manner.

xiii. Cables termination shall be done with suitable compression brass glands in the case of PVC cables and cast iron trifurcating boxes in the case pf APLSTS cables. The Armour should be connected to the right main earth building with duplicate earth wires as per the relevant IS/BS specification.
The core insulation over each conductor shall however be retained through out the run of the conductor upto the end where lung shall be fitted thereon for connections. The lungs shall by fitted by means of approved solder and flux such as aleap and Eyer NO.7 liberally used. The joint shall be mechanically strong and pressure tested.

2.6 DISTRIBUTION BOARDS AND PANELS.

General Requirements :

2.6.1 All distribution panels shall comply with lEE. Rules 60-61. A clear distance of 0.91 b meter in front of the switch board shall be kept. Where bare connections of attachment are provided at the back of the switch board the space behind the panel shall either less than 0.299 meter or more than 0.762 main width there shall be a passage way from the furtherest outstanding part of any attachment or conductor. If the space behind the switch board exceeds 0.70 main width there shall be a passage way from either end of the switch board clear to night of 1.928m width 0.299 m. All wiring connection shall be made neatly and securely.

2.6.2 For crocoites carrying more than 10 Amps, tinned cable sockets shall be used, all connections shall be so made as to form their own diagram Circuit shall be clearly numbered to correspond-to wiring diagram. Names of the distribution boards shall be painted as directed by the Engineer-in-charge. All the switch fuse units and isolators D.Bs. shall be complete with earthing studs lugs neutral bar ink. H.R.C. fuses and of approved make.

2.6.3 Skeleton type panels shall have rigid form work adequately braced and supported. The switch and distribution boards shall be neatly arranged in the frame. The details of the frame work and the arrangement of switches shall be got approved by the Engineer-in-charge before the panel is fabricated.

2.6.4 All cubical type panels shall have rigid supporting frames adequately braced over which sheet metal shall be nearly secured. All switches distribution boards etc. shall be neatly arranged on the panels and all connections made from the back of switches. The panels shall be rendered dust and vermin-proof. The interior of the panels shall not be accessible to unauthorized persons.

2.6.5 The recess type boards shall .be embedding wall in –a cupboard with a metal hinged door with locking arrangement. In all recessed conduit work all distribution boards shall be recessed. Where recessing is not possible, free standing panel may be provided as approved by the Engineer-in-charge.

2.6.6 All individual components i.e. switch fuse units D.Bs. etc. shall be connected by earth connected by earth continuity wire of appropriate size with the main earth bus of the D.B.etc.The panel switches of D.Bs. shall be earthed by the less than 2 distinctive paths to earth. Earthing of metallic parts of exposed metal shall not be effected through any structural metal work which houses the installation. Where metallic parts are not required to be earthed and are liable to become alive should the installation of the contractor become defective such metallic parts shall be separated by durable non conducting

malarial from any structural work.

(a) Power panels shall be 3 phase, 4 wire, 400.230 volts for the distribution of 3 phase or single phase power loads. Lighting panels shall be 3 phase 4 wire 400/230 volts for single phase lighting load distribution on all 3 phase.
(b) All panels shall be done of protected front type with no mechanical or electrical defects.
(c) Bus bars shall be of electrolytic copper or aluminium as specified and the properly tinned sizes as indicated on applicable drawings as required.
(d) All knock outs for branch circuits entries shall be drilled and filled as required, for lighting panels the top and bottom cover plates shall be. removable type. ,
(e) Main disconnect device for all panel boards shall be of switches of disconnect type and of the size as indicated shall be mounted directly below the panel or through a short thread conduit of required size.
(f) The main disconnect for all panel boards shall have an entry suitable for PVC armoured cable from bottom.
(g) All panel boards shall be provided with an earthing terminal and lug for connection to the grounding system.
(h) Temperature rise of all electrical parts shall not be more than 300c With full load amperes at room temperature.
(i) Buses shall be securely supported so that ordinary vibration will not cause any of the parts to become loose
(j) All barriers and supports of current carrying parts shall be of moisture resistant insulating material and shall not be adversely affected by arcing.
(k) The locations of panels shown in the drawings are only tentative; panels may be located at a place approved by the Engineer-in-charge.
(l) All civil works connected, with fixing such as grouting chasing and making good shall be the Tenderer responsibility.
(m) Wires adequate capacity with proper size of lugs shall be used for inter connections.
(n) Panel should be self-supported on angle channel iron frame work. It should be preferably of bolted construction in case of transportation and flexibility. The frames shall be of the required size for the mounting of the equipment on it. It shall be bolted or grated rigidly after levelling and alignment.
(o) The cupboard and D. B. should be of such size so to be accommodated in the existing room as per I.S. rules and I.S. codes of practice for installations of Medium voltage switch gear.
(p) Fabrication drawing showing the detailed dimensions and panels and its components indicating the frame work, earthing positioning of switches. D.Bs. cable boxes, adopter chambers etc. shall be furnished to the Engineer-in-charge for his approval. All material to be got approved by the Engineer-in-charge. Panel should be guaranteed for satisfactory operations for a period of one year after handing over.
(q) The panel should be painted with anticorrosive paint suitable for humid ,and salty atmosphere on two coast to primer.

SWITCH GEARS, POWERS PANELS D.B. AND S.F. U.S.

2.6.8 The main bus bar shall have continuous current rating as specified with neutral bar having half of full load rating of the phase bus bar. The size of the bus bars shall be so selected that the current density in bar does not exceed 150 amps. Per sq. m. for copper. The length of bus-bar chamber should be as suitable length to fix all the switches etc. as per the prevailing standards, clear spacing of two adjacent buses shall be 1 1/2" minimum bar should be taped all along with color coated 11KV grade PVC tape. The maximum internal of support for each unsupported length shall exceed 600mm.

The bus bar shall be air insulated extensible type rectangular one. The bus bars chamber shall be dust tight by providing gaskets secured property so as to tender it veritin proof.

The combination fuse switch unit should comply with IS 4064 BS 861 and BBS 2510 wherever applicable. It should be suitable to accommodate High Rupturing capacity cartridge Fuse links complying with IS 2208 or BS 88 and having a certified rupturing capacity of not less than' 35 MVA at 440 volts (AC5 duly). The switch gear (panrs D, Bs. etc. shall be installed generally as per is-Part -1 3072 and as specified and shown in drawings.

All fuse switch units shall be provided with, non-deteriorating HRC fuse links complying with IS 2208-1962 and having rupturing capacity of 35 MVA at 415 volts or as specified.

All switches above 60 amps, rating shall be provided with suitable size adapted boxes. All switches mounted-on the top of the bus bars shall be provided ,with detachable type reverse entry adapter boxes. Suitably engraved tables shall be provided for each circuits as well as for the board.

A meters sector switches and LMH meter shall be provided where. specifically mentioned. Small wiring for the inter-connecting shall be colour coded and provided with numbered teuses for easy identification of circuits.

(a) The distribution boards should be totally enclosed metal clad complying with B. S. 214. the M. S. sheet steel enclosures for recessed D. Bs. shall be of not less than 14 gauge.
(b) The D. B. shall be with hindod dooi and the locking arrangements as approved by the Engineer-in-charge.
(c) All the components shall be enclosed in the enclosure. The mounting of D. B. shall be got approved by the Engineer-in-charge before carrying out the installation.
(d) The D. Bs shall have proper side-cut outs for conduits entry or cable entry as required and these shall be made on site
(e) Adequate spacing shall be provided inside the D Bs. for easy removal of the fuses and carry out the interconnection.
(f) A set of insulating barriers have to be provided between incoming breakers switches and fuses.

Switch fuse Units:

(a) All the D.P.T.P. and T. PN. Switch fuse units shall be totally enclosed iron a clad quick make, quick break type to best Indian make conforming to the I.S. or S. 3185 specifications. All the switch fuse units shall have mechanical Interlock with a door so that the door so that the door cannot be opened when the swatches are in ON position. The switch should be of double break solution type to ensure safely.
(b) Each T.P & T.PN switch fuse unit shall be earthed with two distinct each connections.
(c) Suitable insulator shall be provided between phase.
(d) There shall be suitable natural link in the fuse box.
(e) All T.P and T.PN: switch fuse units snail be rated for 500 volts and D.P, (required for single phase supply) and S.PN. switches for 250 volts.
(f) The H.R.C. cat ridge fuse shall conform to H.S. 88 (1952).
The O.C.Bs. ACSB shall be suitable for 400/440 volts 3 phase 50 cycle supply capable of interrupting a fault MVA of not less than 31 The circuit breaker shall conform to the BSS-936 1940. BSS 3659 with such tripping arrangement as may as required under special specification is for the building. Efficient and fool - proof mechanical interlocking shall be provided for the safe operation and maintenance. The rate be inclusive of the first filling of oil

2.7 Instrumentation:

Tile instruments and meters wherever necessary shall be housed in special sheet steel box located between switch fuses units and bus bar chambers. The instruments etc. shall be mounted on the hinged cover with heir dial flushed. All instruments shall have protective H. R.C. fuse links. All interconnections and small wiring shall be neatly dressed arranged and duly colored 10r easy identification of circuits.
Meters shall be provided as required in the Schedule, Meters shall be dead head and be suitable for 400/ 440 volt 3 phase 4 wire 50 cycle (in balanced load) supply.
Each selector switch shall be 3 point and of minimum 250 volts grade with silver tipped contact suitable for metering circuits, current transformers shall be of 5VA burden and commercial metering accuracy. Indication lamps shall be penal mounting type preferably of 250V grade. Every unit shall be prewired and interconnected to the system for its required indicating performance. Indicating lamps shall have independent circuit fuse.

2.8 FIXING OF LIGHTING FIXTURES:

1. Location of fixtures their manner of fixing mounting height etc. are indicated in relevant drawing. Actual location and levels shall however be arrived at site in co-ordination with other service etc. and prior approval of the Engineer-in-charge regarding the actual location Manner of fixing shall be obtained before the work is taken up in hand.
2. In all cases the contractor shall provide necessary interconnection wiring earthing painting etc. all necessary for complete installation. The contractor shall also test and commission the fixtures during completion of the work.
3. General arrangement of fixtures layout is indicated in drawings. Care shall be taken to see that all light fixtures are in a row in a room or particular area, are in absolute line and plump and are symmetrically disposed with respect to finished surfaces of walls, columns beams etc.
4. The inter-connections wiring from the light outlet point upto the fixture shall be carried out by means of flexible copper wire of section not less than 1.5 mm2.
5. All fixtures suspended by means of conduits shall be done with all and socket joints or as per approved design.

2.9 Telephone system:

1. Empty conducing shall be done recessed or exposed to surface along with pulls boxes,

junction boxes and telephone outlet boxes, in areas. and location as indicated in the relevant drawing as per materials and methods as described in regard to conducting under section "Wiring in conduits" except the G.I. pull wires of gauge not less than 20 SWG shall be dept pulled through conduits in aII sections so that in future telephone wires can be pullet. easy.

2. Location shown on the drawing are proximate and final location shall be decided in the field by the Engineer-in - charge.

SECTION-G

SPECIFICATION FOR EARTHING &

1. **Installation of Earthing Plates:**

All installation of earthing shall conform to Indian Electricity Rules, IS - 3043 latest edition and I.E.E. the copper earth plates should be tinned before installation. the earth plates of copper 60 cm x 60 cm x 3.515 mm thick size as mentioned in the schedule be in separate pits at least 150 cms to 300 cms. away from the building at a depth necessary to reach moist earth surface but with a minimum depth of 2.5 Mtr from the finished ground Level upto the top vertical dodge of earth electrode. The earth plate shall be thoroughly cleaned to remove all dirt from the surface and be tinned property for electrical contact with the main ground. Each earth pit should be provided with 38 mm. dia . G.!. pipe 2.5 Mtr .long or more depending upto the depth of pit, put over the vertical edge of earth plate (with top end of pipe provided with a closed to couyler.) Alternative layers of salt and coke shall be provided surrounding the plate. The pits shall be filled when the plates are in position and with the approval of Engineer-in-charge.

To facilitate watering the pit, a concrete compartment should be made-with funnel with mesh and cover plate as per rules provide in ISI regulation. The masonry endorser's shall be 25 cm x 25cm x 25 cm (deep) with C.I, lid of 23 cm x 30 cm x30 cms. size. After installation, the earthing resistance of each earth plate should be measured by resistance meggar in the presence of Engineer-in-charge, three days after the completion of earthing work, and the value should conform to regulations.

Signature of contractor/s

Executive Engineer.
Division

LIST OF THE APPROVED PRODUCTS, R &B SOR 2013-2014

CHAPTER – I

WIRING

1.1 **SHOCKPROOFACCESSORIES**

(A) Concealed / Surface Type

Any I.S.I.' marked Which is Approved by Department

CATEGORY - I

1. **ALLWYN - APPROVED**
M/s Allwyn Electricais Industire, 78, Kakad Industrial Estate,
Lady Jamshedji Road,Mahim - Mumbai - 400016
2. **SAFECON'S**
M/s KALA ELECTRICAL INDUSTRIES, *12/A,* Eagal Market, 90
Feet Road, Saki Naka, Mumbai - 400072
3. **MILLION & MILLTEC**
M/s Mutha Electricals
1940/4, Ehadia Cross Road, Gandhi Road, Ahmedabd ~ 01
4. **LEGEND & WIT**
M/S, VINAYAK ELECTRICAL INDUSTRIAL, Dal Mill, Opp. Charch,
Behind Sonis Wadim SURENDRANAGAR - 363001
5. **VIMAL**
Mis Solanki Industries, 22/180, Motilalnagar, Opp Old best
colony, Goregaon [W], MumbaJ

CATEGORY - II

(1) **VINAY**
M /s Vinay Electricals, 16-A, Singh Industrial, Estate, Bldg NO.1,
Rammandir Road, Gorengaon (W),Mumbai - 40014.

CATEGORY - III

(1) **TOYAMA**
M/S Toyama Electric Ltd
36(A), Kiadb Industiral Estate, Hoskote, Bangiore * 562114
(2) **ORPAT**
M/s. Ajanta Industrial Estate, Rajkot
Highway Post Box NO. 115, Morbi

(B) Mini Modular Type [Approved]

1. **ANCHOR [NOVA / XL]**
Anchor Elect. PUd., Marathon Innova C Wing, Opp. Penivisula
Corporate Park, Opp, G.K,Marg, Lower Parel [W] Mumbai
2. **POINTER**
H.O B-15, Atlanta Evershine, Evershine
Nagar, Malad [WI, Mumbai - 400064
3. **PRISM- POINTER**
M/s Prism Industires (Refer to Ch.1.1.(B), Cat.-III (2))
4. **ORPAT** (Refer to Ch 1.1.(A), Cat,-lll (2))
5. **VlMAL**(Refer to CM.1 (A), Cat.-III (5))
6. **GELCO**-Cat II
GELCO ELECTRONICS PVT LTD
5,7,6 & 16Amarnath Estate, Nr. Krishna Gopal Estate,
Naroda Road, Ahmedabad - 380025

(C) Modular Type APPROVED

1. **L&T ORIS**
M/s LARSON & TURBRO LIMITED
501, SAKAR-I, OPP GANDHIGRAM RAILWAY STATION, AHMEDABAD - 380009
2. **LEGEND & WIT** (Refer to Ch.I.I.(A), Cat,-I (4))
3, **INDOSIMON**
M/s. EON Electric Limited
B/88, Sector 83, NOIDA- 201305, U.P., INDIA
4, **RANI**
M/s. Param Switchgear (P,) Ltd,
11, CSG Anand Niketan New Delhi-Il0021.

CATEGORY - I

1. **PRECISION**
M/s Precision Etectricals Shiv Sagar estate,
A-Block (Basement) Dr. A.B.Road Worli, Mumbai - 400018
2. **POINTER~.ITALIA** Refer to Ch.1.1. B), Cat.-111 (2))
3. **ALEX**
M/s Alex Industires, 3, Neminath Industrial Estate no.3 Navghar Road,, Vasai [E] Dist. Thane - 401210
4.**PRISM - POINTER** (Refer to Ch 1.1.(B), 3)
5.**VIMAL** (Refer to Ch.1.1(A), Cat.-I (5))
6.S.G

CATEGORY - II

1. **ANCHOR-RIDER** (Refer to Ch,1,1.(B)-3)
2.**GELCO** (Refer to Ch 1.1 (B)-Cat III (6))
3. **POINTER - SPECTRA** (Refer to Ch 1.1(B) Cat.III- (3)
4. **ELLYS**
M/s ELLE Electrical PL. ,Cama Industrial Area, Walbhat Road.
Next to Rajaram Tarphe, Goregaon (E), Mumbai - 400063
5.HI-Fl
M/s Aerotite Industries ,5, Sati Industrial Estate,
I.S. Road, Goregaon (E), Mumbai - 400063
6.**WONDER [EVER / PLAYBOY/COOLICY/FORTUNE/DASH/GOLD]**
M/s Wonder Industries, G-14, O.I D.C. Udhyog Nagar Industrial Estate, GIDC, RinganwadaDAMAN (U.T)
7.**ALLWYN** (Refer to Ch.1.1l(A) Cat 1 (1))
8.**INDOASIAN**
M/s Indo Asian Fusegeear Limited~ 203-204, Shreedhar Avenue
11, Sardar Patel Colony, Nr. Sardar Patel Statue, Naranpura, Ah
9. **VlNAY** (Refer to Ch.1.1 (A) Cat.-II (I))
10. **LEADER**
M/s Leader Electrical P.L., Leader House, 9 B, Mahal Industrial Estate, P.B.No 9483, Mahakali Caves Read, Andheri (E), Mumbai - 400 093
11.**LK**
L.K. Switchges, 165, Gl,DC Makarpura, Baroda - 390001
12 **NORTHWEST**
North West Switchgear Ltd.,
14/3, Mathura Road, Faridabad Haryana - 121003
13 **MK**

CATEGORY - III

1.**HAVELL'S - CRABTREE**
M/S Havell's India Ltd, 202-205, SHIVALIK II, Nr. Shivranjani Crass Road, Satelite 132 Ft. Ring Road, Ahmedabad - 380015
2.**TOYAMA** (Refer to Ch.1.1 (A) Cat-III (l))
3.**ANCHOR** [ROMA / WOOD IAVE] (Refer to Ch l. I (B)-I)
4.**PHILIPS**
M/S. Philips Electronics india Ltd., 7, Justice Chandra Madhab Road, Kolkata-700020.
6,**ABB**
M/SABB Limited 2nd Floor, Est Wing, Khanija Bhavan, 49, Race Course Road, Bangalore - 560 001
6. **ORPAT** (Refer to Ch 1.1(A) Cat-III-(2))
7. **SAL.ZER**
M/s SALZER ELECTRONICS LTD,
Samichettipalayam, Coimbatore-641047
8. **C&S GEWISS**
M/s. Control & Switchgears Contactors LTd
9th Floor, HERITAGE, Nr. Gujarat Vidyapith,
Ashram Road, Ahmedabad - 380 009
1,2 **RIGID PVC PIPES / OVAL PIPES & FITTINGS. FIA Approv & ISI marked Which is Approved by Department.**
1. **VRAJ**
M/s VRAJ PLASTIC INDUSTRIES,
41,42&43 Amarnath Estate, Nr. GokuIesh Petrolium, Narol Cross Road, Ahmedabad - 382 405
2. **PRECISION** (Refer to Ch.1 1.(C) Cat-(I)-I)
3. **NIHIR**
M/s NIHIR POLYMERS INDUSTRIES, 62, Umed Part Society, Sola Road, Ghatlodia, Ahmedabad - 380 061,
4, **HIMA / AMIT**
M/s Hima Sales Corporation, Opp, Relish Pharrna, Nr. NiIkanth Hotel, Ta, Kalol, Dist Gandhinagar. RAKANPUR
5.**VINAY** (Refer to Ch.1 1.(A) Cat.-II (I))
6.**POLYCAB**
M/s Polycab Wires Pvt. Ltd., HICO House, 1 st Floor, 771, Pandit Satwalekar Marg, Mahim/W), Mumbai - 400016
7. **BLP**
M/S, Bhaglaxmi Plastic Industires, 32, Asharva Ind. Estate, Opp. Khodiyar Estate, Narol, Ahmedabad
8. **POWER FLOW INDIA / CROWN PLAST**
M/S, CROWN INDUSTRIES
Plot No 6, Opp, Torrent Power Sub Station B/11,
Shahwadi Bus Stop, Narol Ahmedabad-382405
9. **9 - NINE / ADITYA**

M/s. Aaditya Polymake, 550, Rajput Road, Opp. Volga airtech,
Sarkhaj Bavla Highway, changodar, Ahmedabad.
10. **MARUTI**
18, Kamal Estate, Bombay Conductors, VATVA, AHMEDABAD 11. **PRESTO PLAST**
M/s, HARSH POLYMERS PVT LTD
1/11 C, Proctor Road, Grant Road; [East], MUMBAI - 400007 12. **SHRINATH**
13. **AMIT**
Amit Electro Plast, 431,4th Floor, Sarvoday Comm. Center Salapas Road, Nr. G.P.O, Ahmedabad.
14. **MAXCEL PLAST**
M/S. Maxcel Plast 133, SHREE Ram Ind. Estate, B/h. C.M.C,
Anup Eng. Compound, Nr. Soni's Chawl Cross Road, ODHAV,
Ahmedabad - 352415.

1.3 OVAL I CASING & CAPING & PVC TRUNKING

1. **VRAJ** (Refer to Ch,1,2.(1))
2, **PRECISION** (Refer toCh. 1.1 (C) Cat.-1.(I))
3. **NIHIR** (Refer to Ch.1.2.(3))
4. **HIMA / AMIT** (Refer to Ch.1.2.(4))
5. **VINAY** (Refer to Ch.1.1. (A) Cat.-II (1))
6. **POLYCAB** (Refer to Ch.1,2.(6))
7. **MODI'S**
M/S. Modi's Group of Companies, 34, Palace manor, 31 & 32,
BAlfour Road, KeIlys, Channai - 600010
8 **9 NINE / AADITYA** (Refer to Ch 1.2 (9))
9. **MARUTI** (Refer to Ch.1.2(10))
10, **PRESTO PLAST** (Refer to Ch.1.2.(11))
11. **POWER FLOW INDIA / CROWN PLAST** ~Refer to Ch.1 2.(8))
12. **SHRINATH**
13. **M.K**. 14. **AMIT** (Refer to Ch.1.2 Cat III (13)) 15. **MAXCEL PLAST** (Refer to Ch.1.2 (14))

LAMPS & FITTINGS

2.1 FILAMENT LAMPS I FLOURESCENT TUBES

(A) CAT.I

ANY ISI MARKED WHICH tS APPROVED BY DEPARTMENT;

(B) CATEGORY - II

1. **ARYA**
M/s,Arya Filaments P.L,, 344, Vishnupuri
Annex. AB.Road, Indore - 452 001
2. GE
M/s GE India Industrial Pvt. LTd., 405, "Kirtiman", Kinariwala
House, B/H Citibank, Off. C,GRoad. Ahmedabad - 380 009
3. **BAJAJ**
M/S Eajaj Electricals Limited, 109, Ist FI, Sakar 111, Nr. Ashram
Rroad, Navrangpura, Ahmedabad 380 014
4. **OSRAM**
M/s Osram India P.L. Delhi Road, Sonipat - Haryana **- 131001**
5. ANCHOR (Refer to Ch 1.1 (B) Cat.-III (I))
6.**JILCO**
M/S JAIN INDUSTRIAL LIGHTING CORP~
B-70/22, DS[DC Complex, Lawrence Road, New Delhi - 35
7. **INDOASIAN** (Refer to Ch,1.1.(C) Cat.-II-8)

CATEGORY - III

1. **SURYA**
M/s. Surya Roshni Ltd, (Lighting Division)
308, Shefali Centre, Nr. Paldi Char Rasta, Ahmedabad - 380006
2.**PHILIPS** (Refer to Ch.1.1(C) Cat. III (4))
3.**CROMPTON**
M/s. Crompton Greaves, C.Q. Hube, 6th Floor, Dr. Annie Besant Road, Worli, Mumbai - 400030
4.**HALONIX**
M/s. Halonix Limited, 59A, 59D, Noida Special Economic Zone,
Phase - II, Noida, Dist. Gautam Budhnagar - 201305 [UP]
5. **WIPRO**
M/s Wipro Ltd, A/210, Fair deal House, Opp. St. Xavier"s Ladies
Hostel, Navrangpura, Ahmedabad
6. **HPL**

CATEGORY-I

ANY ISI MARKED WHICH IS APPROVED BY DEPARTMENT

CATEGORY - II

1. **ARYA** (Refer to Ch.2.1. Cat.-II(I))
2. **ANCHOR** (Refer to Ch.1.1(B) Cat.-III (1))
3. **BAJAJ** (Refer to Ch.2.1.Cat.-II (3))
4. **OSRAM** (Refer to Ch.2.1. Cat.-II (4))
5. **JILCO** (Refer to Ch.2.1 Cat.-II (6))
6. **PUSHKAR / AKSHAR**
M/s. Puskhar Industries 87/1, Vilage ShihoIdi,
Vaso Alindra Road, Ta. Matar, Dist. Kheda - 387380
7. **VAPOLITE**

CATEGORY - III

1. **HAVELLS**' (Refer to Ch;1.1. (C) Cat.-Ill (I))
2. **SURYA** (Refer to Ch.2.3 Cat.-III (1))
3. **G.E**. (Refer to Ch.2:1. Cat,-II (2))
4.**PHILIPS** (Refer to Ch. 1.1. Cat-III (2))
5. **CROMPTON** (Refer to Ch.2.1. Cat III (3))
6, **HALONIX** Refer to Ch 2.1 Cat.III (4))
7. **WIPRO** (Refer to Ch 2,1, Cat.-III (5))
8. **C&S GEWISS** (Refer to Ch.1.1.(C) Cat-III (8))
9. **SHAKTI**
M/s Shakti Fixtu re Industceis 212lB, Bombay Talkies Compound Matad (W), Mumbai -400 064

