

KIAP INTERNATIONAL APPAREL PARKS LTD. (KIAP)

(A Govt of Kerala of Undertaking)

Park Centre, KIAP Apparel Park, Menamkulam, Kazhakkootam, Thiruvananthapuram. Pin: 695586

Phone: 0471 2706005, mail: tender@kinfraiii.org, www.kinfraiii.org



Notice Inviting Tender (NIT)

(KIAP - 6)

Tender No	:	KIAP/eTender/03/2023-24
Name of Work	:	22kV Power Infrastructure for Integrated Rice Technology Park at Palakkad
PAC	:	₹ 59,44,969/-
EMD	:	₹50,000/-
Period of Completion	:	6 Months
Bid Submission Fee	:	₹ 2,950/-(Inclusive of 18% GST)



KINFRA INTERNATIONAL APPAREL PARKS LTD.

(A Govt. of Kerala Undertaking)

Park Centre, Kinfra Apparel Park, Menamkulam, Kazhakkootam, Thiruvananthapuram

Tender No : KIAP/eTender/03/2023-24

Name of Work : **22kV Power Infrastructure for Integrated Rice Technology Park at Palakkad**

Locality : **Integrated Rice Technology Park Campus, KIAP Mega Food Park, Bluberry Road, Kozhippara, Palakkad, Pin: 678557**

Last date of online Submission : 30/03/2024 at 5:00PM

Name of Bidder :

Address of Bidder :
.....
.....
.....


Registration and Class :

Validity period of Registration :

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Tender Notice

 KIAP Ltd.	KINFRA INTERNATIONAL APPAREL PARKS LTD. Menamkulam, Thiruvananthapuram, Kerala		
<u>e-Tender</u>			
KIAP invites item rate, online tenders from registered, competent contractors/firms for the following work:			
22kV Power Infrastructure for Integrated Rice Technology Park at Palakkad			
PAC	Bid fee	EMD	Last Date
₹ 59,44,969/-	₹ 2,950.00/- (Inclusive of 18% GST)	₹ 50,000/-	30/03/2024 at 5:00PM
The tender document(s) can be downloaded from the e-Government Procurement (e-GP) website (www.etenders.kerala.gov.in). For more details visit the web site www.kinfraiii.org .			
Place: Thiruvananthapuram		Sd/-	
Date: 16/03/2024		Chief Executive Officer	

GENERAL GUIDELINES

1. The book of “General Conditions of Contract” is applicable to both types of tenders i.e.” Percentage rate tenders and Item rate tenders”. Accordingly, alternative provisions for conditions Nos. 4, 10 & 12 of the General Rules and Directions are given in this book. The appropriate alternatives will be applicable in specific cases depending on whether this is used for percentage rate tender (KIAP-7) or item rate tender (KIAP-8). “General Conditions of Contract” shall be available in downloadable manner from website “www.kinfraiii.org”
2. KIAP-6 abridged from KIAP-7/8, Schedules A to F, special conditions/specifications and drawings will be issued to intending tenderers only. The standard form will not be issued along with the Tender Documents but the same shall form part of the agreement to be drawn and signed by both parties after acceptance of tender. The standard form shall be available in downloadable manner from website “www.kinfraiii.org”
3. The intending bidders will quote their rates in Schedule A i.e. Schedule of Quantities.
4. The proforma for registers and Schedules A to F are only for information and guidance. These are not to be filled in the Standard Form. The Schedules with all blanks, duly filled, shall be separately issued to all intending tenderers. For filling and returning in the manner prescribed. The Schedule A can be downloaded from website www.etenders.kerala.gov.in

Information & Instructions to the Bidders for e-tendering (Forming part of Bid Document)

Chief Executive Officer, KIAP invites **item rate** online tenders in **two cover bid system on behalf of Kerala Rice Limited** for the following work in the prescribed form, from competent and eligible contractors/firms with appropriate class of registration in PWD/CPWD/KWA/Irrigation/Indian Railways/MES/BSNL/State Govt departments/PSUs, who fulfill the eligibility criteria prescribed.

NIT No	Name of work & Location	Estimated cost put to bid	EMD	Period of completion	Last date of submission of Tender document, EMD, Tender fee & Other documents as specified in Tender Notice	Time & Date of opening of Technical bid	Tender Cost	Class of registration
1	2	3	4	5	6	7	8	9
KIAP/eTender/03/2023-24	22kV Power Infrastructure for Integrated Rice Technology Park at Palakkad	₹ 59,44,969/-	₹ 50,000/-	6 Months	30/03/2024 at 5:00pm	03/04/2024 at 10:30am	₹ 2,950/- (Inclusive of 18% GST)	A class Electrical Contractor and above

- The intending bidder must read the terms and conditions of KIAP-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
- Information and Instructions for bidders posted on website shall form part of bid document.
- The tender document(s), may be downloaded free of cost from the e-Government Procurement (e-GP) website (www.etenders.kerala.gov.in). No payment is required for downloading the tender documents from the above website however a bid submission fee, as mentioned below in this document, is required to be remitted through online payment mechanism for e-procurement system of Govt. of Kerala. Only those bidders having a valid and active registration, on the date of bid submission, shall submit bids online on the e-GP website.
- All bids shall be submitted online on the e-GP website only in the relevant envelope(s)/ cover(s), as per the type of tender. No manual submission of bids shall be entertained for the tenders published through e-GP system under any circumstances.

5. The e-GP system shall not allow submission of bids online after the stipulated date & time. The bidder is advised to submit the bids well before the stipulated date & time to avoid any kind of network issues, traffic congestion, etc. In this regard, KIAP shall not be responsible for any kind of such issues faced by bidder.
6. Ineligible bidders or bidders who do not possess valid & active registration, on the date of bid submission, are strictly advised to refrain themselves from participating in this tender. If such instances are noticed, the same shall be treated as “fake bidding” by the respective bidder and such bidder shall be blacklisted as per KIAP rules in force. The bidders, who submit their bids for this tender after digitally signing using their Digital Signature Certificate (DSC), accept that they have clearly understood and agreed the terms and conditions including the Form/ Annexures of this tender. Mention of price details at any place other than the designated place, shall disqualify the bid and the bid shall be summarily rejected.
7. Tender duly signed using bidder’s valid Digital Signature Certificate shall be submitted online on e-GP website www.etenders