2.4 COMPACT FLOURESCENT LAMPS

CATEGORY - I

1. ANCHOR (Refer to Ch.1.1 .(B)-Cat.-III 1))

CATEGORY - II

1.**SPANCO**
M/S Spance Semiconductors, 10/11, Bhagat Industrial Estate, Nr.18No. ESI Hospital, Jay Bharat Rangshala Compound, Saraspuh Ahmedabad - 380018
2. GRE
M/s. GRE Electronics Pvt. Ltd,,
Plot No 423, G.I.D.C.-II, Dediyasan, Mehsana - 384002
3. **OSRAM** (Refer to Ch.2.1 Cat -II (4))
4. **JILCO** (Refer to Ch 2.1. Cat.-II (6))
5. **STANDARD**
M/s. Standard Electrical Ltd
202-205, Shivalik - II, Nr. Shivrangni Cross Road,
Satelite, 132 feet Ring Road,Ahmedabad - 15
6, **CILVER**
7. **INDOASIA**
8. **OREVA**
M/s. Ajacta Manufacturing Ltd,
SA, National Highway, Morbi-363642,

CATEGORY - III

1. **HAVELLS**' (Refer to Ch.1.1, (C) CatIII (1))
2. **SURYA** (Refer to Ch.2.1. Cat,-III (1))
3. **PHILIPS** (Refer to Ch,1.1 (C) Cat -III (3))
4. **CROMPTON** (Refer to Ch 2,1. Cat.-III (3))
5. **HALONIX** i(Refer to Ch.2.1. Cat III (4))
6. **WIPRO** (Refer to Ch.2,1. Cat. III (5))
7. ASIAN
M/sASIAN ELECTRONICS LTD, 11-14,
Tej Complex, Nr. Lions Hall, Opp. Ashoka Chambers,
Mithakhali, Ellisbridge, Ahmedabad - 380 006 - India
8. **HPL** (Refer to Ch.2.1. Cat.-III (6))

2.5 METAL HALIDE LAMPS

CATEGORY - I

ANY ISI MARKED WHICH IS APPROVED BY DEPARTMENT

CATEGORY - II

1.**ARYA** (Refer to Ch.2.1. Cat.-II (1))
2. **ANCHOR** (Refer to Ch.1 1 (B) Cat-III (1))
3. **BAJAJ** (Refer to Ch.2,1, Cat-II (3))
4.**OSRAM** (Refer to Ch.2.1 Cat -II (4))
8.**PUSHKAR / AKSHAR** (Refer to Ch.2.3 Cat.-III (8))

CATEGORY - III

1. **SURYA** (Refer to Ch.2.1. Cat.-III (1))
2.**GE** (Refer to Ch.2 1. Cat.-II (2))
3.**PHILIPS** (Refer to Ch,1.1. (C) Cat-III (2))
4.**CROMPTON** (Refer to Ch.2.1. Cat.-III (3))

M/s B/707, Premium House, Nr. Gandhi Gram Rly Station,
B/H Natraj Cinema, Ashram Road, Ahmedabad - 380009

2.3 SODIUM WAPOUR LAMPS

5. **HALONIX** (Refer to Ch 2.1 Cat-III(4))
6. **WIPRO** (Refer to Ch.2.1. Cat -111 (5))
7.**HAVELL'S** (Refer to Ch.1.1. (A) Cat.-III (1))
8, **C&S GEWISS** (Refer to Ch.1.1 .(C) Cat.-11I (8))
9. **SHAKTI** (Refer to Ch.2.3. Cat.-11 (9))

2.6 ENERGY SAVING FLOURESCENT TUBE & CFL FITTINGS (Box Type/Industrial Type/Mirror Optic/Mirror Light/Street Light)
APPROVED

1,**FUTURE LIGHTING**
M/S. FUTURE LIGHTING INDIA LTD+ 8TH FLOOR, TOWER
"C"~ 247 PARK, LB.S, MARG, VIKHROLI [VV] MUMBAI - 400083
2.**CAMAY**
M/S. CAMAY ELECTRONICS, CAMAY HOUSE, CHANDN[CHOWK, FULWADI DHORE, JETPUR ~ 360370
3. **EUROLITE**
M/S RUBYCON ELECTRICALS & ELECTRONICS INDUSTRIES
SURVEY NO 246/4, OPP. G I.D.C. PHASE-I SIHOR - 364240
BHAVNAGAR - GUJARAT
4. **ENERGYVISION**
M/S ENERGY VISION, 38/568, SHASTRINAGAR, KHATODARA COLONY, SURAT - 395002
EUROLITE (Refer to Ch,2 6, Approved (3))

CATEGORY - I

1. **PULSE**
M/s Pul$e Electronics & Control B/1, Maruti tenament, Opp. Shdji Bapa Complex, Nr. Rabari Colony, Vastral to Odhav
Canal Road, Ahmedabad
2.**HAVELL'S** (Refer to Ch.l 1, (A) Cat.-III (1))
3.**AKHIL**
M/S SATYA ENGINEERING WORKS PL. A-111, MANGOL PURl IND AREA PHASE - II, NEW DELHI - 110034
4. **Optic Lighting**
M/S Optic Lighting PL Rajiv House4, Smritkunj,
Nr, Navrangpura Post Office. Navrangpura, Ahmedabad - 09
5.Pulse / Nano (Refer to Ch26 Cat,-I (1))
6.**Aash Cube**
M/s Aashcube Lighting P.L. C/41,195, Krishna Estate
B/h Anuptech, Opp B,I.D C. Gorwa, Vadodara - 390016

CATEGORY - II

1, **JABLA**
M/S JABLA ELECTRICAL INDUSTRIES, 29 B/C JAY KHODIYAR INDUSTRIAL ESTATE, NR. SUBHASH ESTATE, RAMOL ROAD C T~M. AMRAIWADI, AHMEDABAD - 380026
2,**GELCO** (Refer to Ch. 1,1, (B) Cat.-III (6))
3. I**NAVA**
M/s. Inava Instruments International 94, Ratnajyot Ind. Estate,
Irla Lane, Vile Parle (W), Mumbai - 400056
4. **PIERLITE**
M/s. Pierlite India PL. Rakhial Road, Ahmedabad.

CATEGORY - III

1. **SPANCO** (Refer to Ch. 2.4. Cat.-II (1))
2, **HPL**
M/s. HPL Eleetrie& Power Ltd., Plot No. 76-B, Phase-IV, Sec.-57, JSIIDC, Indl Area, Kundli Dist. Sonipat,

8.**GLOMORE**
M/S Devraj Enterprises (P) Ltd , 401,
SobhnaAppartment. 4th Floor, Above Mandavi Bank,
Chandravarkar Road, Borivali [W], Mumbai - 400092
9. **C&S GEWISS** (Refer to Ch. 1 I (C) Cat qll (8))
10. **CILVER** (Refer to Ch26. Cat -II (10))
11. **ACON**
M/s Surer Electronics 'Sorab Villa", Nr. Popular House,
Ashram Road, Ahmeabad- 9
12 **INAVA** (Refer to Ch.2.6, Cat.-II (3))
13 **PRESTOLITE** (Refer to Ch. 26 Cat-III (4))
14 **INDOASIAN** (Refer to Ch.1 1. (C) Cat.-II (8))
15 SHAH
M/s Shah Electronics, A-3, Manoharvila, New Naroad, Nicol Road,
Nr Naroda Canal, Nicol, Ahmedabad ~ 382330
16 **Pulse / Nano** (Refer to Ch. 2.6, Cat.-I (1))
17 **AKHIL**(Refer to Ch. 2.6 Cat.-I (3))

CATEGORY - II
[ENERGY SAVING T-5 TUBE FITTING I CFL OUTDOOR TYPE]
1. **GELCO** (Refer to Ch,1 .1 (B) cat-III (6))
2. **SHAKTI** (Refer to Ch. 2 3. Cat III (9))
3. **JILCO** (Refer to Ch2.1. Cat -II (6))
4. **CILVER**(Refer to Ch2.6 Cat.-II(10))
5. **AKHIL** (Refer to Ch,2.6 Cat-I (3))
6 **ACON** (Refer to Ch2.6 Cat-Il (11))

CATEGORY - III
(ENERGY SAVING T-5 TUBE FITTING / CFL INDOOR TYPE]
1. HAVELL'S (Refer to Ch.1.1. (C) Cat-Ill (1))
2. HALONIX (Refer to Ch,2.1 Cat -Iii (5))
3. GRE (Refer to Ch.2.4. Cat.-II (2))
4, **WIPRO** (Refer to Ch. 2.1. Cat.-III (5))
5, **THORN**
M/s. Thorn Lighting India PL C/o,f 0 parshwanath Apt., Somnath Park Lane, Opp Tele, Exchange, Sahibaug, Ahmedabad - 380004
6.**SURYA**(Refer to Ch21 Cat.-III (1))
7.**ASIAN** (Refer to Ch. 2.6. Cat II (4))
8.**G.E**.(RefertoCh.21 Cat-II(2))
9,PHILIPS (Refer to Ch. 1.1. (C) Cat.-III (4))
10. **CROMPTON** (Refer to Ch.2.t. Cat. III (3))
11, **BAJAJ** (Refer to Ch.2.1 .Cat.-II (3))
12. **PASOLITE**
M/s Pasolite Electricals P.L.
7, kilari road, 14th cross, Bangalore- 560053
13. **PRESTOLITE** (Refer to Oh 2 6 Cat -III (4))
14. **HPL** (Refer to Ch. 2 6 Cat.-III (2))
15. **SHAKTI** (Refer to Ch,2.3. Cat.-III (9))

ENERGY SAVING T-5 TUBE FITTING / CFL [OUTOOR TYPE]
CATEGORY - III

1.**HAVELL'S**(Refer toCh.l.1. (C) Cat-III(1))
2.**GRE** (Refer to Ch,2 4, Cat-II (2))
3.**SURYA** (Refer to Ch.2 1. Cat.-III (1))
4.**PIERLITE** (Refer to Ch2.6 Cat,II (4))
5.**PHILIPS** (Refer to Ch.1.1 (C) Cat.-III (4))
6.**CROMPTON**(RefertoCh2,1 Cat 111(3))
7.**WIPRO** (Refer to Ch.2.1. Cat.-III (5))
B.**THORN** [Refer to Ch.2.6. Cat -III (5))
9.**BAJAJ** (Refer to Ch.2.1.Cat-II (3))
10.**SHAH** (Refer to Ch. 2.6, Cat -II (15))
11. **PRESTOLITE** (Refer to Ch. 2.6 Cat.-IJ1 (3))
12. **HPL** (Refer to Ch,2.6.Cat.-III (2))

(Haryana)-131028.
3. **FIXOLITE**
M/s FIXOLITE INDUSTRIES, Jhon Robert Compound Sewri Fort Road, Sewri (E), Mumbai - 400015
4. **PRESTOLITE**
M/s Prestolita Corporation, 57/5, Khalii Sth Compound, Off M.G. Road, Gurgaon [WI,
5.**SHAKTI** (Refer to Ch.2.3. Cat.-111 (9))
6.C&S GEWISS (Refer to Ch.1.1 (C) Cat.-III (18))

[ENERGY SAVING T-5 TUBE FITTING / CFL INDOOR TYPE]

CATEGORY - II
1.**SPANCO** (Refer to Ch.2.4: Cat-II (1))
2. **GELCO** (Refer to Ch.1.1. (B) Cat-III (6))
3. **TEKNOLITE**
M/s Teknovision Allied Product P.L 16, Waman Patil Industries
Estate, Nr. Dukes Factory, Nr. Chembur, Mumbai-71
4.**ARYA** (Refer to Ch,2,1, Cat-II (1))
5.**SHAKTI** (Refer to Ch.2,5. Cat-III (9))
6.**JILCO** (Refer to Ch.2,1. Cat.-II (6))
7.**ANCHOR** (Refer to Ch.1.1. (B) Cat-III (1))

CATEGORY - II
1. **GELCO** (Refer to Ch.1.1. (B) Cat.-lII(6))
2. **PRESTOLITE** (Refer to Ch.2.6. Cat -III (4))
3. **GLOMORE** (Refer to Ch.2.6. Cat.-II (8))
4. **TEKNOLITE** (Refer to Ch.2.6. Cat.-II (3))
5. **ARYA** (Refer to Ch.2 1, Cat-Il (1))
6, I**NDOASIAN** (Refer to Ch,1,1. (C) Cat.-II (8))
7. **JILCO** (Refer to Ch.2.1 Cat.-II (6))
8.**CILVER** (Refer to Ch.2.6 Cat.-II (10))
9. **ANCHOR** (Refer to Ch. I 1. (B) Cat-tit)
10, **G.E,** (Refer to Ch.2.1. Cat.-II (2))
11.**PASOLITE** (Refer to Ch.2.6. Cat-II (12))
12,**ACON** (Refer to Ch,2.6 Cat.-II (11))
13.**ACQURATE**
M/S ACQURATE Engitech Limited, Plot NO 147/148, GIDC
Ankleshwar, Dist. Bharuch Gujarat - 393002
14. **BAJAJ** (Refer to Ch. 2.1. Cat.-II (3))
15.**AKHIL** (Refer to Ch.2.6, Cat.-I (3))
16. SUNBEAM
M/s Sunbeen Electricais, 292/7/B Shastri Laghu Udhyog Nagar,
Maheshwari Mill Read, Tavdipura, Shahibaug, Ahmedabad-30004.

CATEGORY - III
1. **PHILIPS** (Refer to Ch,1 1. (C) Cat.-Ill (3)
2. **CROMPTON** (Refer to Ch.2.1, Cat.-III (4)
3. **SURYA** (Refer to Ch. 2.1.. Cat -III (1))
4. **HAVELL'S** (Refer to Ch,1,1. (C) Cat,-III (1))
5. **WIPRO** (Refer to Ch.2.1 Cat -III (5)
6, **HALONIX** (Refer to Ch.2.1. Cat.-III (4)
7. **GRE** (Refer to Ch. 2.4. Cat -II (2)
8,**SHAH** {Refer to Ch.2.6 Cat.-II (15)
9. **FIXOLITE** (Refer to Ch,2.6. Cat, IIII (2)
10. **HPL** (Refer to Ch. 2.6,Cat.-III (2))
11. PIERLITE (Refer to Ch.2.6. Cat.-II (4))
12. **C&S GEWISS** (Refer to Ch.1.1, (C) Cat -III (5)
13. **SHAKTI** (Refer to Ch. 2.5. Cat, III (9))

2.9 SODIUM VAPOUR LAMP FITTINGS (POST TOP LANTERN / STREET LIGHTS)

CATEGORY - I
1. **GLOMORE** (Refer to Ch.2.6 Cat.-II (8))
2.**EUROLITE** - APPROVED (Refer to Ch.2.6. Cat. Approved (3)
3.**SUNBEAM** (Refer to Ch.2.7, Cat.-II (16)
4.**OPTIC LIGHTING** (Refer to Ch.2:6. Cat.-I (4)

CATEGORY - II
1.**SPANCO** (Refer to Ch.2.4 Cat,-II (1))
2. **ARYA** (Refer to Ch.2 1, Cat II (1)
3. **JILCO** (Refer to Ch.2.1. Cat.-II (6)
4. **CILVER** (Refer to Ch.2.6 Cat.-II (10)
5, **ANCHOR** (Refer to Ch,1.1. (B)-Cat-III (1)
6. **G.E.**[COMMON FITTING] (Refer to Ch. 2.1 Cat,-II (2)
7.**ACQURATE** (Refer to Ch. 2 7, (18))
8. **PULSE/NANO** (Refer to Ch.2.6. Cat,-I (1)

CATEGORY - III
1. **HAVELL'S** (Refer to Ch,1.1, (C) Cat,-Ill (1)
2. **PIERLITE** (Refer to Ch.2,6. Cat.-II (4)
13. **FIXOLITE** (Refer to Ch.2.6.Cat,III (3)~
14. **SHAKTI** (Refer to Ch. 2.3. Cat. Ill (9))
15.**TEKNOLITE** (Refer to Ch2.6. Cat.-III (3))

2.7 FLOURESCENT TUBE FITTINGS [ELECTRONICS BALLAST (Box Type/Industrial Type/Mirror Optic/Mirror Light/Streetlight) APPROVED
1. **ACTION**
M/S. ADHUNIK SWITCHGEARS P L
UNIT-l, 902/290, SHALIMAR IND AREA DELHI - 110088

CATEGORY - I
ANY ISI MARKED WHICH IS APPROVED BY DEPARTMENT
1. PULSE (Refer to Ch.2 6. Cat q (2))

2.10 FLOOD LIGHTS WITH BCI ES/IMV I SV I MH / LAMPS (POST TOP LANTERN I STREET LIGHTS)

CATEGORY - I
ANY lSI MARKED WHICH IS APPROVED BY DEPARTMENT 1.**EUROLITE** (Refer to Ch.2.6 Cat Approved (3))
2. **SUNBEAM** (Refer to Ch. 2.9. Cat.-I (3))

CATEGORY - II
1. SPANCO (Refer to Ch.2.4. Cat.-II(1))
2,**GLOMORE** (Refer to Ch.2.6 Cat ~ II (18))
3. **ARYA** (Refer to Ch.2.1. Cat .II (1))
4. **ANCHOR** (Refer to Ch.1.1. (B) Cat.-Ill (1))
5. **G.E**. (COMMON FITTING] (Refer to Ch. 2.1. Cat,-II (2))

CATEGORY - III
1. **SURYA** (Refer to Ch.2.1. Cat-III (1))
2. **HAVELL'S** (Refer to Ch.1.1, C) Cat. III(1))
3, **GRE** (Refer to Ch. 2 4. Cat.-IJ (2))
4. **PIERLITE** (Refer to Ch.2,6. Cat.-III (8))
5.**G.E**. (SF/GEMF/BLAZE/ZION/GLANZ/EI-2000+/CONJA-J R / HELO FLOOD / ARINA)
(Refer to Ch.2.1, Cat II (2))
6.**PHILIPS** (Refer to Ch,l.1, (C) Cat-III (4)
7,**CROMPTON** (Refer to Ch.2.t, Cat-III (3)
8.WIPRO (Refer to Ch.2.1. Cat -III (5))
9.TRANSRAIL (Refer to Ch.2,9. Cat,-III (14)
10. **HALONIX** (Refer to Ch,2,1. Cat.-III (4)
11. **BAJAJ** (Refer to Ch. 2.1. Cat.-II (3))
12. **PRESTOLITE** (Refer to Ch.2 6. Cat.-III (4))
13, **FIXOLITE** (Refer to Ch. 2.6. Cat.-III (3))
14. **HPL** (Refer to Ch.2,6 Cat -III (2))
15. **C&S GEW[SS** (Refer to Ch,1,1. (C) Cat. III[(8))
16. **SHAKTI** (Refer to Ch2.3 Cat.-III (9))

2,11 Halogen Tube Fittings
ANY ISI MARKED WHICH IS APPROVED BY DEPARTMENT
1. **EUROLITE** (Refer to Ch.2.6. Cat, Approved (3))

Category - II
1. **ARYA** (Refer to Ch,2,1. Cat. II (1))
2. **PIERLITE** (Refer to Ch.2,6. Cat -II (4))

Category - III
1. **HAVELL'S** (Refer to Ch.1.1. (C) Cat.-Ill (1)
2, **WIPRO** (Refer to Ch.2.1, Cat-II (4)
3. **HALONIX** (Refer to Ch.2 1. Cat -III (4)
4. TRANSRAIL (Refer to Ch. 2.14 Cat.-III (7))
5. **SHAKTI** (Refer to Ch.2 3 Cat-III (9))

2.11 (A) METAL HELIDE LAMP FITTINGS

CATEGORY - I
1. **GLOMORE** (Refer to Ch. 2.6 Cat -II (8))
2, **EUROLITE** (Refer to Ch.2.6 Cat Approved (3))
3, **OPTIC LIGHTING** (Refer to Ch. 2,6 Cat- I (4))

CATEGORY- II
1. **BAJAJ** (Refer to Ch.2.1, Cat.-II (3))
2. **ARYA** (Refer to Ch. 2.1, Cat: II (1))
3. **JILCO** (Refer to Ch. 2.1. Cat -II (6))
4. **PASTOLITE** (Refer to Ch. 2 6 Cat. III (13))
5. **PIERLITE** (Refer to Ch.2.6 Cat -II (4))

CATEGORY - III
1. **HAVELL'S** (Refer to Ch.1,1. (C) Cat III (1))
2. THORN (RefertoCh.2.6. Cat.-IIII(5))
3. **GRE** (Refer to Ch.2.4. Cat,-lI (2))
4. **TRANSRAIL** (Refer to Ch.2 9. Cat.-III (14))

3. **SURYA** (Refer to Ch.2,1. Cat. III (1)
4. **G.E.** (SR/SPPT/OLYMPIA/RANGER / GEN-X / SKYGEN / M ET-
40/SPECTRA / QUNA / NOVA T-5 STRECT / OPTYLANE) (Refer
to Ch.2.1. Cat-Il (2)
5. **PHILIPS** (Refer to Ch. f .1. (C) Cat. III (4)
6,CROMPTON (Refer to Ch.2.1. Cat.-III (3)
7.**GRE** (Refer to Ch.2.4 Cat.-II (2)
8. HALONIX (Refer to Ch.2.1. Cat.-III (4)
9. **WIPRO** (Refer to Ch.2.1. Cat. III (5)
10. **THORN** (Refer to Ch.2,6. Cat,-III (5))
11,**BAJAJ** (Refer to Ch.2 1. Cat.-II (3})
12.**FIXOLITE** (Refer to Ch.2.6 Cat.-II (3))
13.**PASOLITE** (Refer to Ch.2.6, **Cat.-III (13))**
14.**TRANSRAIL**
A-201/209, Boomerang Complex, Chandivali Farm Road , Andheri [E[, Mumbai - 400072
15.**PRESTOLITE** (Refer to Ch.2,6 Cat.-lII(3))
16.**HPL** (Refer to Ch. 2.6.Cat.-lll (2))
17.**C&S GEWISS** (Refer 1o Ch,1,1. (C) Cat.-III**(8))**
18. **SHAKTI** (Refer to Ch~2.3 Cat.-III (9))

2. GLOMORE (Refer to Ch.2.6. Cat.-II (8))
3. TEKNOLITE (Refer to Ch.2.0. Cat.-2 (3))
4. GELCO (Refer to Ch.1,1. (B) Cat.-(2 (6))
5. INDOASIAN (Refer to Ch.1 .1. (C) Cat.-II (8))
6. ARYA (Refer to Ch.2,1. Cat,-II (1))
7. ASIAN (Refer to Ch.2.4. Cat.-III (7))
8. OSRAM (Refer to Ch. 2,1, Cet.-II (4))
9. ACON (Refer to Ch.2.6. Cat.-II (11))
10:**INTELUX**
M/S intelux Electronics P.L. Unit No 2, Electronics Co. Op. Estate
Pune - Satara Road, Pune - 411009
11. OCLEG
M/s. OCLEG CONTROLS, 93-94, Amar Estate, B/h Lubi Elect.,
memco, Naroda Road, Ahmedabad
12. Pulse/Nano (Refer to Ch.2.6. Cat.-1 (1))

CATEGORY - III

1. HAVELL'S (Refer to Ch. 1.1. (C) Cat.-III (1))
2. GRE(ReferfeCh2.4. Cat.-II(2))
3.PIERLITE (Refer to Ch.2.6. Cat.-II (4))
4. PHILIPS (Refer to Ch1.1 (C) Cat III} (3))
5. CROMPTON (Refer to Ch. 2,1. Cat.-III (4))
6.WIPRO (Refer to Ch.2.1, Cat.-III (7))
7. HALONIX (Refer to Ch.2.1, Cat-III(5))
6.SHAH (Refer to Ch.2.6. Cat,-II (15))
9.HPL (Refer to Ch.2.1 Cat.-[II (6))
10. FIXOLITE (Refer to Ch. 2,6. Cat. III (3))
11. C&S GEWISS (Refer to Ch.1.1(C) Cat.-III(8))
12. SHAKTI (Refer to Ch.2.3, Cat,-III (9))

CHAPTER III
SWITCHGEARS & DISTRIBUTION BOARDS

3.1 CAST IRON CLAD SWITCHES WITH REWIREBLE FUSE

CATEGORY - I
ANY ISI~ MARKED WHICH IS APPROVED BY DEPARTMENT
CATEGORY - Il

1. TRISHUL
M/s Aum Electrical Industries, 1014, GIDC,
Waghodia - 321760 Gujarat
2. MODI
M/S MODI INDUSTRIES~ 61, Mahaveer Estate, Nr. Anupam
Cinema, Khokhara,Ahmedabad-380008
3. NEW/NILANG
M/s Nilang Engineering Works, Plot No. 156/2, A-31 Kailashnagar
Estate, Opp. New Tele. Exchange, F Road, GI.D.C, Vatva, Ahmedabad - 382445
4, PEW
M/s Patel Engineering Works, 23, Vrundavandham, Society, Opp.
P.d. Pandya College, Nr. Smruti Mandir, Ghodasar ~ Ahmedabad
5. SUPER
5. **SURYA** (Refer to Ch. 2.1. Cat-III (1))
6. WIPRO (Refer to Ch.2.1. Cat -III (7))
7, **HALONIX** (Refer to Ch.2,1 Cat.-Ill (5))

2.12 ELECTRONIC BALLAST

CATEGORY - I
1. **AMIT** (Refer to Ch.1.2. (13))
2. **INAVA** (Refer to Ch,2,6. Cat.-II (10))
3, **ANCHOR** - APPROVED (Refer to Ch. 1.1, (B) Cat.-III (2))
4. **CILVER** (Refer to Ch,2.6. Cat II (10))
5. PULSE (Refer to Ch.2.6, Cat.-I (1))
6. **JILCO** (Refer to Ch.2,1, Cat.-II (6))
7. **EUROLITE** - APPROVED (Refer to Ch.2.6. (3))
8. **CAMAY** (Refer to Ch.2 6~ Approved (2))

CATEGORY - II
1.**SPANCO**(RefertoCh2.4 Cat.-II(1))
M/s Bentec Electrical & Electronics PL. No 7, Maharaja Estate,
B/4, Bhagyoday Hotel, Sarkhej - SanND Highway,
Sarkhej -Ahmedabad - 382210
6, ACTION (Refer to 2.7 Approved (1))

CATEGORY - III

1. HAVELLS (Refer to Ch.1.1 (A) Cat-III (1)
2. INDOASIAN (Refer to Ch.1.1(C) Cat,-II (8))
3. STANDARD (Refer to Ch,2.4. Cat.-II (5))
4. L&T
M/S L & T House, Ballord Estatel P.O. Box No 278 Mumbai-01.
5.CROMPTON (Refer to Ch.2.1. Cat.-III (4))
6.C&S (Refer ta Ch.1.1 (C) Cat.-III (8))
7. GUTS¸
M/s GUTS CIRCUIT BREAKERS PVT LTD, ManasAnand Bldg No .1 Flat No 804,Dongri Pada, Godbunder Road, Thane West 400601
8. HPL (Refer to Ch.2.1, Cat -III (6))

3.3 METAL CLAD SWITCHES WITH HRC FUSE

CATEGORY - II
1. KEW (Refer to Ch. 3.1, Cat.-III (1))
2. PIERLITE [ELECON] (Refer to Ch.2.6. Cat.-II (4))
3. PEW (Refer to Ch,2,12.(3.1) Cat-II (4))
4. SUPER (Refer to Ch. 2.12 (3,1) Cat -II (5))
5. CROMPTON (Refer to Ch.2.1. Cat-III (3))
7. NEW / NILANG (Refer to Ch.2.12 (3.1) Cat II (3))
6. ELECTRO POWER
M/s. Electro Power, B-22, Jay Estate, Opp. Keval weigh bridge Rakhial, Ahmedabad ~ 380023

CATEGORY - III
1. HAVELLS (Refer to Ch.1.1. (A) Cat.-III (1))
2. INDOASIAN (Refer to Ch,1.1 (C) Cat.-II (8))
3. STANDARD (Refer to Ch2,4. Cat -II (5))
4, C&S GEWISS (Refer to Ch.1.1. (C) Cat -III (8))
5. L & T refer to Ch.3.2 cat-III(4))
6. Siemens
M/s. Siemens Ltd L.V. Control & Distribution
Products Thane Be!apur Road, Thane - 601
7,GE.(Refer to Ch.2,1. Cat. II(2))
8.GUTS (Refer to Ch. 3 2. Cat.-III (7))
9.HPL (Refer to Ch.2.1. Cat.-III (6))

3.4 MOULDED CASE CIRCUIT BREAKERS

CATEGORY - I
ANY [SI MARKED WHICH IS APPROVED BY DEPARTMENT
1,L.S. APPROVED
2.ACTION I ADHUNIK (Refer to Ch.2.7 Approved (1))

CATEGORY - II
1. BENTEC (Refer to Ch.3.1. Cat.-II (7))
2.CROMPTON (Refer to Ch.2,1. Cat -III (3))

CATEGORY - III
1. HAVELLS Refer to Ch.1.1. (C) Cat.-lII (1))
2. STANDARD (Refer to Ch,2 4~ Cat. ll (5))
3. BCH
M/s. BCH Electric Limited 93,City centre Nr. Swank Char Rasta, C.G Road, Ahmedabad -380 009
4.C&S GEWISS (Refer to Ch.1 1. (C) Cat.-III (8))
5.INDOASIAN (Refer to Ch.1.1. (C) Cat.-II (8))
6.L&T(Refer toCh,3.2, Cat,-III(4))
7.SIEMENS (Refer to Ch,3.3 Cat, III (6))
8.GE. (Refer to Ch.2.1 Cat.-II (2))
9.GUTS (Refer to Ch.3.2 Cat,-Ill (7))
10.HPL (Refer to Ch~2.6, Cat, Ill (3))

M/S SUPER SWITCHGEARS, SHED - C,5/6, GIDC VITTHAL
UDHYOG NAGAR,~ZVNAGAR, - 388121
6. A**EW**
M/s. Ambica Engineering Works, L-61, G,I.D C. Estate, Nr. Water Tank, Odhav, Ahmedabad - 382415

CATEGORY - III

1. KEW
M/s KEW FUSEGEAR PVT, LTD C 1 B/1336/38, Gl.D.C. Estate,
Makarpura, Vadodara - 390010
2.STENLY ·

3.2 METAL CLAD SWITCHES WITH REWIREBLE FUSE

(63A - 100 A) APPROVED

1.ACTION I ADHUNIK (Refer to 2.7 Approved (1))

CATEGORY - I

1. REIKO
M/S R.L. Electrical Industries, 8, Sri Ram Marg, Opp, Central
bank, Moujpur Road, Shahdara, Delhi-110053 (INDIA)

CATEGORY - II

1.KEW (Refer to Ch.3,1, Cat.-III (1))
2.TRISHUL (Refer ta Ch.2.12. (8.1) Cat.-II (1))
3.MODI (Refer to Ch.2.12.(3,1) Cat.-II (2))
4.PEW (Refer to Ch.2.12. (3.t) Cat.-II (4))
5.SUPER (Refer to Ch. 2.12. (S,t) Cat.-II (5))
6.NEW/NILANG(RefertoCh.2.12. Cat.-II(3))
7.**BENTEC**
4. CROMPTON (Refer to Ch. 2,1, Cat -III(3))
8. L&T(RefertoCh.3.2 Cat-III(4))
8, Siemens (Refer to Ch.3 3. Cat-II 6))
7. HAVELLS ~Refer to Ch. 1.1. (C) Cat.-III(1))
8, HPL (Refer to Ch. 2.8. Cat.-III(2))

3.6 CHANGE OVER SWITCHES
APPROVED

1. ACTION / ADHUNIK (Refer to 2.7 Approved (1))

CATEGORY - I

1. MODl (RefertoCh2.12 Cat.-II(2))
2. REIKO (Refer to Ch.3.2. Cat-I(1))

CATEGORY - II

1. PEW (Refer to Ch. 2.12 (3.1) Cat -II (4))
2. KEW(RefertoCh3.1 Cat.-III(1))
3. BENTEC (Refer to Ch. 3.1 Cat -II (7))
4. NEW / NILANG (Refer to Ch. 2.12 (3 1) Cat -II (3))
5, SUPER (Refer to Ch. 2.12.(3.1) Cat.-II(5))
6, ANCHOR (Refer to Ch. 1.1. (B) Cat.-III(1))
7. ELECTRO POWER (Refer to Ch. 3.3 Cat II(8))
8. SIGMA
M/S. MCB Electronic Controls, C-176, Mayapuri industrial Area, Phase-II, New Delhi-110064
9. AEW (Refer to Ch. 3 1. Cat -II (6))

CATEGORY - III

1, HAVELLS (Refer to Ch1,1. (C) Cat.-III(1))
2. STANDARD(RefertoCh,2.4 Cat -II(5))
3. C&SGEWISS(Refer to Ch. 1.1 (C) Cat-(12))
4. INDOASIAN (Refer to Ch. 1.1. (C) Cat-II(8))
5. L & T (Refer to Ch,3.2 Cat.-III(4))
6. Siemens (Refer to Ch.3.3. Cat-Il (6))
7. Crompton (Refer to Ch.2 1, Cat-III(3))
8. G.E.(RefertoCh2.1 Cat.-II(2))
8. GUTS (Refer to Ch.3 2. Cat.-III(7))
10. HPL (Refer to Ch.2 1, cat-III (2))
11. PIERLITE - ELCON (Refer to Ch2.6 Cat,-II (4))

3.7 MCB & MCB DISTRIBUTION BOX
APPROVED

1. TOYAMA (Refer to Ch.1.1 (A) Cat-III (1))
2. MILLION & MILLTEC (Refer to Ch11. (A) Cat-I (3))
3. BALKAM
M/s Balkam India Ltd, B-33, Old Vishnu Garden,
New Delhi - 110 018
4. ESCO
M/S ELECTRO SPARES & Co. 1894/A/1 Inside Pade Pole GandhiRoad, Ahmedabad - 380 001
8. SMPL

3.5 AIR CIRCUIT BREAKERS
APPROVED
ANY ISI MARKED WHICH IS APPROVED BY DEPARTMENT

1. BIECCO
M/s. Biecco Lawarie Limited, 95, maker tower "F", 9th Floor, Cuffee
Parade~ Mumbai 400005
2.HPL (Refer to Ch.2.1. Cat -III (6))
3. LS

CATEGORY - III

1. C&S (RefertoCh.1.1.(C)Cat-(8))
2. INDOASIAN (Refer to Ch.1,1. (C) Cat-Ill (8)
3. G.E. (Refer to Ch.2.1 Cat.-II (2))

13. BENTEC (Refer to Ch.3.4 Cat.-II (7))
14. SIGMA (Refer to Ch. 3.6 Cat. II (8))

CATEGORY - III

1. HAVELLS (Refer to Ch.1 1. (C) Cat.-III(1))
2. STANDARD (Refer to Ch. 2,4. Cat -II (5))
3, C&S (Refer to Ch.1.1 (C) Cat-II(12))
4. INDOASIAN (Refer to Ch. 1.1. (C) Cat.-II(8))
5. ABB(RefertoCh.1.1(C) Cat-III(5))
6. L&T (Refer to Ch.3.2 Cat.-II114))
7. GUTS (Refer to ch3.2 Cat-III(7))
8. G.E (Refer to Ch. 2.1. Cat.-II(2))
9. HPL(RefertQCh2.1 Cat-III(6))
10**.** NANO;
M/s Ajay Electrical Industries, B-257,
naraina ind. area, phase - I, New Delhi
11. MDS
12. PIERLITE SAFETY (Refer to Ch2.6 Cat-Il (4))

3.8 ELCB & RCCB
APPROVED

1. ACTION / AOHUNIK (Refer Lo 2.7 Approved 1))

CATEGORY - 1

1, PULSE CONTROL(RefertoCh2.6 Cat.-I(1))
2. MILLION&MILLTEC(Refer to Ch. 1.1 (A) Cat-1(3))
3. ELLICO (Refer to Ch3.7 Approved (6))
4. S.G,

CATEGORY - II

1. GELCO(RefertoCh.1.1 (B) Cat.-III (6))
2. GRE (Refer to Ch. 2 4. Cat -(2))
3. RANI (Refer to Ch.1 (C) (4))
4. BENTEC(RefertoCh3.1 Cat-II(7))
5. AECO-MEFA (Refer to Ch.3.7 Cat.-II (5))
6. ANCHOR (Refer to Ch.1.1 (B)Cat -III (I))
7, SUPER (Refer to Ch.2 12 (3.1) Cat.-II (5))
8 ELECOR-CLIPSAL (Refer to Ch. 3.7. Cat,-II(11)))
9. OCLEG(RefertoCh.2.12. Cat.-II(11))
10. Pulse / Nano (Refer to Ch. 26 Cat -I(1))
11. SIGMA (Refer to Ch36. Cat.-II(8))

CATEGORY - III

1. GUTS (Refer to Ch.3.2 Cat -III (7))
2. STANDARD (Refer to Ch. 2.4. Cat.-II (5))
3, C & S (Refer to Ch.1 1. (C) Cat -III(8))
4. INDOASIAN (Refer to Ch.1.1. (C) Cat -II (8))
5. ABB(RefertoCh1.1 (C) Cat-III(5))
6. HAVELL'S (Refer to Ch.1.1 (C} Cat -III (1))
7, L&T (Refer to Ch.3.2 Cat.-II(4))
8 HPL (Refer to Ch,2 1 Cat-III (6))
9 NANO (Refer to Ch.3.7. Cat.-II(10))
10. PIERLITE (Refer to Ch.2.6 Cat -II (4))
11. MDS

3.9 TIME SWITCHES

1. GELCO (Refer to Ch. 1.1 (B) Cat -III(6))
2. L&T (Refer to Ch. 3 2. Cat -III 4))
3. OCLEG (Refer to Ch.2.12. Cat.-II(11))
4. INDOASIAN (Refer to Ch1.1 (C) Cat-II (8))
8. **MDS**
6. ELLICO

3.10 ENERGY METER

9 NANO Approved (Refer to Oh 3.7. Cat.-III(10))

CATEGORY - I

M/s SARD METALS PL Plot NO45, Sector No.23, Sohna Road, Faridabad- 121005
6. ELLICO
M/S General Electronics &Controls, C/71, G. LD.C. Odhav,
Ambicanagar Road, Ahmedabad - 382415.
7. ACTION (Refer to 2.7 Approved (1))
8. MAXCELPLAST (Refer to 1.2 (14))

CATEGORY - I
1. VlMAL (Ref. to Ch. 1.1(A) Cat.-1 (5))
2. S.G
3, VINAYAK

CATEGORY - II
1. GELCO (Refer to Ch.1.1, (B) Cat.-III(6))
2. GRE (Refer to Ch. 2.4, Cat.-(2))
3. RANI (Refer to Ch1. (C), (4))
4. KEW (Refer to Ch.3.1. cat-II (1))
5. AECO-MEFA
M/S Punjab Switchgears P.L. B-30, Phase - V Focal Point, Dhandari }(alan, Ludhiana - 141010
6. NEW / NILANG (Refer to Ch.2.12.(3.1) Cat.-II(3))
7. VINAY (Refer to Ch1 1. (A) Cat,-II(1))
8. LEADER (Refer to Ch.1.1 (C) Cat.-II(11)
9 SUPER(RefertoCh.2.12.(3.1)Cat,-II(5))
10 ANCHOR (Refer to Ch,1.1, (B)Cat -III (I))
11 ELECON-CLIPSAL
M/s GERARD ELECTRIC INDIA PVTLTD.
RakhJal Road, Ahmedabad -366 023
12 OCLEG (Refer to Ch 2.12. **Cat.-II(11))**
3. HPL (Refer to Ch 2.6 Cat.-III (2))

3,11 BUSBAR CHAMBER

CATEGORY - I
1. PEW - APPROVED (Refer to Ch.3.1 Cat.-II(4))
2. REIKO - (Refer to Ch 3.2. Cat.-I (1))

CATEGORY - II
1, NEW / NILANG (Refer 1o Ch.2.12 (3 1) Cat.-II (3))
2, AEW

CABLES & WIRES
4.1 ALLUMINIUM & COPPER XLPE CABLES (ALL Type)
1. UPTO 35SQ MM ANYISI MARKED WHICH IS APPROVEDBY DEPARTMENT

1. L&T
2. ALLCAB
M/s. ALLWIN INDUSTIRES, Serve No. 251, PIot NO 7, B/h. Devsaon Ceramic, Shapar - Veraval Dist Rajkot
3.GELCO (Refer to Ch.1.1 (B) Cat-III (6))
4,AVOCAID
M/S Chandresh Cables Ltd 1108, Village Chhatral, Ta. Kalol
Dist Gandhinagar, North Gujarat
5, KUNTHCAB
M/s ORBIT POWER & CONTROL CABLES (I) 56 A, Dilshad Garden Industries Area, Shahdara, Delhi- 110095
6. JEELEX
46/02, NewAhmedabad Industrial Estate, Nova Petro~ Chem,
Moraiya, Sanand, Ahmedabad
7. WINFLEX & WINCAB
K.P. Industires, 53,54, Krishna Estate, Panna Estate Road, B/h BOC Gases, Nr, Soni's Chal Rakhial Ahmedabad - 380023
8. VARSHA
M/s VARSHA CABLES PVT LTD. Plot No,65, A-2, Hootagalli
Industrial Area, DIC Layout, Mysore - 570018
9. KATARIA
M/s RATA RIA INDUSTRIES PVT LTD
Off-34-44, Industrial Area, Ratlam - 457001, MP. [INDIA]
10. ZENIUM CABLES
M/s ZENIUM CABLES LTD 118, GAurav Garden, Opp Bharat
Petrol Pump, Mira Bhayander Road, Mira Road, Mumba-401107
11, BONTON
M/s Bonton Cables (INDIA] PL. A-114-115,
RICO Industrial Area, Phase - I, Bhiwadi, Rajasthan
12, HAVELLS (Refer to Ch,1 1, (C) Cal.-III (I))
13, NIKI
1. NIPPEN
M/s NIPPEN ELECTRICAL INSTRUMENTS CO 12~A, Joy Engg Compound, Maroi Maroshi Read, Andheri (E), Mumbai - 59
2. HPL (Refer to Ch.2.1. Cat.-III(6))
3. L&T (Refer to Ch3.2 Cat-III (4))
4. G.E (Refer to Ch.2.1. Cat.-II(2))
6, TRINITY
119, Trinity CO. Op. Hsg. Soc. 1st' Floor,
CH Street Bhobitalao, Mumbai- 400002
6. NANO. (Refer to Ch. 3.7 Cat III (10))
7. GELCO (Refer to Ch. 1.1. (B) Cat.-(6))

CATEGORY - II
1, BENTEC (Refer to Ch. 3 1 Cat -II 17))
2. ANCHOR (Refer to Ch.1 1. (B) -Cat-III(1))

M/s Jainflex Cables RL , A-2/1, Sabarmati Industrial Society, Sabarmati, Ahmedabad - 380005
23. KEI
M/s REI INDUSTRIES LIMITED 803, Siddhanath Complex, Nr Hotel
Express, RC Dutt Road, Baroda- 390007
24. MECAB
M/s MECAB Cables P.L. 635/A, Phase IV,
GIDC, VATVA, Ahmedabad - 382445
25. LOOKMAN
M/S ODIAN INDUSTRIES, Opp RaviVidhyalaya, Nr. Gandhi Society,
Jamnagar Road~ Madhapa~ Rajkot - 300 006
26. PRIMECAB
M/s. Ravin Cables Limtied, 302, Akruti Trade Centre, 3rd Floor,
Road No 7, MIDC, Marol Andheri (E), Mumbai-400 0.93¸
27. RALLISION
M/S RALLIS ON ELECTRICAL P.L. 205, Shreyas Complex, Opp. Jain
Derasar Navrangpura, Ahmedabad - 380009
28. BINTEX
M/s Jay Industires , Bintex House, Bhavnagar Road, Nr. Rajmoi Ind. Rajkot
29. EKTA
M/s Scot Innovation Wires & Cables P.L,
195/1,197/1, Jharmajri Baddi, Dist Solan (MP)
30. TEREXEL
M/s Teracom Limded, "Teracom House, B-84, Sector No 60, Noida - 201301 U.P. (India)
31. MITUSHI
M/s Sight Sound Electronic (I) P.L.
A-128, Wazirpur industrial Area, Delhi-110052
32. TERACAB INDIA
M/S TERA CABLES & IND.P.L, VILLAGE KALANA,
PO CHHARODI FARM, SANAND,AHMEDABAD
33. HI-FLEX
M/S Helly Plast Industries 17/18, Nirman Industries Estate, Fupadia
Opp Samshan Gruh, A.K. Road, Surat-8
34. BHARAT CAB
M/S Vardhman Cables & Controls, Belgaum
35. CORE CABLE
M/S Core Cables Pvt Ltd 202, arpan Complex,
Opp Swaminarayan Mandir, Kalawad Road, Rajkot-360001
36. RRKABEL
M/S R R Kabel Limited, 305/A, Windsor Plaza, RC. Dutta Road,
Alkapuri, Vadodara-390007
37. ADCAB
M/S Atlas Cables & Accessories P.L PIot NO. D/2, Sector NO 12,
Heavy Ind Area, Gandhidham Gujarat
38, POPULAR
M/S Popular industries, 12, Sudama Estate, B/h Calico Nagar, Narol-
sarkhej Road, Narol, Ahmedabad

ALLUMIBIUM & COPPER XLPE CABLES (ALL Type)
ABOVE 35 SQ. MM & UP TO 185 SQ.MM

1. ALLCAB~RefertoCh4.1 (2))
2. VARSHA (Refer to4.1, (8))
3. KUNTHCAB (Refer to Ch 4 1. (5))
4. MITUSHI (Refer to Ch.4 1. (31))

M/s NIKi CabIes Industries, E/9 B Panchratna Appt Opp.
Sunview Tower, Memnagar, Ahmedaba-52
14. LEADER (Refer to Ch.1 (C) Cat.-III (10))
15 FINOLEX
M/s Finolex Cables India 108, Mahakant Building, Opp. V.S.
Hospital, Ashram Road, Ahmedabad - 380 006
16. SHREEJI
Cali Plast Processor, 47, Narayan Estate, Near Raipur Mills,
Saraspur, Ahmedabad - 380 018.
17. SONA GOLD
Cali Plast Processor, 47, Narayan Estate, Near Raipur Mills,
Saraspuq Ahmedabad - 380 018
18. HITEX PLUS
M/s Jay Cable Industries, PIot No 80, Tribhuvan Industrial
Estate, Opp, Road No 11, Kathwada GIDC, Kathwada, Ahmedabad - 382430
19. KAMALEX
M/s Bhumi Cables & Wires Pvt. Ltd. PIot No. D-101/102,
Road-C, Lodhika G.I.D.C., (Metoda) Kalaward Road, Rajkot
20. CABCOM
M/s. CabCem India, 304, 3rd Floor, Aggarwal Cid Mall
(Opp M2K Pitam Pura Multiplex), Road NO. 44, Pitampura,
Delhi- 110034
21. DICAB
M/S DIMOND POWER INFRA. LTD.
PHASE II, VILLAGE VADALA, TA SAVLI, VADODARA
22. JAINFLEX
23, PRIMCAB (Refer to Ch.4.1. (26))
24. TEBACAS INDIA (Refer to Ch.4 1. (32))
25. L&T
26. AVOCAB (Refer to Ch4.1 (4))
27. TEREXEL (Refer to Ch.4 1 (30))
28. BHARATCAB (Refer to Ch.4.1. (34))
29. ZENIUM CABLES (Refer to Ch.4.1 (10)}
30. RRKABLE (Refer to Ch.4.1. (36))
31. WINPLEX & WINCAB (Refer to Ch 4.1. (7))
32. ADCAB (Refer to Ch,4.1 (37))
33. POPULAR (Refer to Ch.4,1, (38))

ALLUMINIUM & COPPER XLPE CABLES (ALL Type) ABOVE

185 SQMM

1. HAVELL'S (Refer to Ch 1.1 (C) Cat.-III (1))
2. ALLCAB (Refer to Ch 4.1, (2))
3, KUNTHCAB (Refer to Ch,4.1 (5))
4. TEREXEL(RefertoCh4.1 (30))
5, TERACAB INDIA (Refer to Ch.4 1 (32))
7. AVOCAB (Refer to Ch.4.1(4))
8, GEMSCAB
M/S GEMSAD IND LTD. PREM SADAN - 11, RAJENDRA PLACE NEW DELHI - 110008
9. PRIMECAB'
M/s Ravin Cables Limited, 302, Akruti Trade Centre, 3rd Floor,
Road No,7, MIDC, MarolAndheri (E), Mumbai - 400 093
10. PELEC
43, Sudama Estate, B/h, Swatik Bansidhar Mills, Narol Cross
Road, Ahmedabad ~ 382405
11.HITEX PLUS (Refer to Ch-4.1 (18))
12.POPULAR (Refer to Ch.4.1 (38))
13. LOOKMAN (Refer to Ch.4 1, (25))
14. KEI (Refer to Ch.4.1. (28))
15. RALLISON (Refer to Ch.4.1 (27))
16. CORE CABLE (Refer to Ch.4.1. (35))
17. **POWER CAB**
M/s. SMRUTI CABLES PVT LTD. Plot No 2, Block No 243,
Nr. Ramdev Exports. Santej Vadsar Road, Ta. Kalo, Dist Gandhinagar - 382721
18. ZENIUM CABLES (Refer to Ch.4(10))
19. RRKABLE (Refer to Ch,4.1 (36))
20. ADCAB (Refer to Ch.4.1, (37))
5.RALLISION (Refer to Ch 4.1. (27))
6. LOOKMAN (Refer to Ch 4.1 (25))
7. NIKl(RefertoCh~41 (13))
8. KEI (Refer to Ch.4 1 (23))
9FINOLEX(RefertoCh4.1 (15))
10CABCOM (Refer to Ch 4.1 (20))
11. KAMALEX (Refer to Ch.4 1. (19))
12 MECAB (Refer to Ch.4 1. (24))
13 DICAB (Refer to Ch.4.1. (21))
14, HAVELLS ,(Refer to Ch1.1 (C) Cat-Ill (1))
15. BONTON (Refer to Ch 4.1 (11))
16. SONALGOLD (Refer to Ch 4.1: (17))
17 SHREEJl(Refer to Ch 4.1 (16))
18. WINFLEX (Refer 10 Ch4 (7))
19. HI-FLEX (Refer to Ch 4.1 (33))
20, CORE CAIDLE (Refer to Ch 4,1 (35))
21. HITEX PLUS (Refer to Ch 4.1, (18))
22. JAINFLEX (Refer to Ch 4.1 (22))

21, POPULAR (Refer to Ch.-4 {38))
22. NEOCAB
M/s R.S. Industires, Anand Industrial Estate, Borsad Chokdi, Anand - 388001
23. CAPTON &**Arormac**
M/s MILAN INDUSTRIES, Plot NO 12, Sarthi Complex, Opp, GV M.M., ODHAV, Ahmedabad
24. RUBICON
M/s. RUBICON CABLES !NDUSTIES, C-1/89/6, Nr. Pushpak Estate Cross Road, GIDC. Phase - 1, VATVA. Ahmedabad - 382445
25 EON
M/s. Eon Electric Limited
B-88, Sector 83, Nolda -201305, U.P, INDIA
26, VIMAL, [Refer to Ch -1.1(A) Cat - I (5))
27. HPL (Refer to Ch2.1 Cat-III (6))
28. NANO, (Refer to Ch.3.7 Cat (14))
29. ZENIUM CABLES (Refer to Ch.-4 (10))
30. CORE CABLE Refer to Ch.41 (35))
81. KAMALEX (Refer to Ch 4.1 (19))
32. CABCOM (Refer to Ch.4.1 (20))
83. MECAB (Refer to Ch.4.1 (24))
34. RALLISON {Refer to Ch.4.1 (27))
35. SHREEJI (Refer to Ch.4,1 (16)
36. SONA GOLD(Refer to Ch4.1 (17))
47. HITEX PLUS (Refer to Ch4,1 (18))
68. VARSHA (Refer to Ch-4.1 (8))
88. L&T
46. FINOLEX (Refer to Ch4.1 (15))
41, RRKABLE (Refer to Ch.4.1 (36))
42. ADCAB [Refer to Ch 4.1 (37))
43. WINFLEX & WINCAB (Refer to Ch.4 1(7))
44. JAINSON
M/s. Jainson Cables india P.L Surve NO. 16, Plot NO. 16A & B Ahmedabad Mehsana Highway Village Chandarda Post Ghumasan, Ta. KadL Dist Mehdanad-382718
46. GELCO - SUBMERSIBLE CABLE (Refer to Ch.4.1 (3))

FANS
5.t CEILING FANS & TABLE FANS

1. ORPAT .APPROVED (Refer to Ch.1 1A) Cat III (2))
2. USHA
M/S, USHA iNTERNATIONAL LTD 1st Floor, Super Market, Nr, Natraj
Cinema, Ashmram Road, Ahmedabad - 380 009
3.ANCHOR[(Refer to Ch 1.1 (B)Cat -III (1))
4.CROMPTON (Refer to Ch.2.1, Cat -III (4))
5. BAJAJ (Refer to Ch,2.1. Cat -II (3))
6.Philips (Refer to Ch.1.1 (C) Cat.-III (4))
7.KHAITAN
M/s Khailtan Electric, ale, 101/102, Mahakant Complex;
Opp, V.S. Hospital, Ashram Road, Ahmedabad - 380 006,
8 DECON
M/s Decon Lighting, Y-43, Okhak Phase - II New Delhi-l10023
9.HAVELL'S (Refer to Ch.1.1, i) Cat.-III (1))
10. ALMONDARD
11. CINNI
12. REMI

FLEXIBLE WIRES & CABLE /INDUETIRES WIRES / FRLS WIRES/ PVC WIRES / CO-AXIAL CABLE, SUBMERSIBLE CABLE / ZH FR
CABLE ETC
ANY ISI (MARKED WHICH IS APPROVED BY DEPARTMENT

1. ALLCAB (Refer to Ch4.1 (2))
2. AVOCAB (Refer fe Ch4.1 (4))
3. HAVELLS (Refer to Ch,1,1. (C) Cat -III (1))
4. KONARK
M/s. Servo Cable industries 90/5, Mandir Marg, Indl Complex,
Haiderpur, New Delhi-110052
5.KUNTHCAB (Refer to Ch 4.1. (5))
6.BHARAT CAB (Refer to Ch.4 (5))
7.VINAY (Refer to Ch 1.1. iA} Cat.II (1)}
8. EKTA
M/s Scot Innovation Wires & Cables P.L.,
195/1, 197/1, Jharmalri Baddi, Dist. Solon (M.P)
9.TERA-CAB-INDIA (Refer to Ch4.1 (4))
10.EcoTEK ZHFR
M/s SHAKUN POLYMERS LIMITED, 501/502, IVORY TERRACE, R.C.DUTT ROAD, ALKAPURI, VADODARA - 390007
11NIKI (Refer to Ch.4.1 (13))
12.JAINFLEX (Refer to Ch 4.1 (22))
13.SINTEX (Refer to Ch4.1 (28))
14, DARSBAN PLUS
M/S DARSHAN CABLE INDUSTIRES C/1 135/A, PHASE - I,
VATVA GIDC ESTATE NR PUSHPAK ESTATE, AHMEDABAD
16. INDOASIAN {Refer to Ch,1.1. (C) Cat.-II (8))
16LEADER (Refer to Ch1 .1.(C) Cat.-II (10))
17.GEMSCAB (Refer to Ch.-4.2 (3))
18,ACT{ON / ADHUNIK (Refer to 2.7 Approved (1))
19. ANCHOR (Refer te Ch1.1, (B)Cat.-III (1)
20. BENTON (Refer to Ch.-4, (11))

8. RIDER
9. OCLEG
10. ELLICO
11. PULSE

EXHAUST FANS, BRACKET FANS & PEDESTAL FANS
(A).CATEGORY - I

1. ANCHOR (Refer to Ch 1.1 (B)Cat III (1))
2. ORPAT (Refer to Ch.1.1. (A)Cat.III(2))
3.ANSU
4. NOVA
5.EPC
6. REMI
7. KHAITAN
8.INDOPLUS(RefertoCh-5.1 (17))

· CATEGORY-II
1.USHA (Refer to Ch.5 (2))
2.HAVELL'S (Refer to Ch 1.1. (C) Cat.-III (1))
3,CROMPTON (Refer to Ch.2.1. Cat. III (4))
4.BAJAJ (Refer to Ch.2 1. Cat.-II (3))
5.ALMONARD
6. ORIENT
7.SATYA
8. G.E.C.

CHAPTER -VI
SMC PRESS MOULDED BOX FOR STREET LIGHTS
1.SINTEX - APPROVED
M/S SINTEX INDUSTRIES LTD KALOL
(NORTH GU JARAT) PIN - 382 721
2, EVEREST-APPROVED
13. KEDIA
14. NOVA
15. GEC
16. ORIENT
17. INDO PLUS
M/s. The Universal Appliances (India) Nalagarh Dist Sona (H.P)

ENERGY SAVING 50 WATT CEILING FAN

1. HAVELL'S (Refer to Ch.1.1 (C) Cat.-III(1)
2. CROMPTON (Refer fe Ch.2,1. Cat.-III (4))
3. BAJAJ (Refer to Ch.2.1, Cat (3))
4. USHA (Refer to Ch.-5. (2)
5. ORIENT
6. SATYA
7. KELTRON

7.Pulse l Nano (Reter to Ch 2.6 Cat I (1))

CAPACITOR

1.HAVELL'S(RefertoCh 1.1 (C) Cat-III(1))
2.MATRIX
M/S Matrix Control & Engineering P.L, E 725, DSIDC Indusidal
Complex, Narela, Delhi-110040
3.PMX
M/s. Power Matrix Solution P.L. 4018 & 4019, Bhandup Ind Estater Pannalal Compound, Off LBS Read, Bhandup [WI, Mumbai
4,JILCO (Refer to Ch 2.1. Cat-Ii (6))
5.UNIVERSAL
M/s Care Enterprise FF-9 ShalimarComplex,
Maha]laxmi Five Road, Paldi, Ahmedabad-380007

ON LINE UPS

1.GRE (Refer to Ch.2 4. Cat II(2))
2.SUVIK (Refer to Ch.-6 (3))
3.KEPREJ (Refer to Ch.*6 (4))
4.OCLEG (Refer to Ch.2.12 Cat -II (11))
5.CONSUL (Refer to Ch 6 (6))
6.SERVOTECH (Refer to Ch -6 (5))
7.NUMERICUPS
M/S, Numeric Power System Limited umeric House NO. 5 Sir P. SI
Sivasamy Salai, Mylapore, Chennai 600004 India
8.KELTRON

WATER HEATERS
CATEGORY - I
1.BAJAJ (Refer to Ch.2.1. Cat -II (3))
2.USHA (Refer to Ch.-5 (2))
3.INDO PLUS (Refer to Ch 5 1. (17))

CATEGORY - II

1.JILCO 2.SPHEREHOT3, RECOLD 4. VENUS

MOTOR PUMPS
MOTOR PUMP STARTERS & STARTER ACCESSORIES
APPROVED
1. GELCO (Referto Ch.1.1 (B) Cat-III (6))
2. **OCLEC**
3. PULSE
4. ELLICO
5. L.S.

CATEGORY - II
1. CROMPTON (Refer to Ch 2.3. Cat.-III (4))
2. JYOTI
3. AEW
4.PECO
M/s. Poco Industries Estate, Nr. Gota Flyover Gota Road, Ahmedabad-382481

CATEGORY III
1. HAVELL'S (Refer to Ch.1.1. (C) Cat -III (1))
2. **BCH** (Refer to Ch 3.4. Cat.-III (3))
3. C&S GEWISS (Refer to Ch.1.1, (C) Cat -II (8))

M/S EVEREST ELECTRICALS 133, PRINCESS STREET, GOPAL NIWAS,1 ST FLOOR, ROOM NO 9/10/11, MUMBAI -
400002
3.ESCO - APPROVED (Refer to Ch 3.7. Approved (4))
4.NATIONAL
M/s. R M Enterprise 203/B, Gurukul Tower, Jaywant Sawant
Road, Dahisar [W] Mumbai - 400068
5. EPP
M/s EP Composites PL Plot No 2646, Kranti Gate Main Road,
GIDC Lodhika Ind Estate, Kalawad Road, Metoda, Rajkot-860021

AIRCONDITIONERS, WATER COOLERS APPROVED

1. DIAKIN
M/s Daikin Air-conditioning India PL. 12th Floor, Building No. 9,
Tower A, DLF Phase Ill, Gurgaon-122022. Haryana.
2.MISHIBISHU ELECTRIC
M/s. Mitsubishi Electric India PL Primate 303/A, 3rd floor Judges Bungalow Cross Road, Bodakedev, Ahmedabad.
3. ONIDA,
MIRC Electronics, ONiDA House, G-l, MIDC
Mahakali Caves Road, Andheri [E] Mumbai - 400093
4OGENRAL
5.BLUE SATAR
6. PANASONIC
7.VOLTAS
8.CARRIERS
9.AMTREX

SERVO CONTROLLED VOLTAGE STABILIZER& ELECTRONICS

POWER CONDITIONERS

1. GRE (Refer to Ch 2 4, Cat.-II (2))
2. GELCO (Refer to Ch.1.1. (B) Cat.-III (6))
3. SUVlK
M/S SUV[K ELECTRONICS RL. SECTOR NO 28, INDUSTRIAL
ESTATE, GANDHINAGAR.
4.KEPREJ
M/S KEPREJ ELECTRONICS, SECTOR NO. 28, INDUSTRIAL
ESTATE, GANDHINAGAR.
5 SERVOTECH
M/S. SERVOTECH POWER SYSTEM PVT LTD. D-212, Sector-2, DSIDC, Bawana Indi Area, Delhi.
6. CONSUL
CONSUL CONSOLIDATED PVT LTD 4/329A, Old MahabalipuramRoad,Chennai - 600041

SINGLE PHASE MONO BLOCK PUMPS
CATEGORY-II

1. AMIT /Refer to Ch.1.2(13)
2LUBI
B\h Lubi Elect Memco. Naroda Road Ahmedabad
8. UNEEL
M/S UNNATI INOUSTIRAL CORPORATION D-61. Diamond Park G I D C. Nr Nana Chiloda N H NO 8. Naroda - Ahmedabad - 382330
4. PRIMA
M/s. Prima Pumps P L34 GV.M Au VasanaT Odhav Ahmedabad - 382410
5. SABAR
M/s SABAR PUMP PVT LTD 3704/A. G I D C Estate Phase - IV
B/h New Nirma Chemicals vatva Ahmedabad - 382445

CATEGORY III

1. CROMPTGN *Refer* to Ch 2 1 Cat.III(4)
2SIEMENS RefertoOh23. Cat-III (6)
3KIRLOSKAR

OPEN WELL TYPE HORIZONTAL MONO BLOCK PUMPS

CATEGORY - I

1. PRIME
2. SABAR
4. L & T (Refer to Ch 3.2. Cat-III (4))
5. **Siemens** (Refer to Ch 3.3. Cat.-II (6))
6. ALSTHOM
7. SUECO

POWERAND CONTROL PANEL I PANELACCESSORIES

1. C&S GEWISS (Refer to Ch.1.1 (C) Cat.-III (8))
2. GELCO (Refer to Ch1.1.(B) Cat-II (9))
3.TRINITY (Refer to Ch,3 I0 Cat-I (5))
4. NIPPEN (Refer to Ch 3.10 Cat-I (1))
5.STANDARD (Refer to Ch.2.4. Cat.-II (5))
6. L&T (Refer to Ch.32 Cat.-III (4))
7. OCLEG (Refer to Ch 2.12. Cat -II (11)
8.ELICO -APPROVED
9, L,S, - APPROVED
10, PRATHAM - APPROVED
11. SAHIL - APPROVED
12. MEGAWIN-APPROVED
13. ACTION /ADHUNIK (Refer to Ch ~2.7 Approved (1))
14. SKY
M/s. Sky Control System 160, Vikas Estate, Opp Anil Starch Mil Road Nr Vrma Yojna Hospital Bapunagar Ahm¢dabad 380025.

CATEGORY - II

1.CROMPTON (Refer to Ch.2 1. Cat-III (4))
2 DUKE
M/s Duke PlastoTechnique PL N.H 14 Deesa Highway Opp'. Hotel Green Wood, Badarpura. Palanpur - 385511
3.SABAR (Refer to Ch 9. (5))
4.JASCO
WS JASCO PUMPS PVT LTO 47, Phase -I, G.I.D.C., Mangal Estate, Naroda, Ahmedabad - 382330

CATEGORY - III

1. UNEEL (Refer to Ch.9 (3))
2. AMRUT '~Refer te Ch 9 (2)
3. LUBI (RefertoCh9(2))
4. DUKE (RefertoCh.9Cat II (2))
5. KEB
6. KIRLOSKAR

CHAPTER X

SUB STATION EQUIPMENTS
APPROVED

1BIECCO (Refer to Ch3 5. (Approved)-1)
2.HAVELL'S (Refer toCh 1.1 (C) Cat-III (1))
3,VOLTAMP
4.MATRIX
5MEGHAWIN
6 PMX

CATEGORY - II

1. UNIVERSAL
M/s Uniirversal Power Xmer Ltd. 26/A 2nd Phase, Peenya Industrial Area, Bangalore - 560058
2. SKP

CATEGORY - III

1.CROMPTON (Refer to Ch.2 3. Cat.-III(4))
2.L&T(Refer to Ch 32 Cat -III(4))
3.KIRLOSKAR
4ALSTOM
5C&SEFACCCE

TRANSFORMER

TRANSFORMER SHOULD COMPLY E.C.B.C, CODE CRITERIA

1. TRANSFORMER-APPROVED
MIS Danke Electncars Ltd 778/780 G. IDC Estate, Weghod~a - 391760, Baroda - Gujarat

CATEGORY - I

1. POWERLITE
2. INSTA POWER
3. SHILCHAR
4, VARDHMAN ELECTRO-MECH

CATEGORY - II

1. UNIVERSAL
2. DICAB
3, KOKILA

CATEGORY -II
1. UNEEL Refer to Ch.9(3)
2. AMRUT
M/sAmit Engineering PL PO No 4141 2ndFIoor, Motilal Centre Nr
Dinesh Hall Ashram Road Ahmedabad - 3800009
3AMlT(RefertoCh1.2(13)
4. LUB (Refer to Ch.9 (2)
5.CROMPTON (Refer to Ch.2.3 Cat-III(4)
6,DUKE
7PRIMA
8. KIRLOSKAR

STARTER PANELS [APPROVED]
1. GELCO RefertoCh1.1(B) Cat-III (6)
2. SAHIL
M/s SAHIL ELECTRO SYSTEM 163 Vi kas Industrial Estate
Opp Anii Starch **Mills** Nr Vlmayojna hospital Nutan Mills Road
Ahmedabad - 380025
3. HAVELL'S Referto Ch1.1 (C)Cat-III(1)
4. OCLEG RefertoCh2.12 Cat-(11))
5.L&T Refer to Ch 3.2. Cat III(4)
6. SAMUDRA
M/S Samudra Power Products, PIot No. 32, Road No, 5/A, G ID.C. Kathawada, Ahmedabad - 380415
7. SUECO
M/s SHREE UMIYA ELECTRICAL CO. 304 SHAILLY HOUSE,
HARIHAR PARK SOCIETY Nr OLD HIGH COURT, RAILWAY UNDERBRIDGE, NAVRANGPURA, AHMEDABAO - 380009
8. ELLICO

CATEGORY - III
1. C&S GEWISS (Refer to Ch.1.1, (C) Cat-III(8))
2. BCH (Referto Ch3.4 Cat-III(3))

SUBMERSIBLE PUMPS
CATEGORY - I
1.AROMA
M/S ARtHANT PUMPS PVT. LTD., Near Ladbi Nala, Deesa Highway Palanpur - 385 001
2. PLUGA-APPROVED
M/S Shroffs Engineering Limited, 850/2,
G I.DC Estate Makarpura, Vadodara - 390 010
3. JEE-APPROVED
M/S Jee Pumps (Gui,) P.L PIot No L 1 & 2, GIDC Nr. Water Tank,
Odhav - Ahmedabed - 382415
4. FALCON -APPROVED
M/s Falcon SubmerSible PL. Survey No 39/4, Vavdi Industiral
area gondal road Ralkot - 360004

M/S. Koklla Electricals TB Hoapmtal Road, Viiapur-382770 Dist
Mehsana
4. ARYA-ELECTRONICS (AE)
Plot No 198/1, GIDC-IV SIhor Ghanghali Road, B/h. Sitaram weight Bridge, sihor Gist Bhavnagar
5,RAYCHEM RPG
Raychem. RPG House, 463, Dr. Annie Basant Road,
Worli, Mumba~.40039.

CATEGORY - III
1. VOLTAMP
2, POWERLITE
M/s Powelite Electricals PIot No 627, Nr Gayatri Temple, Phase- 4, G.I.D.C. Estate, Naroda, Ahmedabad -382330
3.CROMPTON
4.L&T
5.SIEMENS
6.GE.
7,KILOASKAR
8,ALSTHOM
9,SKP

Note: - Other products are supposed to be included as per latest approval of Superintending Engineer, Electrical (R &B) Circle Gandhinagar as on or before last date of submission of tender.

No	Name of Company	Brand Name	Description of Make	Remarks
1	M/S Vijayshree Electromech (p) Ltd 103, vedant complex, 7 Kalpana Society, B/h N.V.P.R.O off CG Road, Navrangpura,Ahmedabad - 009	WELLTECH	1. Swaged Steel Tubular poi /Stel Octagonal pole / Steel conical pole/GRP / FRP Pole 2. SMC/DMC Junction bax/G I Race way -Trunking/GRP Cable Tray/G.I. Cable Tray	Cat-II Approved
2	M/S Bajaj Electricals Limited Ahmedabad	BAJAJ	1. High Mast / Octagonal pole / GRP poles / Decoralive Polesi Conical GI Pole	Cat -III
3	M/s Jay Copper &Alloys P.L. Plot No 2219, Nr Shah Alloys Ltd., Science City To Khatraj Road, Village - Santeh - 382721	ELECTRO-EARTH	1 GalvanizingEarthing[ChemicalBarthing - 1/2/3 Mtr 2 Copper Earthing [Chemical Earthing 1/2/5 Mtr	Approved Approved
4	M/S Prestolite Corporation (Refer Ch 2.6 Cat qll (3)	PRESOLITE	1 High Mast pole upto 30 Mtr	Approved
5	Mis Surya Roshni Ltd Ahmedabad	S URYA	1 High Mast / Octagonal Pole	Cat. III
6	MIs Kemrook India	KEMROK	1 FRP Lighting pole	Approved
7	Mis Accurate Eng. LTd.	ACCURATE	I High Mast / Tower	Approved
8	M/s. Sumip Compostes Pvt. Ltd	SUMIP	1 FRP Light Pole / FRP Cable Tray / Trefoil Clamp / Luminaries / FRP Leader	Approved
9	Mis.Aster	ASTER	HIGH Mast Pole	Cat II
10	M/S Ammini Eng. System P.L.	AMMINI	Out Door Street Light	Approved
11	M/S GELCO ELECTRONICS P.L. (Refer. Ch1.1 Cat -III (B) (6))	GELCO	Motor control cubical panel, Electrical Starter for A.C. etc	Approved
12	Transrail Lighting Ltd A-201/209, Boomerang Complex, Chandivali Farm Road, Andheri [E], Mumbai - 400072	TRANSRAIL	1 High mast Pole 2 Street Light Pole (Conical / Hexagonal / Octagonal / swage pole)	Cat III Cat III
13	M/s Halonix (Refer Ch2.1 Cat -III (4))	HALONIX	1 Land Scape & Garden Light / High Mast / All type ~uminers	Ill
14	M/S, Megawin	MEGAWIN	# United Sub-Station upto 12kw # Control relay panels custom built # SF 6 Ring main units upto 36 kv # Auto reclosers & capacitor switch upto 36 kv # Air insulated load break switchgear upto 36 kv # Metal porcelain clad VCB switchgear upto 36 kv	Approved
15	M/s. THRON LIGHTING C/o 10, ParshwanathAptt Somnath Park Lane, Opp. Tole Exchange Sahibaug, Ahmedabad-380004	THRON	Street Light / Landscape & Garden Light	III
16	M/s. Control & Switchgears Contractors Ltd 9th Floor, HERITAGE, Nr. Gui. University, Ashram Road, Ahmedabad-380009,	C&S	# Indoor Air insulated Metal Clad Switchgear with VCB # Compact SF6 insulated Ring main units for Indoor & Outdoor installation	III
17	Mis. Keselec Schrader Pvt. LTd 69 Friends Colony, West, New Delhi - 110065	SCHREDER	# Indoor & Outdoor Decorative Pole & Bracket # Premium Light Fixture # Furyol 140 w compolis with dimmable electronics ballast # Contemporary / classic / Traditional City Lighting # Urban Lighting # Indirect / direct lighting I free standing Mi lighters # Compact recessed & surface mounted luminaries # Modular recessed & surface mounted luminaries#Wall ceilin & pendent mounted luminaries # Row lighting system # Spot Lighting & track system #Luminaires with increased IP rating & special luminaries # Emergency Luminaries / Outdoor luminaries # Access cries & light sources	III
18	M/s. Regent Beleuchtungs Korper AG Dornacherstrasse 390 P O Box 246 OH 4018 Basel Swizerland CIo Bharat Becb Corporation, 3, Abhigam,Opp Dr. House, Nr. Padmal Rly. Crossing,Ahmedabad.	REGENT	Description of Make	III

No	Name of Company	Brand Name	Description of Make	Remarks
19	M/S Sylvania India Ltd ORG Towers 2D Sector 126, Expressway Noida [UP] - 201304	SYLVANIA	# Down lighter # Fluorescent Recessed # Florescent surface mounted/suspended # Spot Lights # Track # Ambient/Decorative # Pendants # Battens / Trunking system # High protection # High Bay / Low Bay # Amenity / Bolla rd # In Ground / wall lights # Flood light # Pole top	III

20	M/s Ligman Lighting india Pvt Itd Plot No. 4th Floor, Gulmohar Plaza, Gulmohar park, ITl Road,Aundh Pune-411007.	LIGMA	# Architeural Outdoor Lighting	III
21	**M/S Philips India Ltd** M/S Philips Electronics India Ltd	PHILIPS	# Indoor Lfghting # Public Lighting System # Spods Lighting # Urban Decorative Lighting # Landscape Lighting # Special Application Lighting # Lighting Control for Indoor & Outdoor Lighting system	III
22	M/S ABB (Refer Ch 1.1 (C) Cat III (4)	ABB	# Composed Substation # Ring Main unit	III
23	M/s. WIPRO (Refer Ch-2.1 (C) Cat-III(5)	WIPRO	# High Mast Motorized & Not Motorized #(Pole - Octagonal, Decorative Swaged and All type of tubular pole	III
24	M/S Aspire Composites, Survey No 172, Plot NO 27, Opp Reliance Petrol Pump. Madhapur-Anjar Highway Village Madhapur, Bhuj Kutch	ASPIRE	FRP Industrial Lighting Products	Approved
25	M/s REX POLYEXTRUSION LTD, Kumar Plaza,1st Floor, 1077, North Shivajinagar, Opp K.W C. College, Sangli - 416416.	REX	# DOUBLE WALL CORRUGATED PiPE # NON THREADABLE COMMUNICATION & ELECT, INST' CONDUIT PIPES	Approved
26	M/s DURA-UNE INDIA PVT LTD, Plot No. 24-25Verna Etectronics City Phased!A, Verna Salcete GOA-403722 (North Goa)	DURA - GUARD	# Conduit Systems for Electrical installation : & Communication tnstaliation Non Threadable of size upto 200mm OD	Approved
27	M/s Trupati Plastomatice Pvt Ltd F-543 Road, No 6 D VKI Area, Jaipur - 302013	GEMINI	# HDPE Corrugated Sheathing Ducts & HDPE Double Wall Corrugated Pipe (DWC)	Approved
28	M/s Aashcube Lightng PL (Refer, ch.26 Cat.-I (7))	Aash Cube	# Gate / Bollard Light	Cat-I
29	M/S Havell's India Ltd, (RefertoCh 1.1 (C) Cat-III(1))	HAVELL's	# Hume Free Electronics Regulator	Approved
30	M/S GRE Electronics Pvt Ltd Plot NO 423, G.I.D.C II, Dediyasan Mehsana-384002	GRE	# Hume Free Electronics Regulator	Approved
31	M/s. GELCO ELIZCTRONICS PVT LTD (Refer to Ch. 1 1 (B) Cat.-III (6))	GELCO	# Hume Free Electronics Regulator	Approved
32	M/s VALMONT STRUCTURES PL, 909/910, FILIX LBS Marg, Bhandup (w) Mumbai:- 400078	VALMONT	# High Mast, Octagonal Pole, Conical Pole,decorative Pole, Stadium Mast	Cat-III
33	M/s MAXCEL PLAST 133, Shree Ram Ind Estate, B/h C M C.Anum Eng Compound, Nr. Sonis Chawl Cross Road, ODHAV, Ahmedabad-382415	MAXCEL PLAST	# YUVA Gang Box, Modular Box, Mudlar Plastic Concealed Box, G.I Metal Modular Box, Plastic Fan Box, Point Box, Polycarbonate Lamp Holder, Nice Holder Plate / Fan Plate Pipe Fitings Accessories	Approved
34	M/s,THE UNIVERSALAPPLIANCE (India) Nalagarh Dist Sona (HP)	INDO PLUS	# Geyser ISl [Geyuser Metal 1,6,10,15,25,Ltr] # [Geyser ABS 5 Star Rating-15, 25 Itr] [Geyser ABS [1,6,10, LTdr, 50 Ltd Powder Coated] # Immersion Heater ISI [1.5,2.0 KW] # Heat Convertor ISI [Super ISI, Super Dlx IS U Type (HOTAIR ISI)	Approved Approved Approved Approved
35	M/s PECO industries,, (Refer to Ch 9 Cat-II (4))	PECO	# HRC Fuse & Fuse Link	

CHAPTER-9 : SCHEDULE-B / BILL OF QUANTITY

Name of Work :- Special Repairs to Dredger U B Pavankumar for Intermediate IRS survey at Bedi Port				
Abstract				
Part-A : Mechanical Work				
Item description	**Rate/Unit**	**Oty.**	**Unit**	**Total**
Docking				
Item No. 01				
Bedi Port dry dock gate opening and closing work before and after docking of the unit with suitable capacity crane including of all required labours for celling etc.	40,250.00	4.00	Job	1,61,000.00
Item No. 02				
Docking and Undocking charges up to LOA: Above 24 mtrs	62,043.00	1.00	Job	62,043.00
Item No. 03				
Jacking of vessel including... Providing hydraulic jacks of appropriate capacity and Nos., Providing wooden blocks of required size (0.3 x 0.3 x 9 mtr.) and Nos. Fabrication of MS angle of appropriate size & Nos., Fabrication and installation of L-bracket having sufficient capacity, Provide man power during whole work, Providing suitable crane for placing jacks in the dock.	2,68,000.00	1.00	Job	2,68,000.00
Item No. 04				
To provide man power during unjacking operation. Cutting L-brackets, removing wooden blocks, stools and other misc. items in all respect. Providing suitable crane for removing jacks from the dock.	40,000.00	1.00	Job	40,000.00
Item No. 05				
Dredging manually (in dry-dock by labour, removal sand, silt,mud or marshy soil including disposal of material on shore for a lead up to 1000m and lift (including tidal condition)	539.00	110.00	Cu.M	59,290.00
Steel Renewal				
Item No. 06				
Renewal of Hull steel by 3.15-20 MM IRS Approved Steel Plat Including Cutting, Removal, Grinding, Gouging, Inspection and Consumables for Welding steel above 5000 Kg.	133.00	9,000.00	Kg	11,97,000.00
Hull Cleaning & Painting				
Item No. 07				
HullCleaning by LP upto 100 bar WaterJet-Upto 300 Sq.Mtrs	42.00	164.00	Sq. M.	6,888.00

Item No. 08				
Labor Scrapping, Cleaning, Painting to Hull/ Superstructure/ Deck/E/R etc. For First Coat	72.00	1,829.00	Sq.M.	1,31,688.00
Item No. 09				
Labor Scrapping, Cleaning, Painting to Hull/Superstructure /Deck/E/R etc. For Second Coat & Additional coats.	26.00	8,499.00	Sq.M	2,20,974.00
Item No. 10				
Paint Marine Epoxy Primer	460.00	92.00	Ltr	42,320.00
Item No. 11				
Paint Marine Enamel Primer	300.00	573.00	Ltr	1,71,900.00
Item No. 12				
Paint Marine Epoxy Anticorrosive	480.00	430.00	Ltr	2,06,400.00
Item No. 13				
Paint Marine Synthetic Enamel Finish (Any shades)	425.00	153.00	Ltr.	65,025.00
Item No. 14				
Paint Marine Epoxy Tie Coat	480.00	69.00	Ltr.	33,120.00
Item No. 15				
Paint Marine Antifouling SPC (for 60 months)	1,800.00	46.00	Ltr.	82,800.00
Item No. 16				
Marine Thinner	190.00	164.00	Ltr.	31,160.00
Item No. 17				
Painting to Draft Marks, Ships name, port of registry and line cutting between DLL & LLL	4,830.00	5.00	Each	24,150.00
Item No. 18				
Painting to Different names for indication and identification at different places including Marking, surface preparation, but with paints material Min 05 Names	386.00	10.00	Each Name	3,860.00
Fendering				
Item No. 19				
Remove & refit back the tyre fender with chain and D shackles and Labour job	2,342.00	53.00	No	1,24,126.00
Item No. 20				
Providing and Supplying of old Usable good Quality tyre fender having 3nos of round hole approx hole diameter 100MM having tyre size 18X25, rim width 13", sectional width 515mm, overall diameter 1694mm, ID25" including loading, unloading, transportation up to site etc.	16,600.00	5.00	No	83,000.00
Item No. 21				

Eye pad renewal after removing old one on ship hulls with all necessary materials and labour	460.00	8.00	No	3,680.00
Cathodic Protection				
Item No. 22				
Aluminium Anodes Size: 400 X 100 X 25 mm having Strips, removing and fitting with labour and material.	2,190.00	25.00	Each	54,750.00
Tanks				
Item No. 23				
F.W./Ballast tank : Bailing the left over water below suction, remove mud and muck from inside tank	419.00	79.00	Ton	33,101.00
Item No. 24				
F.W. Ballast tank: Applying coat of cement wash inside the tank, cleaning the tank after cement washing and bailing out water after inspection	434.00	25.00	Ton	10,850.00
Railing				
Item No. 25				
Pipe Class-B Black Mild Steel 50 mm NB	372.00	62.00	Mtr	23,064.00
Item No. 26				
Pipe Class-B Black Mild Steel 25 mm NB	177.00	123.00	Mtr	21,771.00
Item No. 27				
Remove and fit Guard Rail Pipe Class-B Black Mild Steel, Labour Only. Steel Work Lump sum up to 100Kg Consumables for steel work Multi run Size: 50 MM	658.00	62.00	Mtr	40,796.00
Item No. 28				
Remove and fit Guard Rail Pipe Class-B Black Mild Steel, Labour Only. Steel Work Lump sum up to 100Kg Consumables for steel work Multi run Size: 25 MM	315.00	123.00	Mtr	38,745.00
Pipelines				
Item No. 29				
Renewal of Only pipe 65 mm NB after removing by gas cutting and re-fitting by welding with pipe of ISI make including labour and material in all respect.	847.00	1.00	Mtr	847.00
Item No. 30				
Renewal of Only pipe 50 mm NB after removing by gas cutting and re-fitting by welding with pipe of ISI make including labour and material in all respect.	620.00	2.50	Mtr	1,550.00

Bends & Flanges				
Item No. 31				
Re-newal of 65mm NB Bend after removing old and re-fitting by welding with pipe including labour and material all respect.	808.00	6.00	No	4,848.00
Item No. 32				
Re-newal of 50mm NB Bend after removing old and re-fitting by welding with pipe including labour and material all respect.	601.00	3.00	No	1,803.00
Item No. 33				
Re-newal of Flange 65mm NB after removing by gas cutting and re-fitting by welding with Pipe of ISI make, including labour and material in all respect	678.00	18.00	Each	12,204.00
Item No. 34				
Re-newal of Flange 50mm NB after removing by gas cutting and re-fitting by welding with Pipe of ISI make, including labour and material in all respect	620.00	9.00	Each	5,580.00
Valves				
Item No. 35				
Labor for Servicing and Repairing Pressure testing of fire Hydrant Valve including consumables and hardware. Spares cost like spindles, seat excluded.	928.00	1.00	Each	928.00
Item No. 36				
Removal and Refitting of Valve up to 50 mm NB as per original size with new joints and hardware, only labour and consumables. New Valve and parts Extra at actual.	220.00	5.00	Each	1,100.00
Item No. 37				
Labour for Servicing and Repairing Pressure testing of Valve of 26-50mm NB including Each consumables and hardwares. Spares cost like spindles, seat excluded.	833.00	5.00	Each	4,165.00
Item No. 38				
Removal and Refitting of OBD/Storm Valve upto 51 - 100 mm NB as per original size with new joints and hardware, only labour and consumables. New Valve Extra at actual.	439.00	1.00	Each	439.00
Item No. 39				

Labour for Servicing and Repairing Pressure testing of OBD/Storm valve up to 51-75 mm NB including consumables and hardwares. Spares cost like spindles, seat excluded.	948.00	1.00	Each	948.00
Sea-Chest				
Item No. 40				
Removing and re-fitting sea chest gratings. Vessel LOA: 24 mtrs & above	7,774.00	1.00	Each	7,774.00
Item No. 41				
Seachest cleaning, scrapping and painting with primer, with consumables and labour charges only, excluding servicing of valves. Vessel LOA: 24 mtrs & above	7,027.00	1.00	Each	7,027.00
Item No. 42				
Seachest Filters cleaning with all consumables including labour and material in all respect.Vessel LOA: 24 mtrs & above	8,148.00	1.00	Each	8,148.00
Pump & Motors				
Item No. 43				
Removal of pump/motor from base plate, after disconnection of pipes and accessories and transporting to and from the vessel to the workshop and fitting back in place and giving running trials. SIZE: Upto 1 HP/Semi-rotory Hand pump	1,047.00	5.00	No	5,235.00
Item No. 44				
Removal of pump/motor from base plate, after disconnection of pipes and acessories and transporting to and from the vessel to the work shop and fitting back in place and giving running trials. Size between 1-3 HP	1,794.00	2.00	No	3,588.00
Item No. 45				
Cleaning, servicing of pump with dis-assembling and assembling including all consumables materials in all respect.. Except spares, machining etc. works. SIZE: upto 1 HP/Semi-rotory Hand pump	1,495.00	5.00	No	7,475.00
Item No. 46				
Cleaning, servicing of pump with dis-assembling and assembling including all consumables materials in all respect.. Except spares, machining etc. works. Size: Above 1-3 HP	2,392.00	2.00	No	4,784.00
Machines				
Item No. 47				
Aux Engine Major Overhauling-3YD Ruston	17,940.00	1.00	Job	17,940.00

Miscellaneous				
Item No. 48				
Man Hole Cover : Remove / Refit on deck for inspection/ renewal of one time, with renewal of packing material	351.00	9.00	Each	3,159.00
Item No. 49				
Man Hole Cover: Complete renewal of man-hole cover by drilling holes with steel labour material complete in all respect.	774.00	105.00	Kg	81,270.00
Item No. 50				
Re-newal of GI wire mesh up to 150 mm dia of ventilators by removing old one with all necessary hardwares, consumables and steel materials, wire mesh etc. complete in all respect.	901.00	3.00	No	2,703.00
Item No. 51				
Re-new rubber packing by removing old one with consumables. SIZE: 40 mm X25 mm	440.00	15.00	R.Mtr	6,600.00
Item No. 52				
Re-newal of 12mm thick of wooden sheet panelling work after removing old one with labour and material complete in all respect	410.00	68.00	Sq.Ft	27,880.00
Item No. 53				
Supply - Pipe Cana PVC Flexible Green 75MMNB	296.00	35.00	Mtr	10,360.00
Item No. 54				
Renewal of Steel tap - Brass short body Bib tap (foam flow) with wall flange (ship 'N' sand - 3 cm NB) in bathroom & Kitchen.	494.00	4.00	No	1,976.00
Item No. 55				
Providing & Fixing corrugated GI sheets roofing fixed with Galvanised Iron J or L hooks, bolts and nut 8 mm diameter with bitumen and GI Limpet washers, filled with lead complete excluding the cost of purlins, rafters and trusses. (1) 0.80 mm thick sheet	876.00	8.00	Sq.M	7,008.00
Item No. 56				
Rotational Moulded Polyethylene Water Storage Tank (500 Ltr Capacity)	4,500.00	1.00	No	4,500.00
Spud Items				
Item No. 57				
Opening, cleaning, servicing, rousing of anchor spud guide pulley and fitting back with necessary trials. Labour charges only.	1,122.00	3.00	No	3,366.00

Item No. 58				
Servicing of wire ropes, pulleys, gear box, drums, repairing of limit switch with labour and consumables in all respect.	7,728.00	3.00	Each	23,184.00
Lifesaving appliances				
Item No. 59				
Supply - Fire Hose Jet Nozzle (Brass) 63mm	4,700.00	1.00	No	4,700.00
Item No. 60				
Supply - Adult Life jacket Foam Type	1,400.00	8.00	Each	11,200.00
			Total : Part-A	35,25,790.00

Part-B : Electrical Work

Items Description	Rate/Unit	Qty.	Unit	Total
Item No. 61				
Point wiring for Light / Bell with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length , in below type of pipe erected with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed.(c) with oval conduit /PVC casing capping double lock type erected flushed on wall/ceiling complete, Cat. III	420.00	20.00	Pt.	8,400.00
Item No. 62				
Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories. [I] For 6A Plug and 6 a switch with 2-1.5 sq.mm Cu. Wire from nearby switchboard/mcb db board, (c) with oval conduit /PVC casing capping double lock type erected flushed on wall/ceiling complete Cat. III	448.00	10.00	Pt.	4,480.00
Item No. 63				

Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories.[II] For 16A Plug and 16 amp switch with 2-2.5 sq.mm Cu. Wire from mob db board. (d) Partial PVC pipe and drops in oval conduit / PVC casing capping erected flushed on wall/ceiling complete Cat. III	703.00	5.00	Pt.	3,515.00
Item No. 64				
Point wiring for on board Looped Plug with 6A Modular type switch & 5 pin socket erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate modules erected on / in wall / ceiling with following type accessories, Cat. III	266.00	15.00	Pt.	3,990.00
Item No. 65				
Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sink shall be made of co-extruded polycarbonate channel with diffuser part in needed opal finish with company mark/name 160V to 270V, Power Factor more than 0.9, THD < 15%, CCT 3000 K to 6500K, Luminaire efficacy> 85 lumens/watt, LED driver efficiency > 85 % (fitting required LM-79 & LM-80 Certificates) (NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.), (A) Tube Light with integral driver, (ii) 18-20 Watts, Surge - 2KV,IP-20, conventional 4 feet, Cat-lll	475.00	10.00	Each	4,750.00
Item No. 66				

Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sink shall be made of thick sheet Steel conforming to IS: 513/CRCA/aluminium pressure die cast powder coated and high U.V. & corrosion resistance with diffuser housed in aluminium casted body with company mark/name 160V to 270V,Power Factor more than 0.9, THD < 15 %, CCT 3000 K to 6500K, Luminaire efficacy> 85 lumens/watt , LED driver efficiency > 85 % (fitting required LM-79 & LM-80 Certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.) (A) Square/ Circular shaped Surface/Recessed Mount Downlight with provision for spring loaded mounting clips complete.IP20. (ii) 11-15 watts, Surge-2 KV Cat-lll	550.00	10.00	Each	5,500.00
Item No. 67				
Supplying and erecting LED street light / Flood light fittings with High power White LEDs wattage of 3 Watt and above 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 toughened glass with company mark/name engraved or embossed 160 to 270 V,Power Factor more than 0.95, THD < 10 %, CCT 3000 K to 5700K,Uniformity ratio >0.45, Luminaire efficacy> 100 lumens/watt . LED driver efficiency > 85 %.(fittings required LM-79 & LM-80 certificates) (NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.) (B) Flood Light (IP-65), Surge protection -4KV integral and, Light must have 440VAC line supply with over-voltage protection. (vii) Above 200 to 250 watts. Cat-lll	14,020.00	2.00	Each	28,040.00
Item No. 68				

Pproviding and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 25 KA. at 415 V,having normal current rating up to 25 A to 100A. with Fixed thermal & magnetic release suitable to work on A.C. supply 50 c/s. with all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S. housing. Pproviding and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 25 KA. at 415 V,having normal current rating up to 25 A to 100A. with Fixed thermal & magnetic release suitable to work on A.C. supply 50 c/s. with all internal connections,with UV coil, spreader tinned copper & complete erected in existing 16 G.M.S. housing. Cat-ll	5,635.00	1.00	Each	5,635.00
Item No. 69				
Supplying Bolted Connections (BS type) HRC fuse link capable to withstand 80KA confirms to I.S. 13703 for following current capacity, (A) up to 32 Amp.(20 A)	60.00	40.00	Each	2,400.00
Item No. 70				
Providing & erecting 240 V MCB double pole switch for lighting Load (B Curve) having 10 KA breaking capacity & confirms to IS : 8828 in existing box having following capacity. (A) 6 to 32 Amp. Cat.II (6 AMP)	280.00	10.00	Each	2,800.00
Item No. 71				
Providing & erecting 240 V MCB double pole switch for lighting Load (B Curve) having 10 KA breaking capacity & confirms to IS : 8828 in existing box having following capacity. (B) 40 Amp. Cat.III	345.00	1.00	Each	345.00
Item No. 72				
Providing & erecting 415 V MCB Four Pole for Motor & Inductive Load (C Curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity. (a) 6 to 32 Amp. Cat.II (16 AMP)	595.00	2.00	Each	1,190.00

Item No. 73				
Providing & erecting 415 V MCB three Pole for Motor & Inductive Load (C Curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity. (c)63 Amp. Cat.II	720.00	1.00	Each	720.00
Item No. 74				
Providing & erecting 415 V MCB three Pole for Motor & Inductive Load (C Curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity. (a) 6 to 32 Amp. Cat.II	570.00	3.00	Each	1,710.00
Item No. 75				
Providing and erecting metallic vitrified danger notice board as per language suggested by engineer incharge for MEDIUM VOLTAGE installation to be erected as per IS-2551	80.00	3.00	Each	240.00
ITEM NO. 76				
Providing and erecting Approved make energy meter 3 phase 4 wire unbalanced load rating, 10A to 60 Amp. based on ASIC(Application specific Integral Circuits) digital technology with accuracy Class - 1 , temper proof, free from effect of external magnetic field with 3 phase indication, earth & impulse indication, 6 digit electro mechanical impulse counter, suitable work on 120 V to 300V per phase 45-55 HZ, housed in robust enclosure with erection as directed. Cat IIprovidng and erecting Approved make energy meter 3 phase 4 wire unbalanced load rating, 10A to 60 Amp. based on ASIC(Application specific Integral Circuits) digital technology with accuracy Class - 1 , temper proof, free from effect of external magnetic field with 3 phase indication, earth & impulse indication, 6 digit electro mechanical impulse counter, suitable work on 120 V to 300V per phase 45-55 HZ, housed in robust enclosure with erection as directed. Cat II\	3,090.00	1.00	Each	3,090.00
ITEM NO. 77				

Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (M) 4 core 10 Sq. mm	665.00	80.00	Mtr	53,200.00
ITEM NO. 78				
Supplying and erecting approved make oscillating type bracket fan A.C. 23OV. 50cy/s 400/450 mm sweep wall mounted with height adjustment and rotary tilting device complete with guard, flexible Core plug top complete erected with lead wires as directed. Cat.II	2,960.00	9.00	Each	26,640.00
Item No. 79				
Supplying and erecting approved make pedestal fan A.C. 230V. 50 Cy/s. 400 mm sweep oscillating, type and adjustable, height complete with guard regulator, & standard lead flexible wires and plug top. Cat.II	2,500.00	1.00	Each	2,500.00
Item No. 80				
Supplying approved make domestic refrigerator of 200 Ltr to 250 Ltr storage capacity, single phase minimum 3 star rating.	20,000.00	1.00	Each	20,000.00
Item No. 81				
Supplying and erecting approved make Analog type voltmeter moving iron with square/ Round Dial, flush/pedestal mounting pattern for A.C.Voltage 0 to 500 Volt range, erected on panel board with all connection, wiring etc.	420.00	4.00	Each	1,680.00
Item No. 82				
Supplying and erecting approved make Analog type moving iron C.T operated Ammeter A C Current suitable slide in scale 0- 400 Amp. with 3 Nos. of Current Transformer erected on panel board with connections.	1,850.00	4.00	Nos.	7,400.00
Item No. 83				
Supplying and erecting Ammeter / Voltmeter selector switch for 3 phase AC Supply 500 V on existing panel board with necessary connections.	370.00	8.00	Each	2,960.00
Item No. 84				
Supplying and erecting approved make suitable panel indicator LED type lamp, lens cover, complete erected with necessary connections.	50.00	16.00	Each	800.00

Item No. 85				
Supplying rubber matting of following thickness as per IS:15652/IEC 61111 , (b)4mm	1,200.00	4.00	Sq.M	4,800.00
Item No. 86				
Erecting bulkhead fittings/wall glass marine fitting, Navigation lights , Siren , tubelight fitting, emergency light fitting, berth light , floodlight , Cabin fan ,W/T switches W/T plug socket or plug socket with switch, junction boxes and switch wooden box or MS furnished plate of 6 mm thick as required per size of fitting duly welded on structure of vessel incl. Drill hile required with 1 coat of redlead paint incl. Cost of plate but excl. cost of fittings.	195.00	25.00	Each	4,875.00
Item No. 87				
Providing and Laying cable tray on MS flat bar, clamp (12mm x 3 mm) after welding equip, dist. On surface/structure of vessel by GI bolts and nuts, forwiring works. A-50 mm .	228.00	25.00	Mtr	5,700.00
B- 75mm	260.00	25.00	Mtr	6,500.00
Item No. 88				
Laying cable on existing cable tray by GI sheet metal clamps (12 x 18 SWG) with GI bolts and nuts on equip, dist. excl. cost of cable.	43.00	100.00	Mtr	4,300.00
Item No. 89				
Supplying navigational light of vessel up to 30M MMD approved make from polycranic/ Acrilic suitalbe for Mast/ Anchor/ Stern/Port /Stbd NUC light along with 1 Mtr. Fle. Cable lead with E/S or BS Holder without lamp for double tier.	17,550.00	5.00	Each	87,750.00
Item No. 90				
Supplying navigational lamp (65 candle power) E.S or BC "24/110 V or 230 V(store issue rates)	845.00	10.00	Each	8,450.00
Item No. 91				
Labour charges for Megar test for all the electrical installation of marine vessel	19,500.00	1.00	Job	19,500.00
Item No. 92				

Providing approved make water tight and weather proof 10A. 250Volts 3 pin cast aluminium body receptacles with locking cap with chain Bakelite insertion with brass pins 2 nos. cable entries with plastic cable glands S.S. hardware.	1,300.00	1.00	Each	1,300.00
Item No. 93				
Above with suitable 10A. Double pole rotary switch, Bakelite knob for on/off	1,885.00	1.00	Each	1,885.00
Item No. 94				
Providing approved make marine water tight well glass fitting with clear "U" shape threaded glass porcelain BC/Es lamp holder with 2 way connector with 2 nos. cable entries with plastic cable glands. (B) Cast aluminium body with MS/SS protective wire guard for side wall mounting arrangement with brass cable glands and with Lamp suitable up to 100W.	2,340.00	14.00	Each	32,760.00
Item No. 95				
Providing approved make emergency light fitting with cast aluminium body with die cast aluminium protective wire guard with clear"U" shape glass with rubber gasket SBC brass holder for 24V. 25W. Pigmy lamp 2 nos. cable entries with plastic cable glands.	1,170.00	6.00	Each	7,020.00
Item No. 96				
Servicing of navigation audio alarm pannel, audit visual realy of resistant type along with replacing necessary resi. Relays, lamps, fuses, etc. with test and trials comp. in all respect.	8,840.00	1.00	Each	8,840.00
Item No. 97				
Servicing main switch board pannel in engine room of vessel like all types of meters, fuses, switches, connectors, circuit breakers etc. in all respect incl. testing and trial. (for 3 phase starter and alternator wiring in D.G / panel board distribution service.)	18,200.00	1.00	Each	18,200.00
Item No. 98				
Supplying copper flexible armoured and flexible unarmoured marine cable approved make for flotilla units. 0.6/1 KV grade. (B) 2 x 2.5 Unarmoured cable.	234.00	200.00	Mtr	46,800.00
Item No. 99				

Dismentalling repairing, servicing, overhauling, testing, commissioning and re-installing of winch machine panel by replacing Contactor,MCB Switches etc. complete in all respect with materials & labours.	14,380.00	3.00	Job	43,140.00
Item No. 100				
Providing and erecting Wall/Panel Mounted Water/Shock Proof insulated SOCKET OUTLET, 63 AMP,440 Volts, 3P+N+E, IP-67, Out Door type,Down insertion type for shore power purpose, Complete in all respect.	4,135.00	1.00	Each	4,135.00
Item No. 101				
Fabricating the box type items made from Stainless steel AIS 316 Sheet with SS supports, wings, doors, handles other hardware materials as per required design, finishing with three tank powder coating processed painted, erected as directed including minor civil work. Confirm to IS1570 Part-V	394.00	70.00	Kg	27,580.00
			Total : Part-B	5,25,520.00
			Grand Total (Part A, Part B) Rs.	40,51,310.00

(Rupees Forty Lakhs fifty one thousand three hundred ten Only)

I/We am/are willing to carry out the work at_____ above/ below than the amount put to tender total amount of my/our tender work out as under.

Estimated Amount put to tender :Rs. 40,51,310.00	**Estimated Amount put to tender :Rs. 40,51,310.00**
Add._____% above Rs._____	**Deduct_____% below Rs._____**
Total Rs._____	**Total Rs._____**
In words_____ _____	**In words**_____ _____

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER – 10

ITEM SPECIFICATIONS

Item No. 01:

Bedi Port dry dock gate opening and closing work before and after docking of the unit with suitable capacity crane including of all required labors for celling etc.

The operation include the hire charges for Crane of minimum 50 Ton OR more capacity for the following four operations at different times and as per actual requirement.

Operation-1 ..... Docking : Gate Opening before Docking the vessel.
Operation-2 ..... Docking : Gate Closing after Docking the vessel.
Operation-3 ..... Un-Docking : Gate Opening before Un-docking the vessel.
Operation-4 ..... Un-Docking : Gate Closing after Un-docking the vessel.

The Contractor shall have to arrange suitable, duly insured Crane of minimum 50 Ton OR more capacity for the entire docking- undocking operation.

The entire job has to be carried out in such a way that no damage/deterioration to GMB infrastructure along with the vessel. If any damage occurs, it must be rectified at free of cost and to the satisfaction of IRS/EIC. All precautions should be carried out for the safety of vessel as well as labour engaged for execution of this job.

The docking-undocking operation shall be scheduled as per convenient tide-time, actual requirement and as per decision of EIC, whose decision shall be final & binding to the contractor.

Contractor has to arrange the crane for said all 4-operations as per instruction received from EIC time to time.

The measurement shall be taken and paid per Job basis.

Item No. 02:

Docking and Undocking charges up to LOA: Above 24 mtrs. (Dredger)

Item includes docking/beaching of the vessel either at Bedi Port Dry dock or at any suitable place as decided by the GMB at the time of execution of the work. The vessel will be handed over to the contractor as directed by EIC. Contractor have to safely dry docked the vessel as Docking plan/General arrangement plan and as directed by EIC.

Similarly, on completion of the repairing, contractor has to undocked the vessel safely, as directed by EIC.

During above operations, the contractor has to take care of the unit/vessel and there should be no damaged to the unit and surrounding assets, otherwise, the contractor have to repair/restore the same at his own cost.

Entire work of docking/undocking shall be treated as single Job.

The measurement shall be taken and paid per Job basis.

Item No. 03:

Jacking of vessel including... Providing hydraulic jacks of appropriate capacity and Nos., Providing wooden blocks of required size (size: 0.3 x 0.3 x 9 mtr) and Nos. Fabrication of MS angle of appropriate size & Nos., Fabrication and installation of L-bracket having sufficient capacity, Provide man power during whole work, Providing suitable crane for placing jacks in the dock.

This work includes providing..... Hydraulic jacks of appropriate capacity and Nos., wooden blocks of required size (size: 0.3 x 0.3 x 9 mtr) and Nos., tools of M.S. angle of appropriate size and Nos., etc. and fabricating & installing the L-brackets having sufficient capacity and Nos. at the bottom of vessel with crane of suitable capacity for placing jacks in the dock.

Also, work includes jacking of Vessel to the sufficient height to facilitate gauging, inspection, Painting and repairing of the unit underneath structure like bottom plates & chine plate etc. and for IRS Surveyor's/EIC's inspection.

Item includes docking/beaching of the vessel either at Bedi Port Dry dock or at any suitable place as decided by the GMB at the time of execution of the work. The vessel will be handed over at the gate of dry dock. Contractor have to safely dry docked the vessel as Docking plan/General arrangement plan and as directed by EIC.

During above operations, the contractor has to take care of the unit/vessel and there should be no damaged to the unit and surrounding assets, otherwise, the contractor have to repair/restore the same at his own cost.

The measurement shall be taken and paid per Job basis.

Item No. 04:

To provide man power during unjacking operation. Cutting L-brackets, removing wooden blocks, stools and other misc. items in all respect. Providing suitable crane for removing jacks from the dock.

The job includes to provide man power during the un-jacking of vessel. Job also includes cutting of L brackets without damaging mother material of vessel. The Whole site is to be cleared as per instruction of EIC & Transportation of all material from dock to contractor destination shall have to be arranged by the contractor at his own cost and risk.

Sufficient care has to be taken of vessel and the safety of labour shall be ensured by the contractor, while un-jacking the vessel.

During above operations, the contractor has to take care of the unit/vessel and there should be no damaged to the unit and surrounding assets, otherwise, the contractor have to repair/restore the same at his own cost.

The entire work should be carried out in direct supervision & instructions of EIC.
Both the job i.e. jacking & Un-jacking shall be considered as a single job.

The measurement shall be taken and paid per Job basis.

Item No. 05:

Dredging manually (in dry-dock by labour, removal sand, silt, mud or marshy soil including disposal of material on shore for a lead up to 1000m and lift (including tidal condition)

Dredging in Bedi port Dry-dock through labours by removing sand, silt, mud or marshy soil & disposal of dredging materials on shore for lead up to 1000Mtr.

During the operation of opening/closing the dry dock gate, there is a possibility that mud, chickle and debris may enter along with the water in Dry Dock of Bedi Port. This item includes cleaning of this accumulated Mud, chickle, debris, boulders, pieces of scrap material etc. from Dry-dock with manual labour/suitable equipments etc. and dumping the same on shore up to the lead of 1000 mtr as directed by EIC.

The dredging area is covers dry dock area at bottom portion of the unit, as directed by EIC.

If Unit is docked in Dry-dock first then, contractor has to dredge from bellow portion of the unit in docked condition of the unit.

The measurement shall be taken and paid per Cubic Meter (m^3) basis.

Item No. 06:
Plate mild steel 3.15-20mm IRS.

The Item includes renewal of Steel material required for execution of the work like MS plate, Angles, Flat bar, Round bar, etc. of various thickness and size as may be required and directed by EIC.

The supplied Steel plate must be as per IS-2062 Grade A or B / IRS approved marine quality. It should be purchased from reputed seller, conforming to IS-2062.

The Manufacturer's Certificate for physical and chemical test for supplied steel material as per above said IS standard shall be submitted by contractor to EIC. The inspection of the steel shall be done at site by IRS/EIC or his authorized representative and if not found as per IS standard, then it will be rejected.

If necessities arise & if required, the sample shall be drawn from the supplied Lot of steel material at the site and this sample would be sent to Government recognized laboratory for testing purpose for physical as well as chemical test analysis, so as to confirm to IS standard as stipulated above. Entire cost towards testing will be borne by the GMB.

The result of laboratory report will be final and binding to the contractor. If testing report do not match the IS 2062 standard, then all supplied steel material will be outright rejected and no payment shall be made to the contractor for this rejected material. In that case, the contractor has to load the rejected material at his own cost & supply the new material, which is again subject to confronting the IS standard stipulated above.

The rate considered, should be inclusive of taxes, duties, transportation, loading, unloading, stacking at proper place, removal old steel material, necessary fabrication work for fitting new steel material at required places/locations with necessary cutting/welding gases, welding rods, etc. as well as tools/equipment like welding transformers, rectifier, chain pulley block, other accessories, Skilled & unskilled labours, etc. complete in all respect.

The bidder should procure all steel material as per actual requirement for fabrication/execution because whatever remains unutilized along with entire wastage will be contractor's responsibility for which no payment shall be made. The contractor shall have to make his own arrangement to stake the materials at site at his own cost. Item also includes removal of old and deteriorated steel structure fitted with the vessel & fitting the new steel material to the vessel with cutting, cropping, fairing, gas cutting, chipping, edge preparation, etc. as directed by IRS/EIC. It also includes cost of Gas cutting, welding etc. with material and labour complete in all respect.

The surface cleaning should be done by wire brushing only. All the steel material

should be cleaned thoroughly, either by chipping or cleaning as directed by IRS / EIC. The surface should be cleaned and free from any paints, foreign materials etc.

The edge preparation should be made as per Marine Standard. The gap between joint should not be more than 2 to 3 mm, in between the fabrication of plates. The tack/ full welding should be done as per standard Marine Practice. The minimum 2/3 continuous run must be made in full welding. No pores/ holes should be present in welding lines. The Welding electrodes of standard make approved by IRS/EIC shall be used & it should be according to IS-814 standard.

During entire steel renewal work, if, welding is found out of weaker quality during the inspection of IRS/ EIC, then complete re-welding will have to be carried out by the contractor without aiding any extra cost to the GMB upto the satisfaction of IRS/ EIC.

The Entire steel renewal & fabrication work shall be carried out by IRS Approved Welder as per standard marine practice and as per direction and satisfaction of IRS/ EIC.

Old-Removed MS material should be taken back by contractor as a MS scrap & the cost of MS scrap would be recovered from the contractor on Kg basis as per rates mentioned in the "Recovery Statement (Mechanical)" of this tender document.

The measurement shall be taken and paid on Kilogram (Kg) basis. The standard weight of the steel will be considered for tonnage calculation & payment purpose.

Item No. 07:

Hull cleaning by water spray

Item includes cleaning of hull with the help of fresh water jet of 100 bar pressure. The contractor shall have to use their own water jet machine, fresh water, and other material required for this job. The entire hull shall have to be cleaned thoroughly by water jet. Item includes complete material and labour charges in all respect.

The measurement shall be taken and paid per Sq.mtr. basis.

Item No. 8:

Labor Scrapping, Cleaning, Painting to Hull/ Superstructure/ Deck/E/R etc. For First Coat.

The Item includes providing Labor for Scrapping, Cleaning, Painting to Hull, Bottom, Deck, Superstructure, Hopper, Tanks, Pipelines, valves, Engine room, railing, stairs, doors, Engine & DG, air vents, bollards, etc. for applying First coat of Epoxy/Primer/Tie-coat/Antifouling as per *'Paining Sheet'* & as per instruction of EIC.

Each & every surface has to be thoroughly chipped, scrapped and cleaned by the chipping hammer and wire brush, so as to remove complete rust, scale, etc. from the surface as per standard marine practice & upto satisfaction to EIC.

Before commencing painting to the surface, the surface should got approved from EIC & then after, 1st coat of Epoxy/Primer/Tie-coat/Antifouling shall be apply as per *'Paining Sheet'* & as per instruction of EIC.

However, contractor should liable to arrange supervision of manufacturer company technician/authorized person at site during painting for proper guide for standard painting.

If any Dry Film Thickness (DFT) regarding measurement arise or asking by the IRS Surveyor, then agency has to provide it at free of cost & if any irregularities observed than contractor have to rectify it at free of cost.

This item includes machinery/equipment, Labour, tools, wire brush, paint brush, etc.

for cleaning of painting surface as stated above, but excludes cost of Epoxy/Primer/Tie-coat/Antifouling only.

The measurement shall be taken and paid per Square Meter (m^2) basis.

Item No. 09:

Labor Scrapping, Cleaning, Painting to Hull/ Superstructure/ Deck/E/R etc. For Second and additional Coat.

The Item includes providing Labor for Cleaning & Painting to Hull, Bottom, Deck, Superstructure, Hopper, Tanks, Pipelines, valves, Engine room, railing, stairs, doors, Engine & DG, air vents, bollards, etc. for applying Second to Sixth coat of Epoxy, Primer, Anticorrosive, Synthetic Enamel Paints, etc. as per *'Paining Sheet'* & as per instruction of EIC.

Each & every surface has to be cleaned as per standard marine practice & upto satisfaction to EIC, so as to remove dust from previously painted surface. Then after, 2^{nd} Coat to 6^{th} Coat of Epoxy, Primer, Anticorrosive, Synthetic Enamel Paints, etc. shall be apply as per *'Paining Sheet'* & as per instruction of EIC.

After applying the Second coat, the third coat shall be apply only after drying out of second coat & subsequently, same procedure/method has to be followed upto sixth coat.
This item icludes machinery/equipment, Labour, tools, spraying equipments/paint brush, etc. but excludes cost of Epoxy, Primer, Anticorrosive, Synthetic Enamel Paints, etc. only.

The measurement shall be taken and paid per Square Meter (m^2) basis.

Item No. 10,11,12,13,14,15,16:

(10) Paint Marine Epoxy Primar
(11) Paint Marine Enamel Primer
(12) Paint Marine Epoxy Anticorrosive
(13) Paint Marine Synthetic Enamel Finish (Any shades)
(14) Paint Marine epoxy tie coat
(15) Paint Marine antifauling SPC (for 60 months)
(16) Marine thinner

The item includes supply of Epoxy Primar, Enamel Primer, Epoxy Anticorrosive, Synthetic Enamel Paints of various shade, Tie-coat, Antifouling SPC, Thinner, etc. as per Item No. 10 to 16, as per quantity & shades mentioned in "Schedule-B" of this tender document & as directed by EIC. The paint should be of brand like Akzonobel, Sigma, Jotun or any other equivalent brand/Paint approved by IRS (Indian Register of Shipping) or ABS (American Bureau of Shipping) or DNV-GL (Det Norske Veritas and Germanischer Lloyd) or any other Marine Classification Society.

The contractor has to submit Marine Class Approval Certificate from IRS/ABS/DNV-GL or any other marine classification society along with detailed manufacturing test report for Paints supplied by him. In this regard, the decision of EIC shall be final & binding to the contractor.

The contractor has to supply the paints as per actual requirement of work in consultation with EIC. No payment for paint that has remained surplus will be done by GMB.

The application of supplied paints shall be started only after approval of EIC.

The Empty paint drums should be taken back by contractor as a scrap & the cost of scrap would be recovered from the contractor as per rates & units mentioned in the

"Special Conditions (Mechanical)" of this tender document.

The measurement shall be taken and paid per Liter (Ltr.) basis, as per the actual consumption of paint certified by the EIC.

Item No. 17:
Painting to Draft Marks, Ships name, port of registry and line cutting between DLL & LLL

Item includes Painting to Draft marks, Ships name, Port of registry, Load line, etc. as per class survey requirement with all types of labour, materials, tools, paint brushes, paints, etc. in all respect.
Painting should be done with proper line cutting between DLL & LLL, as per original & as per satisfaction of IRS/EIC.

The measurement shall be taken and paid per Each basis.

Item No. 18:
Painting to Different names for indication and identification at different places including Marking, surface preparation, but with paints material Min 05 Names.

Item includes Painting different names, for indication and identification at different places including Marking, Surface preparation, but with paints material as per class survey requirement with all types of labour, material, paints in all respect, painting should be done as per original or as per class requirement as per satisfaction of EIC. Painting shall have to be done with proper line in all respect.

The measurement shall be taken and payment should be made on per Name basis.

Item No. 19:
Remove and Refit back the tyre fender with Chain and D - Shackles and Labour job.

The item includes Removal of tyre fenders from Port side, STBD side, Frw side & Aft side of the vessel and Refit back the tyre fenders with new Chain and new D- Shackles at their original/required location as per instructions of EIC.

This item includes supply of G.I. D-Shackles (10mm) & supply of 5 Mtr. of MS Chain (10mm) as per requirement for the number of fenders as per Schedule B.

This item includes cost of supplying new Chain and new D- Shackles with labours for removing & refitting the tyre fender, complete in all respect except cost of Tyre.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 20:
Providing and Supplying of old Usable good Quality tyre fender having 3nos of round hole approx hole diameter 100MM having tyre size 18X25, rim width 13", sectional width 515mm, overall diameter 1694mm, ID25" including loading, unloading, transportation upto site etc.

The item includes supply of 5 nos. old tyre in usable and good condition of tyre size 18X25, rim width 13", sectional width 515mm, overall diameter 1694mm, ID25" (as per nomenclature of tyre) for fender work.
The cost includes cost of Supply the required tyre, it's loading, un loading, & transportation to the site, making 3 nos of round hole approx hole diameter 100MM, as per instruction of EIC.

The supplied old tyre should be free from any kind of defect like cuts cracks, bends, etc. & upto satisfaction of EIC. If any defect noticed in the supplied old tyre, it will be

outright rejected and contractor has to provide another one at his own cost and risk and no payment shall be made against such rejected tyre in any case.

The contractor has to make 3 Nos of round hole approx hole diameter 100MM at top surface with cutting tool as per standard marine practice. Before fitting the old & usable-good quality tyre size 18X25, rim width 13", sectional width 515mm, overall diameter 1694mm, ID25", the contractor has to offer it for inspection to the EIC or his representative, whose decision will be final & binding to the contractor.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 21:

Eye pad renewal after removing old one on ship hulls with all necessary materials and labour.

The item includes renewal Eye pad for tyre fendering purpose, as per suitable size & as per instruction of EIC.

It includes removing the broken/old Eye pad & fitting the new Eye pad with proper welding method as per standard marine practice.

This item includes cost of new Eye pad, Removal of broken/old Eye pad & fitting of new Eye pad inclusive of cost of labour, material & equipments in all respect.

The measurement shall be taken and paid per Number (No.) basis

Item No. 22:

Aluminum Anodes Size: 400 X 100 X 25 mm having Strips, removing and fitting with labour and material.

Item includes Supply & fitting of anodes at underwater portion of the vessel for cathodic protection.

The supplied anode shall be in accordance with IS 8062 standard. The anodes shall be fitted having capacity of 781 A hrs/kg and minimum design life shall be 03 years.

The anodes shall have to be in size of 400mm in length x 100mm in width x 25mm in thickness. The sacrificial anodes shall be moulded with MS strip of size 3mm thick and 36mm in width.

The materials and moulded anodes shall have to offer for inspection before fitting the same with the satisfactions of EIC or IRS. The works shall be carried out to the satisfaction of EIC.

Item includes providing and fitting Aluminium anodes of 400x100x25mm of standard quality after removing old and existing one. The item includes cost of Aluminium anode, MS strip and complete labour charges required to execute this job.

The measurement shall be taken and paid per each basis.

Item No. 23:

F.W./Ballast tank: Bailing the left over water below suction, remove mud and muck from inside tank.

Item includes cleaning the Fresh Water & Ballast Tanks by bailing the left over water below suction, remove mud and muck from the tank.

The cost includes all type of equipment, tools, labours, etc. in all respect to complete this work.

The works shall be carried out to the satisfaction of EIC.

The measurement shall be taken and paid per Ton basis.

Item No. 24:

F.W. Ballast tank: Applying coat of cement wash inside the tank, cleaning the tank after cement washing and bailing out water after inspection.

Item includes applying coat of cement wash inside the tank & cleaning the tank after cement washing. After drying out of cement wash, the water shall be filled up inside the tanks for carrying out pressure testing of the tank & after satisfactorily inspection by IRS/EIC, bailing out the water from tanks.

The cost includes cost of cement, all type of equipment, tools-tackles, labours, etc. in all respect to complete this work. The works shall be carried out to the satisfaction of EIC.

The measurement shall be taken and paid per Ton basis.

Item No. 25 & 26:

Pipe Class-B Black Mild Steel 50 mm & 25 mm NB For Railing

Item includes supply of Class- B Black Mild Steel pipe having Nominal Bore Diameter of 50 mm & 25 mm. The pipes shall be supply as per IS 3601 : 2006 Standard, for which necessary certification shall be provided by the contractor, if required.

The contractor has to supply the pipes as per requirement & as per instruction of EIC. It is necessary to supply the pipes as per standard marine practice & as per direction and satisfaction of EIC.

The measurement shall be taken and paid per Meter (Mtr.) basis.

Item No. 27 & 28:

Remove and fit Guard Rail Pipe Class-B Black Mild Steel, Labour Only. Steel Work Lump sum upto 100Kg Consumables for steel work Multi run.
Size: 50 mm & 25 mm

Item includes removing the pipes of guard rail & fabricating Guard rail with new Class-B Black Mild steel pipes as per actual requirement and upto satisfaction of EIC.

The work includes all types of labour charges, equipment hire charges for welding-cutting-etc., cost of consumables, etc. for entire fabrication work of reval & refitting the guard rail pipe, but excludes cost of New Class-B Black Mild steel pipes, only.

The renewal of Railing of the various places of the units shall be provided as per original sizes and shapes. The work shall be carried out as per standard marine practice & as per direction and satisfaction of EIC.

The measurement shall be taken and paid per Meter (Mtr.) basis.

Item No. 29 & 30:

Renewal of Only pipe 65 mm & 50 mm NB after removing by gas cutting and re-fitting by welding with pipe of ISI make including labour and material in all respect.

Item includes renewal of pipe by replacing deteriorated/corroded pipe. Item includes removal of old pipe & fitting of new Class- C Mild Steel pipe of different sizes of 65mm & 50 mm nominal bore diameter into unit in place of old-removed pipe by necessary scrapping, bending, threading, flanges fitting with welding, facing, marking, cutting, bends fitting etc. for straight/shaped pipe line of different sizes with required new

joint, consumables, etc. and offer for inspection to IRS/EIC.

The pipes shall be supply as per ISI Standard & as per standard marine practice, for which necessary certification shall be provided by the contractor, if required.

Item includes cost of new pipe, tools-tackles, nut-bolts, packings, consumables, equipments, etc. with all type of labours charges to complete the job of removal & fitting the pipe line, as directed by the EIC.

The measurement shall be taken and paid per Meter (Mtr.) basis.

Item No. 31 & 32:

Re-newal of 65mm & 50 mm NB Bend after removing old and re-fitting by welding with pipe including labour and material all respect.

Item includes Bend of pipe by replacing deteriorated/corroded Bends. Item includes supplying new Class-C Mild Steel Bends of different sizes of 65 mm, 50 mm nominal bore diameter by different sizes with required new joint, consumables, etc., into unit for various pipelines to be fitted at required locations and offer for inspection to IRS/EIC.

The contractor has to supply the Bends as per requirement & as per instruction of EIC. It is necessary to supply the bends as per standard marine practice & as per direction and satisfaction of EIC.

The bends shall be supply as per ISI Standard & as per standard marine practice, for which necessary certification shall be provided by the contractor, if required.

The measurement shall be taken and paid per Number (Nos.) basis.

Item No. 33 & 34:

Re-newal of Flange 65mm & 50mm NB after removing by gas cutting and re-fitting by welding with Pipe of ISI make, including labour and material in all respect.

Item includes Flanges of pipe by replacing deteriorated/corroded pipe. Item includes supplying new Class-C Mild Steel pipe of different sizes of 65 mm& 50 mm nominal bore diameter into unit by different sizes with required new joint, consumables, etc. and offer for inspection to IRS/EIC.

The contractor has to supply the Flanges as per requirement & as per instruction of EIC. It is necessary to supply the flanges as per standard marine practice & as per direction and satisfaction of EIC.

The Flanges shall be supply as per ISI Standard & as per standard marine practice, for which necessary certification shall be provided by the contractor, if required.

The measurement shall be taken and paid per Number (Nos.) basis.

Item No. 35:

Labor for Servicing and Repairing Pressure testing of Fire Hydrant Valve including consumables and hardware. Spares cost like spindles, seat excluded.

Item includes removal & refitting of Fire hydrant valves after necessary servicing, repairing, overhauling and pressure testing of Fire hydrants of various sizes fitted at the various location in the vessel.

The necessary testing should be given by the contractor, if required and demanded by the EIC without any extra cost.

Item includes servicing of all valves with labour, all consumable items, equipments, tools-tackles, etc. required for this work complete in all respect.

If, parts like spindle & valve seat are required to be replaced, it shall be supplied by the department as per actual requirement. The work shall be carried out as per the direction of IRS/EIC.

The measurement shall be taken and paid per Each basis.

Item No. 36:

Removal and Refitting of Valve upto 50 mm NB as per original size with new joints and hardware, only labour and consumables. New Valve and parts Extra at actual.

Item includes removal & refitting of valves of upto 50 mm Nominal Bore diameter, situated at the various location in the vessel.

Item includes removal of different sizes of valves at the the vessel by opening connected pipe lines & refit back the same at its original position after inspection of IRS/EIC. Item includes removal & refitting of valves with all consumables like nuts, bolts, packing, joints, equipments, etc. with all type of Labour charges, complete in all respect.

The measurement shall be taken and paid per Each basis.

Item No. 37:

Labour for Servicing and Repairing Pressure testing of Valve of 26-50mm NB including Each consumables and hardwares. Spares cost like spindles, seat excluded.

Item includes Servicing, Repairing, Overhauling & pressure testing of various valves of different sizes i.e. upto 26-50 mm Nominal Bore diameter, situated at the various location in the vessel.

Item includes labour charges for dismantling, opening, servicing, overhauling, and testing leakage of GM/MS valves of all pipe line system of the vessel. Item also includes servicing, repairing and pressure testing of Fire hydrants of various sizes.

The necessary pressure testing shall be carried out by the contractor in presence of IRS/EIC. The cost of hiring/purchase of suitable size pressure testing machine/equipment shall be borne by the contractor.

Item includes servicing of all valves with labour, all type of consumable items, required equipments, tools-tackles, etc. complete in all respect.

If, parts like spindle & valve seat are required to be replaced, it shall be supplied by the department as per actual requirement. The work shall be carried out as per the direction of IRS/EIC.

The measurement shall be taken and paid per Each basis.

Item No. 38:

Removal and Refitting of OBD/Storm Valve upto 51 - 100 mm NB as per original size with new joints and hardware, only labour and consumables. New Valve Extra at actual.

Item includes removal & refitting of various OBD/Storm valve upto 51-100 mm Nominal Bore diameter, , situated in the engine room of vessel.

Item includes removal of different sizes of OBD/Storm valves at the engine room of the

vessel by opening connected pipe lines & refit back the same at its original position after inspection of IRS/EIC. Item includes removal & refitting of OBD/Storm valves with all consumables like nuts, bolts, packing, joints, equipments, etc. with all type of Labour charges, complete in all respect.

The measurement shall be taken and paid per Each basis.

Item No. 39:

Labour for Servicing and Repairing Pressure testing of OBD/Storm valve up to 51-75 mm NB including consumbles and hardwares. Spares cost like spindales, seat excluded.

Item includes Servicing, Repairing, Overhauling & pressure testing of various OBD/Storm valve upto 51-75 mm Nominal Bore diameter, situated in the engine room of vessel.
Item includes labour charges for dismantling, opening, servicing, overhauling, and testing leakage of OBD/Storm valves of the vessel. Item also includes servicing, repairing and pressure testing of Fire hydrants of various sizes.

The necessary pressure testing shall be carried out by the contractor in presence of IRS/EIC. The cost of hiring/purchase of suitable size pressure testing machine/equipment shall be borne by the contractor.

Item includes servicing of all OBD/Storm valves with labour, all type of consumable items, required equipments, tools-tackles, etc. complete in all respect.

If, parts like spindle & valve seat are required to be replaced, it shall be supplied by the department as per actual requirement. The work shall be carried out as per the direction of IRS/EIC.

The measurement shall be taken and paid per Each basis.

Item No. 40:

Removing and re-fitting sea chest gratings.
Vessel LOA: 24 mtrs & above

The Item includes removing and refitting of sea chest grating. Item includes the provision of labour work for removing and refitting, including chipping, cleaning, painting work and consumables, complete in all respect as per requirements, instruction & satisfaction of EIC.

After scrapping, cleaning with wire brushing shall be carried out & subsequently, washing out the surface with fresh water. After drying out the surface area, two coats of Anticorrosive Red Primer IS 1404 shall be applied. The second coat should be applied after drying out of first coat. The cost includes cost of labour for chipping, scrapping, washing, cleaning, painting, etc. & cost of Primer, Wire brush, Paint Brush, Scrapper, etc. complete in all respect.

The necessary testing should be given by the contractor, if required and demanded by the IRS or EIC without any extra cost.

The measurement shall be taken and paid per Each basis.

Item No. 41:

Seachest cleaning, scrapping and painting with primer, with consumables and labour charges only, excluding servicing of valves. Vessel LOA: 24 mtrs & above

The Item includes Cleaning, Scrapping and Painting of Sea Chest valve with necessary tools/equipments, Consumables, Primer, etc. with labour charges only, but excluding

servicing of valves.

Item includes labour charges for removal of Sea chest valves after disconnection of pipes, accessories, etc. & refit back after connecting pipes, accessories, etc.

Item include Sea chest cleaning, scrapping & painting with primer with consumables & labour charges with….

I. Opening of sea grids
II. Opening of sea suction Main valve and
III. Opening of sea suction Main line filter & fitting back all these including packing etc.

Item also includes the work of cleaning the surface & exterior to the sea chest with the scrapper. After scrapping, cleaning with wire brushing shall be carried out & subsequently, washing out the surface with fresh water. After drying out the surface area, two coats of Anticorrosive Red Primer IS 1404 shall be applied. The second coat should be applied after drying out of first coat. The cost includes cost of labour for chipping, scrapping, washing, cleaning, painting, etc. & cost of Primer, Wire brush, Paint Brush, Scrapper, etc. complete in all respect.

The Measurement shall be taken and paid per Each basis.

Item No. 42:
Seachest Filters cleaning with all consumables including labour and material in all respect. Vessel LOA: 24 mtrs & above

The item includes opening, cleaning, servicing & repairing of sea chest filters with mud box cleaning, with labour & materials, complete in all respect as per requirements, instruction & satisfaction of IRS/EIC. Item includes the provision of all type of labour work for dismantling & refitting and cost of consumables.

The necessary testing should be given by the contractor, if required and demanded by the IRS or EIC without any extra cost.

The measurement shall be taken and paid per Each basis.

Item No. 43 & 44:
Removal of pump/motor from base plate, after disconnection of pipes and accessories and transporting to and from the vessel to the work shop and fitting back in place and giving running trials.
Size between Up to 1 HP/1-3 HP/G.BOX oil Pump/Gear pump

Item includes removing the various size pumps/motors (Ranges from Up to 1 HP & 1-3 HP/Gear Box oil pump/ Gear pump) from its base plate after disconnection of pipes, accessories, etc. then transporting it to workshop for necessary servicing/repairing, etc. then transporting back to the vessel & refit the same to base plate with connecting the inlet -outlet pipes, accessories, etc. as per original. The item also includes cutting/opening of jammed nut-bolts, fasteners, etc. & supply of new nut-bolts, fasteners, consumables, packings etc.

Item includes the cost towards tools-tackles, nut-bolts, fasteners, consumables, packings, machines/equipments, cost of transportation & all type of cost for labour work, complete in all respect.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 45 & 46:
Cleaning, servicing of pump with dis-assembling and assembling including all consumables materials in all respect.. Except spares, machining etc. works.

Size: up to 1/1-3 HP /G.BOX oil Pump/Gear pump

Item includes dismantling the various size pumps/motors (Ranges from up to 1 HP/ 1-3 HP/Gear Box oil pump/Gear pump) at workshop of the contractor, then its cleaning, checking, servicing & overhauling of pump with all necessary tools, consumables, renewal of oil seal/retainer seal, renewal of bearings, etc. & assembling the same as per original.

The entire pump should be disassembled by the contractor and overhaul the same by replacing warn out parts such as mechanical oil seal, bearings, packing, nut-bolts & other consumables except machining cost. All type of labour charges are included in this item.

If parts like impeller, shaft, stage covers, end covers, etc. in the pump, are required to be replaced, then it shall be supplied by the department as per actual requirement.

After assembling the pump, satisfactory test-trial shall be given by the contractor up to the satisfaction of IRS/EIC at workshop as well as in fitted condition on the vessel.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 47:

Aux Engine Major Overhauling-3YD Ruston

Item includes Servicing & Major overhauling of the Auxilliary Engine-3YD Ruston situated in the engine room of vessel.

Item includes labour charges for dismantling, opening, servicing, overhauling, and testing leakage in the engine of the vessel.

The item also includes cutting/opening of jammed nut-bolts, fasteners, etc. & supply of new nut-bolts, fasteners, consumables, packings etc. the necessary equipments shall be borne by the contractor. All type of consumable items, required equipments, tools-tackles, etc. complete in all respect.

The work shall be carried out as per the direction of IRS/EIC.

The measurement shall be taken and paid per Job basis.

Item No. 48:

Man Hole Cover: Remove / Refit on deck for inspection/ renewal of one time, with renewal of packing material

Item includes opening the on deck man hole cover by means of open/cutting the nut-bolt-stud & removal of packing and offer for IRS inspection, then after, re-fitting the same after renewal of rubber packing/gasket, rousing/renewal of all stud-nut-bolt.

Item includes cost of Rubber packing, welding-cutting of Nut-bolt-stud, consumables, etc. with all type of labour charges, complete in all respect. The work shall be carried out as per instructions of EIC.

The measurement shall be taken and paid per each basis.

Item No. 49:

Man Hole Cover: Complete renewal of man hole cover by drilling holes with steel labour material complete in all respect.

Item includes complete renewal of main deck man hole cover by drilling holes in steel plate with renewal of rubber packing/gasket, rousing/renewal of all stud-nut-bolt, with labour and material, include cost of steel in all respect. The manhole cover should be renewed from 10mm thick MS plate. Entire job should be carried out as per IRS/EIC requirement and as per standard marine practice.

Item includes cost of material, cost of steel plate, cost of hiring welding/cutting equipments, consumables & other required fabrication materials etc. with cost of labour complete in all respect.

The measurement shall be taken and paid per Kilogram (Kg) basis.

Item No. 50:

Re-newal of GI wire mesh upto 150 mm dia of ventilators by removing old one with all necessary hardwares, consumables and steel materials, wire mesh etc. complete in all respect.

Item includes supply & fitting of wire mesh upto 150 mm diameter for ventilation. Item includes removing old wire mesh & refitting the new wire mesh as per original with all necessary tool-tackles, hardwares, consumables, etc. & cost of hiring cutting-welding equipments, etc. & all type of labour charges to complete the job, as per requirement and as per standard marine practice.

The wire mesh should be supply as per required ISI Standard for Wire mesh 150mm dia for required length as per actual and instruction of EIC. The application to wire circuit is for marine purpose and hence material should be supply in such a way and specification so that it can meet to the standard of marine society. If required, contractor shall have to submit all the relevant class test certificate of manufacturer.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 51:

Re-new rubber packing by removing old one with consumables.
SIZE: 40 mm X 25 mm

Item includes renewal of rubber packing of size 40 mm x 25 mm at various Doors, Windows, Skylight doors, etc. of the vessel, as per original.

The Item includes removal of old and existing rubber packings, Supply of new rubber packings & fitting of new rubber packing at various Doors, Windows, Skylight doors, etc. of the vessel, as per original.

The rubber packing should be fitted with the help of suitable adhesive solution. The item includes cost of rubber material, adhesive solution, tool-tackles, etc. and all type of labour charges required to execute this job, complete in all respect. The work shall be carried out as per instructions of EIC.

The measurement shall be taken and paid per Running Meter (R. Mtr.) basis.

Item No. 52:

Re-newal of 12mm thick of wooden sheet panneling work after removing old one with labour and material complete in all respect.

Item includes providing and fixing the 12mm thick one side laminated marine plywood.

Item includes providing and fixing decorative plywood 12mm thick in engine room, accommodation room & kitchen room, etc. including providing and fixing frames of required size wood for fixing plywood.

Same are to be fitted with the hull, plates as well as angle etc. of the vessel and plywood is to be fitted on the frames by means of nuts, bolts, screws and clamps etc. and PVC strips to be fitted on all edge of the joints including using adhesive solution etc. as per requirement. The work is to be carried out as per prevailing marine

standard practice.

Item includes fitting materials and labour charges including plywood. The actual fitted quantity will be measured at accordingly. The material is to be approved by E.I.C. of the work before using.

The measurement shall be taken and paid per Sq. Feet. Basis.

Item No. 53:
Pipe Cana PVC Flexible Green 75MM NB

Item includes supply of 75mm Nominal Bore PVC flexible green pipe. The pipe should be supply as per IS Standard for PVC Pipe as per actual and instruction of EIC. The application to pipe circuit is for marine purpose and hence material should be supply in such a way and specification so that it can meet to the standard of marine society. Contractor shall have to submit all the relevant class test certificate of manufacturer, if required.

The measurement shall be taken and payment should be made on per meter (Mtr.) basis.

Item No. 54:
Renewal of Steel tap - Brass short body Bib tap (foam flow) with wall flange (ship 'N' sand - 3 cm NB) in bathroom & Kitchen.

Item includes providing and fixing the Steel tap - Brass short body Bib tap (foam flow) with the wall flange as per EIC.

Item includes providing and fixing it in engine room, accommodation room & kitchen room, etc. Same are to be fitted with the frames of the vessel by means of nuts, bolts, screws and clamps etc. and it is to be fitted with the joints of edges by using adhesive solution etc. as per requirement. The whole work is to be carried out as per prevailing marine standard practice.

Item includes fitting materials and labour charges including Steel tap - Brass short body Bib tap. The actual fitted quantity will be measured at accordingly. The material is to be approved by E.I.C. of the work before using.

The measurement shall be taken and paid per Number (No.) Basis.

Item No. 55:
Providing & Fixing corrugated GI sheets roofing fixed with Galvanised Iron J or L hooks, bolts and nut 8 mm diameter with bitumen and GI Limpet washers, filled with lead complete excluding the cost of purlins, rafters and trusses. (1) .80 mm thick

Item includes Removal of existing Galvanized Iron sheets for roofing with necessary tool-tackles, equipments, labour charges.

Then, Providing new corrugated Galvanized Iron sheets for roofing & Fixing it with Galvanized Iron make J or L hooks, bolts and nut of 8mm diameter with bitumen and GI Limpet washers, filled with lead & all type of tool-tackles, hardwares, consumables, etc. & cost of hiring cutting-welding equipments, etc. & all type of labour charges to complete the job, as per original.
The entire job shall be carried out as per standard marine practice & as per instruction of IRS/EIC.

The measurement shall be taken and paid per Square Meter (Sq. Mtr.) basis.

Item No. 56:
Rotational Moulded Polyethylene Water Storage Tank. (500 Ltr Capacity)

Item includes supply of Rotational Molded Polyethylene Water Storage Tank of 500 Ltr Water Storing Capacity, as per following key specification.

- Shape of Tank : Cylindrical vertical tank
- Layer : Double Layer
- Dimension : As per Table 1 (Cylindrical Tank) of IS 12701 (latest)
- Min Net Capacity Upto effective height : 500 Ltr
- Min wall & bottom Thickness : 4 mm

The decision of EIC for acceptance of water storage tank should be final & binding to the contractor.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 57:
Opening, cleaning, servicing, rousing of anchor spud guide pulley and fitting back with necessary trials. Labour charges only.

Item includes Opening, cleaning, servicing, rousing of the pumps/motors (Ranges from 1-3 HP/3-5 HP/Gear Box oil pump/Gear pump) of the spud located on the vessel, then its cleaning, checking, servicing & overhauling of pump with all necessary tools, consumables, renewal of oil seal/retainer seal, renewal of bearings, etc. & assembling the same as per original.

The entire pump should be disassembled by the contractor and overhaul the same by replacing warn out parts such as mechanical oil seal, bearings, packing, nut-bolts & other consumables except machining cost. All type of labour charges are included in this item.

If parts like impeller, shaft, stage covers, end covers, etc. in the pump, are required to be replaced, then it shall be supplied by the department as per actual requirement.

After assembling the pump, satisfactory test-trial shall be given by the contractor up to the satisfaction of IRS/EIC at workshop as well as in fitted condition on the vessel.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 58:
Servicing of wire ropes, pulleys, gear box, drums, repairing of limit switch with labour and consumables in all respect.

Item includes servicing of various spud components. It includes servicing of wire ropes, Pulleys, Gear box, Drums of the spud operating winches, etc. including repairing/adjustment of limit switch. Item includes the cost of labor and all consumables. The entire job includes labour, required material, tools-tackles and consumables in all respect as per standard marine practice & up to satisfaction of EIC.

The measurement shall be taken and paid per Number (No.) basis.

Item No. 59:
Fire Hose Jet Nozzle (Brass) 63mm (supply)

Item includes supply of 63 mm Fire Hose Jet Nozzle (Brass). The Jet Nozzle should be supply as per IS Standard for PVC Pipe as per actual and instruction of EIC. The application to fire jet nozzle is for marine purpose and hence material should be supply in such a way and specification so that it can meet to the standard of marine society. Contractor shall have to submit all the relevant class test certificate of manufacturer, if required.

The measurement shall be taken and payment should be made on per Number (No.) basis.

Item No. 60:
Adult Life jacket Foam Type

Item includes supply of the foam type Life jackets for adults, which can provide face-up flotation with sufficient levels of support that can be applied in marine practice. It should have fabric of the Polyester Oxford and Buoyancy Material should be EPE foam, which have SOLAS reflective tapes as per instructions of EIC.

The Adult Life jacket Foam Type should be supply as per required and instruction of EIC. If required, contractor shall have to submit all the relevant certificate of manufacturer. It's designed to meet the latest IMO/SOLAS requirements.

After the satisfaction of IRS/EIC at the vessel, the life jacket can be fitted as well as in fitted condition on the vessel.

The measurement shall be taken and paid per Each basis.

Item No. 61 to 101:
Electric work will be the Electrical tender booklet & the item description is as per schedule-B.

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER – 11

GENERAL SPECIFICATIONS

General Specifications (Part-A : Mechanical Work)

1. The work includes Annual survey of "Dredger U B Pavankumar" as per IRS requirement working at Bedi Port-Jamnagar. It includes provision for Supplying M.S. Plates, Angles, Round bars, Flat bars and fitting the same as per the instruction of Engineer-in-charge. The work also includes painting work and other fabrication related works required for Annual survey of the vessel.

2. The required structural steel like M.S. Angle, Round bar and Flat bars etc. The contractor shall have to obtain the materials from market at their own cost and risk for which the department will not entertain any cost for transportation, loading -unloading and any price escalation. The contractor also will have to bring all the required materials at work site as per schedule-B at their own cost and risk.

3. The contractor shall have to use the materials of best quality and shall be got approved by the IRS/EIC or his authorized representative before starting of the work or utilization of the materials/spares.

4. The contractor shall have to carry out entire work as per the specification and agreement and instruction of the IRS/EIC or his authorized representative.

5. The dismantled scrap material such as structural steel, rubber fender and other debris as generated from the work shall have to accept by the contractor as per the rates shown in Special Conditions (Mechanical).

6. The contractor shall have to arrange and to erect scaffolding etc. for the work at its own cost for which no payment will be made by the department.

7. The contractor shall have to use the M.S. Electrodes of standard make confirming to IS Standard and acceptable to classification society.

8. The contractor shall make his own arrangements for tools, plants, jigs and fixtures required for the work.

9. The contractor cannot make any modification and change in the design structure of the unit without permission of IRS/EIC in writing.

10. The wastage/unutilized material supplied by the contractor should be the property of the contractor and contractor has to take this unused material i.e. payment will be made only for the actual usage of the material for the work of unit.

11. The entire work shall be carried out under inspection and direction of IRS/EIC. The contractor shall have to modify/add/alter the work as per the recommendations by the IRS/EIC.

12. The contractor shall have to provide necessary test certificate of materials or components etc. if required by IRS/EIC.

13. A test for checking the leakages through welding will be given by an applying a jet of water under pressure before painting where-ever IRS/Engineer-in-charge will suggest. The result will be binding to the contractor for necessary rectification without any extra payment.

14. All welding will be carried out in accordance with the code of practice for metal arc welding.

15. The contractor shall have to engage IRS approved welder for this work.

16. The charges for visit of IRS Surveyor from time to time, for Inspection of vessel will be borne by the GUJARAT MARITIME BOARD.

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General Specifications (Part-B : Electrical Work)

Make List for Electrical Tender Items

Sr. No.	Item Description in short	Make
1	LED Flood light fittings above 120 to 140 watts cat-III	Havells/Phillips/ Crompton/ Wipro/ syska/ hallonix/ C & S
2	LED Indoor Fittings Tube Light with integral driver 5-9 Watts, Surge-2 KV, IP-20, 2 feet Cat-lll	Havells/Phillips/ Crompton/ Wipro/ syska/ hallonix/ C & S
3	LED Indoor Fittings LED Lamps integral type, with PC diffuser suitable LAMP holder 5 to 8 watts Cat-lll	Havells/Phillips/ Crompton/ Wipro/ syska/ hallonix/ C & S
4	LED Indoor Fittings Square/ Circular shaped Surface/Recessed Mount Downlight (Panel Light) 22-24 watts, Surge-2 KV Cat-lll	Havells/Phillips/ Crompton/ Wipro/ syska/ hallonix/ C & S
5	decorative exhaust fan 200mm (For Toilet)	Havells/ Orient/ Crompton/ Anchor/ Bajaj/Usha
6	oscillating type medium duty bracket fan (Wall Mount Fan) 450mm	Havells/ Orient/ Crompton/ Anchor/ Bajaj/Usha
7	Cabin fan of 230V. A.C. 50 Cy/s. 400 mm Cat-II	Havells/ Orient/ Crompton/ Anchor/ Bajaj/Usha
8	XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 4 core 10 Sq. mm	All cab/ L &T/ RR Cabel/KEI/ Finolex/ havells/ Avocab
9	Four pole moulded case circuit breaker upto 25 A to 100A	Havells/ BCH/ C&S/L&T/Siemens
10	MCB double pole switch for lighting Load (B Curve) 6 to 32 Amp. Cat.II	Havells/ BCH/ C&S/L&T/Siemens

11	MCB Four Pole Switch for Lighting Load (B curve) 40 Amp Cat-II	Havells/ BCH/ C&S/L&T/Siemens
12	Panel Mounted Water/Shock Proof insulated Socket Outlet, 63 AMP,440 Volts, 3P+N+E, IP-67	Hensel /ABB /Havels
13	PLUG, 63 AMP, 440 Volts, 3P+N+E, IP-67, Out Door type , Water/ Shock Proof insulated for Panel Mounted SOCKET OUTLET	Hensel /ABB /Havels

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER – 12

GENERAL CONDITIONS

General Conditions (Part-A : Mechanical Work)

1. The Contractor has to take the separate Electric connection from concern Port authority for the repairing work at his own cost. Department will give the electric supply, if available, otherwise contractor has to make his own arrangement without any extra cost to the GMB for the same.

2. If any premature failure or Defect noticed during the Execution of the work or During the First **12(Twelve) Months** from the date of actual Completion of the work. The contractor must have to attend the same at their own cost for which are, decision of the E.I.C. of the work will be final binding to the contractor.

3. Any dispute relating to this contract shall be filed in any court of law having territorial jurisdiction in Jamnagar district.

4. All Octroi, Royalty, Wharf age of material required in work shall be paid by the contractor.

5. The General Specification for relevant items as given in Bombay P.W.D. Vol-II and shall be applicable.

6. Land for the storing the contractor's materials and for labour hutments etc. shall be chargeable at prevailing rate at concern port and contractor has to make this arrangement at his own cost.

7. The contractor will provide all assistance, labour and equipment for favor of work, where-ever required at his own expenses.

8. Error in giving line and level or in drawing by the department will not absolve the contractor of his final responsibility of checking-up.

9. Work shall be executed with the regards to the prevailing local condition and port regulations and in any case should not cause hindrance to traffic at concern port.

10. If, in the opinion of the E.I.C. or his authorized representative, the contractor's representatives on site or subordinate of the workmen considered unfit or misbehave, on orders from the EIC, the contractor shall have to remove him from the work site, failing which action will be taken against him under clause of the Contract Agreement.

11. The contractor shall be deemed to be full acquainted with the prevailing site condition, access to the site nature of ground water and the tidal condition over and above wind effect at port site necessitate restricted hours of work of certain items so no claim for losses on account of any of the above cause will entertained by the department.

12. Claim for variation in cost of labour, material and spares will not be permitted.

13. Port will not assure any supply of portable water/wholesome water to the contractor and contractor will have to make his own arrangement.

14. All the repairing work shown in this tender schedule-B shall have to carried out by

the contractor as & when call from the GMB as per the requirement arise & to be attended immediately/to complete the repairing work as per requirement & direction of EIC.

15. All testing charges for the materials required for test in any Govt. laboratory / Technical institutions shall be borne by the department.

16. Proper account for the material supplied by the contractor shall maintain.

17. The contractor is responsible for proper storage of all materials supplied by him as directed at his own cost.

18. Delay in supplying of the material by the contractor, department will not constitute any financial claim.

19. Contractor shall have to provide licensed person at site to maintain Electric power supply lines, Apparatus, Machineries, Welding machines etc. and shall provide shock guard or ELCB and proper earthing as per Indian Electricity Rules and Act in force & also, as per instruction of Marine Engineer or his authorized representative.

20. The GST will be paid as per prevailing rules of Government at the time of payment of bill. If demanded, the Bidder will have to submit necessary evidences as per requirement of GMB.

21. Dredger U B Pavankumar is IRS IV-Class Vessel and some of the items of this tender comes under IRS purview. Hence, contractor will have to attend/repair/renew such items to the satisfaction of IRS surveyor & EIC.

22. The contractor has to carry out all liasoning procedure with IRS on behalf of GMB & subsequently, contractor has to obtain class certificate for this vessel from IRS, at his own cost. Only, visit charges (i.e. IRS Surveyor fees) shall be borne by the GMB.

23. If any accident of any nature occurs to the labor employed by the contractor during the execution of work, GMB will not be responsible for the same and compensation in this regard will be not made by department. The contractor will be fully responsible for the same. Therefore, the contractor shall have to make suitable pre-arrangement for fully safety of labors employed by him at site.

24. Bidders to Note: Contractor have to complete the underwater items in docked condition with first priority. Tender items, which could be carryout in floating condition, should be completed with second priority. The floating repairing work will have to be carried out at any port of GMB in floating condition as per the convenience to GMB and as decided by EIC of said work.

General Conditions (Part-B : Electrical Work)

1. The all instructions, general conditions, specifications and requirements given in tender booklet for "Electrical Works" published by R & B Dept. Govt. of Gujarat and followed by GMB. Shall be strictly abided by the contractor.

2. The contractor has to execute the Electrical work by observing the Indian Electricity Act Rules and Regulations as amended by the competent authority in Govt. of Gujarat/GMB.

3. Land for storing the contractor's materials and for labor hutments etc. shall be chargeable for at usual rate.

4. The contractor will provide all assistance labor and equipment for favor of work, wherever required at his own responsibility of checking-up.

5. Work shall be executed with the regards to the prevailing local conditions and port regulations and in any way not to cause hindrance to traffic or offices or Residence building etc.

6. If, in the opinion of the EIC, the contractor's representatives on site of subordinate of workmen considered unfit or misbehave on order from the Marine engineer the contractor shall remove him from the work site from with failing which action will be taken against him under clause of the contractor.

7. The contractor shall be deemed to be fully acquainted with the prevailing site condition assess to the site nature of ground, underground water and the tidal condition covers and above wind effect at this port site necessitate restricted hours of work of certain item so no claim will be entertained by the department against losses on account of any of the above reasons.

8. Claim for variation in cost of labor of materials will not be permitted.

9. All testing charges for the materials required for test in Govt. laboratory as on any of technically institutions shall be payable by the Department.

10. Port will not assure any supply of portable water to the contractor and contractor will have to make his own arrangement.

11. The department may arrange to supply the Electric power to the contractor for repairs/execution of work if possible otherwise agency has to arrange at own liability for completion of the work.

12. The contractor shall have to obtain license under labor contractor Act, 1970 from the Dy. Labor Commissioner as applicable before starting the work.

13. Contractor shall have to provide licensed person at site to maintain Electric power supply lines, apparatus, machineries, welding machines etc. and shall provide shock guard of ELCB and proper earthling as per Indian Electricity Rules and Act in force as per instruction of Marine engineer or his authorized representative.

14. If any accident of any nature occurs to the labor employed by the contractor during the execution of work, GMB will not be responsible for the same and compensation in this regard will be not made by department. The contractor will be fully responsible for the same. Therefore the contractor shall have to make

suitable pre-arrangement for fully safety of labors employed by him at site.

15. The contractor shall have to get the existing High Tension (11KV) OR Low Tension 415 Volts) line/ cable clearance/ shut down either from GMB or GEB as applicable to observe the Safety Rules and Regulations to start the work as applicable.

16. The GST will be applicable on the actual bill amount as per prevailing Government rules at the time of payment. The Contractor has to submit the tax invoice for the same.

17. The contractor will have to arrange skilled, Electrical license holder experienced employee for to carry out the electrical work.

18. This is a work contract. The contractor shall take an open policy for the erection, insurance to cover the risks by way of damages to property or person in the execution of the contract including third party liability. This department will not be responsible for any damage or accident that may occur during the execution of work. No compensation will be paid by this department for any accident for work man or others in the employment of the contractor.

19. Guarantee/Maintenance: - The contractor shall warrant that the work is carried out in accordance with the specification. The equipment, structure etc., supplied will be free from defects in materials and workmanship.

Insurance

The Bidder shall be responsible for any injury to the work or workmen to persons, animals or things and for all damages to the structural and/or decorative part of property which may arise from the operation or neglect of himself or any employees, whether such injury / damages arise from carelessness, accident or any other causes whatsoever in any way connected with the carrying out of this contract.

The clause shall be held any damages to building whether immediately adjacent or otherwise and any damages to roads, street, footpath or ways as well as damages to the buildings the works forming the subject of this contract by rain, winds or inclemency of the weather.

The Bidder shall indemnify the GMB and hold harmless in respect of all and any expenses arising from any such injury or damages to persons or property injury or damages under any acts or compensation or damage consequent upon such claims.

The Bidder shall reinstate all damage or every sort mentioned in these clauses, so as to deliver the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damages to the property or third parties.

The Bidder shall affect the insurance necessary and indemnify the GMB entirely from all responsibility in this respect.

The insurance must be placed with a company approved by the Bidder and the GMB and the policy lodged with letter. The scope of insurance is to include damage or loss to the contract itself till this is made over in a complete state. Insurance is compulsory and must be affected from the very initial stage. The Bidder shall also be responsible for anything, which may be excluded from damage to any property arising out incidents, negligence of defective carrying out of this contract.

The GMB shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs charges and expenses arising or occurring from or in respect of any such claim of damages from any sums due or to become due to the Bidder.

Unless otherwise instructed the Bidder shall insure the works and keep them insured until the virtual completion of the contract against loss of damage by fire and / or earthquake, flood.

The insurance must be placed with a company approved by the GMB, in the joint name of the GMB & Bidder price will be inclusive of such amount.

The Bidder shall deposit the policy and receipt for premiums paid with the GMB within 21 days from the date of issue of the work order unless otherwise instructed in `default of the Bidder reinsuring as provided above, the premiums paid from any money due, or which may become due to the Bidder.

The Bidder shall as soon as the claim under the policy is settled or the work reinstated by the insurance company should they elect to do so, proceed with due diligence with the completion of the works in the same manner as though the far has not occurred and in all respects under the conditions of the contract. The Bidder in case of rebinding or reinstatement after fire shall be entitled to extension of time for completion as the GMB may deem fit.

Signature of Contractor

Executive Engineer (M),
GMB, PIU-Jamnagar

CHAPTER – 13

SPECIAL CONDITIONS

Special Conditions (Part-A : Mechanical Work)

1. The necessary testing for the materials supplied/to be used for the work will be carried out by the contractor, from any Government/ Government recognized laboratory after drawing the random sample from the material. If required, necessary arrangement for the same to be done by the contractor. Necessary testing charges will be borne by the department. If, laboratory test result does not match with specifications mentioned in the items, the supplied material will be rejected and no payment will be made for the same and also will not be allowed to use for the work of the vessel, and in such situation if any delay in work will not be allowed in time limit extension.

2. Each and every items of this tender shall have to be carried out as per the direction and to the satisfaction of IRS surveyor/EIC. If any item/items not required or given credit by IRS, then those items should not be executed and this will be binding to the contractor for which no payment due to the GMB for those saving items. If any item/items, which are not included in this tender/contract and at the time of execution, IRS recommended to carry out the same, then those items should be attended by the contractor and charges for the same will be given by G.M.B. as per norms, which will be binding to the contractor.

3. Generally… Steel, Brass, Aluminum, Zinc, Rubber, other scrap, etc. (like… Steel plates, angle, round bar, M.S./G.I. pipes, fenders, tyres, GI Sheets, etc.) will be generated during this repairing work. The contractor must has to take all these Scrap from worksite, at following rate on actual weightment base (Including the cost of collecting, stacking and loading, transporting, etc.) and payment for the same shall be given to the GMB.

Sr No	Item Description	Amount to Be Recovered
01	M.S Scrap	Rs.32,462/- Per M.T
02	C I Scrap	Rs.35,215/- Per MT
03	Brass Scrap	Rs.536/- Per kg
04	Rubber Scrap	Rs. 8/- Per Kg
05	G.I. Scrap	Rs.31,000/- Per MT
06	Aluminum Anode / Zinc / Aluminum Scrap	Rs.202.10/- Per kg
07	20 Ltr Drum	Rs. 10/- Per No
08	10 Ltr Drum	Rs. 07/- Per No
09	4 Ltr Drum	Rs. 04/- Per No

4. The contractor has to take the separate connection usage of Electricity from the concerned Port Authority & consumption charges for the same are required to be paid by the contractor to GMB.

Special Conditions (Part-B : Electrical Work)

1. All workmanship shall be performed to the complete satisfaction of the Engineer-in-charge and the applicable regulatory body i.e. I.R.S etc.

2. The workmanship and material shall be of the best quality throughout, and material shall conform in size to those originally in the vessel. The repair shall, in every respect be made under the supervision, and to the entire satisfaction of the Engineer in charge and classification surveyor.

3. Contractor furnished materials shall be new and of commercial marine quality. New items/equipments or fitting furnished by the contractor shall require the approval of Engineer-in-charge, prior to use.

4. In carrying of removals, modifications, or reinstallations the same requirement for good workmanship shall apply that of new work.

5. Vessel's watertight integrity shall not be compromise at any time.

6. Connection of the deleted electric equipment or fitting shall be permanently blanked off at the branch from the main.

7. All new electrical equipments shall operate satisfactory with a voltage variation of +/- 5% and temporary voltage dips during motor starting or speed changing shall not cause damage or interruption of service to equipments.

8. New fuses shall be of non-renewable cartridge type. When more than one fuse is used in one circuit they shall be sized larger from the load to the supply.

9. All new electric cable shall be low smoke (LS) unless otherwise specified. Cable selection and installation shall be in accordance with standard specification.

10. New cableway shall meet with concern standards. New cable installation shall be tagged with identification tag at each side of fittings at both ends.

11. The contractor shall be responsible for coordinating and arranging for all inspection, as and when required.

12. The Engineer in charge or competent authority shall have the authority to reject any materials or workmanship whenever found reasonably defective, or not in accordance with the specifications. The contractor satisfactorily corrects all the rejected items or job at no additional cost.

13. The power supply available on board shall be 415 V, 3 Phase, 50 Hz 3-wire system and 230 Volt 1 phase. For any other voltage required for operation of equipment, suitable converting equipment such as transformer, / rectifier shall be arranged by the contractor.

14. If any welding or gas cutting operation is carried out inside accommodation area, all the precaution that are necessary, must be taken.

15. Always make sure all the electrical circuits in accommodation are in sound condition to avoid short circuit fire.

16. Always make sure electrical circuit is never overloaded i.e. too many connection in one socket.

17. During any test like megar etc. Set the concern equipment on an insulated pad or piece of wood so the frame is not in contact with any metal surface.

18. All running, standing and signal electric lights shall be substantially constructed of non-corrodible material and shall be made watertight.

19. Batteries shall be located in a compartment, locker or box reserved solely for that purpose; they shall not be located in accommodation spaces. Batteries shall be accessibly located, provided with suitable supports, and secured against movement arising from the motion of the boat.

20. Maintenance period/Defect liability period is to be consider for 12 (Twelve) Months from the date of actual completion of work. During maintenance period, if any defect in material or workmanship have been found by EIC the same shall have to rectified by contractor at no any extra cost.

21. Entire work is to be executed under IRS inspection & in accordance with their rules & regulations.

22. This work is required to be executed at Bedi port OR where the vessel is available.

23. As aforesaid scrap and useless items should be kept & given back to concern agency/contractor with purely unconditionally with no any extra cost of transportation or weighment or labour or any other charges and "As it is where it is condition".
    As mention all the old/non usable/scrap item will be handed over to the contractor. The rate for the same will be recovered from the contractor as mention in following table.

Item No.	Item Description	Scrap Rate (in Rupees) [For Amount to be Recovered from the Contractor]	Unit
1	Fluorescent tube 120 cms. 36/40 watt	0.55	Each
2	Point wiring for Light / Bell with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) with 6A Modular type switch / bell	18.35	Pt.
3	Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) with Modular type switch & 5 pin Plug For 6A Plug and 6 a switch	20.3	Pt.
4	Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) with Modular type switch & 5 pin Plug For 16A Plug and 16 amp switch	33.05	Pt.
5	Point wiring for on board Looped Plug with 6A Modular type switch & 5 pin socket	11.7	Pt.
6	LED indoor fittings-Tube Light with integral driver	22.25	Each
7	LED indoor fittings Square/ Circular shaped 11-15 watts	25.5	Each
8	Flood light 200 to 250 watts	691.00	Each

9	Four pole moulded case circuit breaker rating up to 25 A to 100A.	274.25	Each
10	HRC fuse link up to 32 Amp.(20 A)	0.6	Each
11	240 V MCB double pole switch 6 to 32 Amp.	13.25	Each
12	240 V MCB double pole switch 40 Amp.	16.5	Each
13	415 V MCB Four Pole 6 to 32 Amp.	13.25	Each
14	415 V MCB three Pole 63 Amp.	34.5	Each
15	415 V MCB three Pole 6 to 32 Amp.	27.00	Nos.
16	Energy meter 3 phase 4 wire unbalanced load rating, 10A to 60 Amp.	29.3	Each
17	Unarmoured copper cable 1.1 KV grade 4 core 10 Sq. mm	64.8	Mtr.
18	Bracket fan A.C. 23OV	290.00	Each
19	Pedestal fan A.C. 230V	249.00	Each
20	Refrigerator of 200 Ltr to 250 Ltr storage capacity	1950.00	Each
21	Analog type voltmeter	3.8	Each
22	Analog type moving iron C.T operated Ammeter	15.5	Nos.
23	Ammeter / Voltmeter selector switch	3.3	Each
24	Indicator LED type lamp	0.4	Each
25	Cable tray on MS flat bar, clamp (12mm x 3 mm) 50 mm.	8.15	Mtr.
26	Cable tray on MS flat bar, clamp (12mm x 3 mm) 75mm	9.75	Mtr.
27	Navigational light of vessel up to 30M MMD for double tier.	877.5	Each
28	Navigational lamp "24/110 V or 230 V	42.25	Job
29	Water tight and weather proof 10A. 250Volts 3 pin cast alluminium body receptacles	65.00	Each
30	10A. Double pole rotory switch	18.85	Each
31	Marine water tight well glass fitting with clear "U" shape threaded glass with Lamp suitable up to 100W.	117.00	Nos.
32	Emergency light fitting	11.7	Each
33	Copper flexible unarmoured marine cable 2 x 2.5 Unarmoured cable.	23.4	Mtr
34	Wall/Panel Mounted Water/Shock Proof insulated SOCKET OUTLET, 63 AMP,440 Volts	41.35	Each
35	Fabricating the box type items made from Stainless steel	39.4	Kg

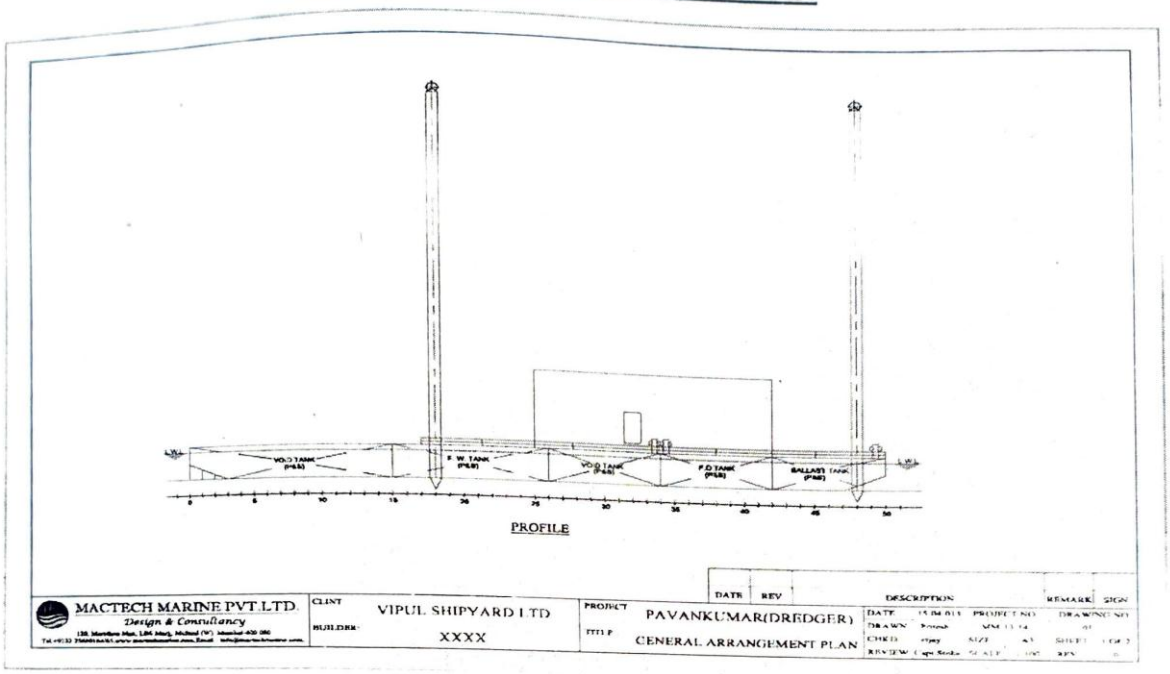
Signature of Contractor

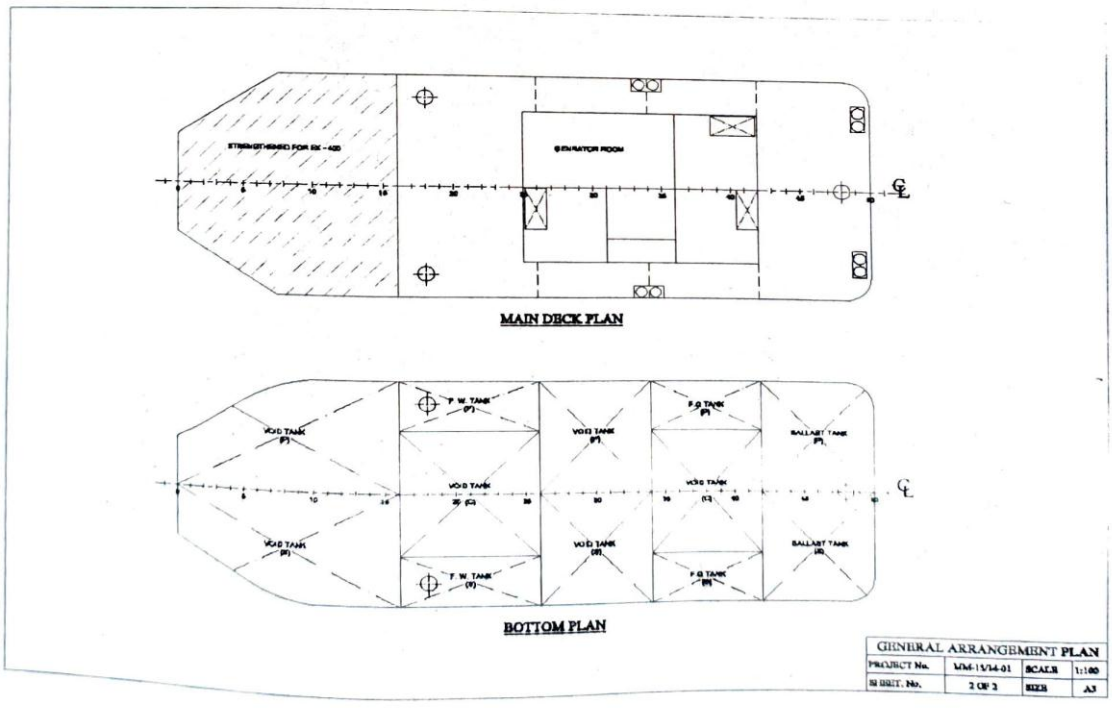
Executive Engineer (M),
GMB, PIU-Jamnagar

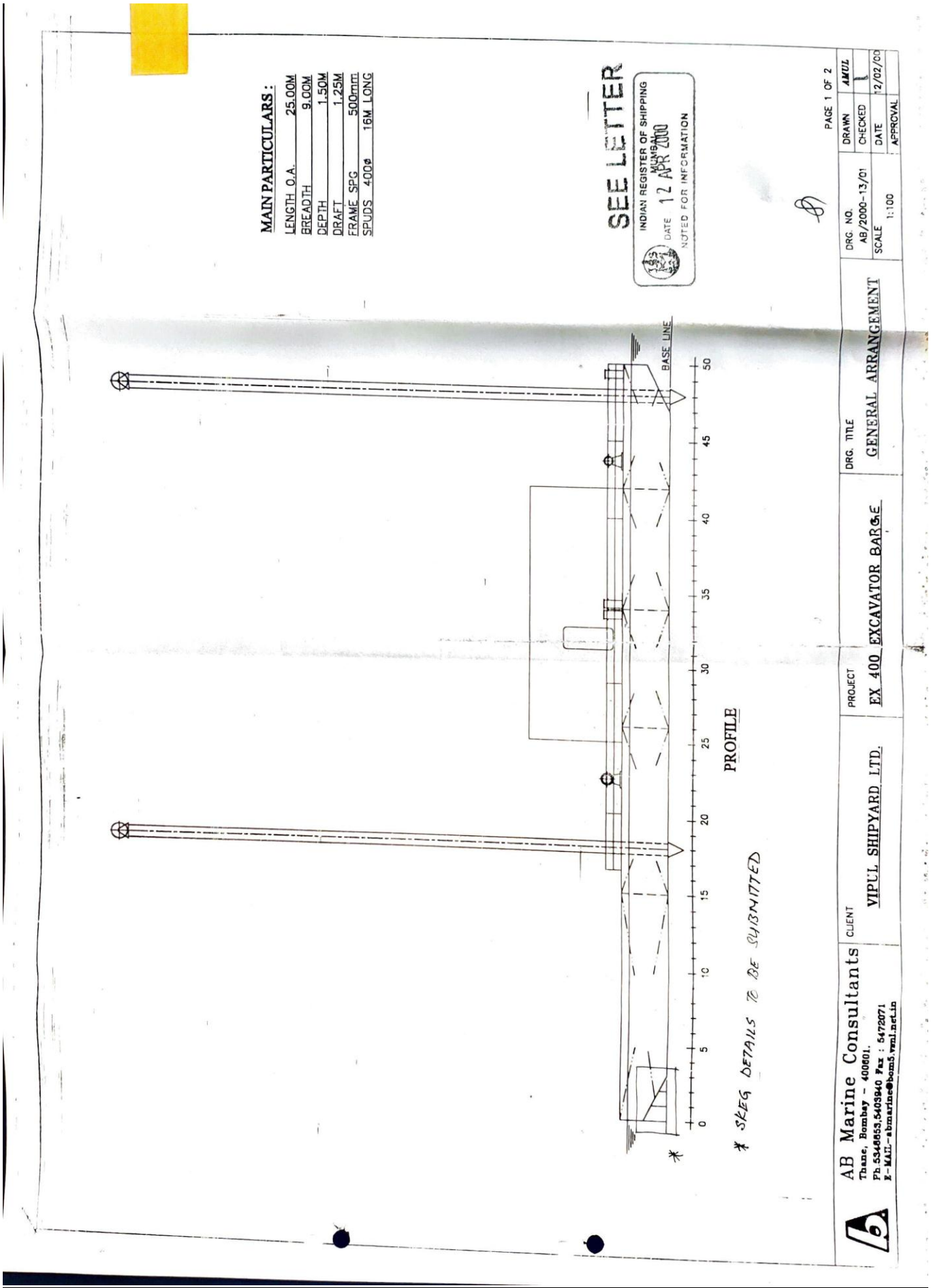
CHAPTER – 14

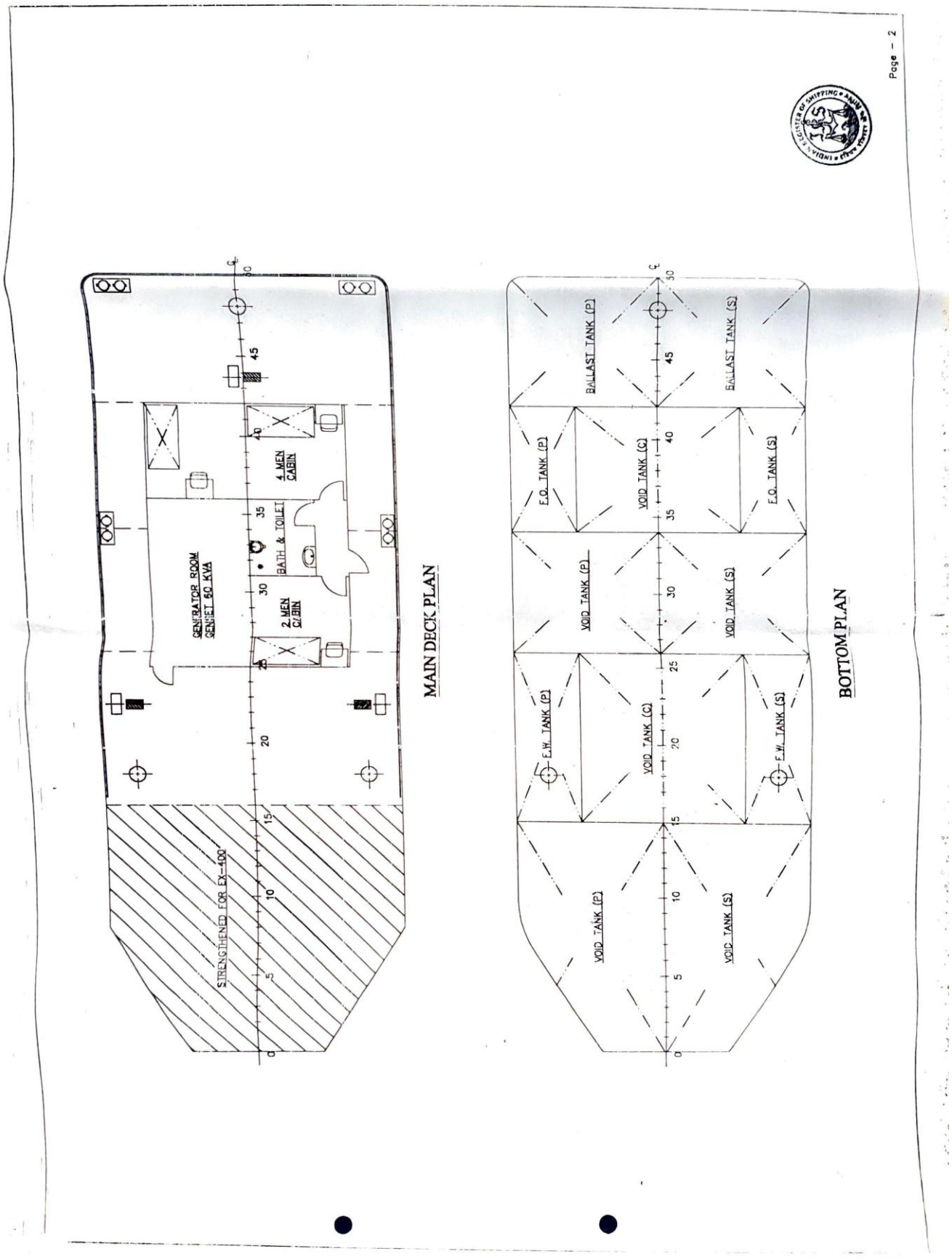
GENERAL ARRANGEMENT

GENERAL ARRANGEMENT PLAN






MAIN PARTICULARS :
LENGTH O.A. 25.00M
BREADTH 9.00M
DEPTH 1.50M
DRAFT 1.25M
FRAME SPG 500mm
SPUDS 400ø 16M LONG
SEE LETTER
INDIAN REGISTER OF SHIPPING
MUMBAI
DATE 12 APR 2000
NOTED FOR INFORMATION
BASE LINE
0
5
10
15
20
25
30
35
40
45
50
PROFILE
* SEEG DETAILS TO BE SUBMITTED
PAGE 1 OF 2
AB Marine Consultants
Thane, Bombay - 400601.
Ph.5348653,5403940 Fax : 5472071
E-MAIL-abmarine@bom5.vsnl.net.in
CLIENT
VIPUL SHIPYARD LTD.
PROJECT
EX 400 EXCAVATOR BARGE
DRG. TITLE
GENERAL ARRANGEMENT
DRG. NO.
AB/2000-13/01
SCALE
1:100
DRAWN
AMUL
CHECKED
DATE
12/02/00
APPROVAL



Signature of Contractor

Executive Engineer (M),
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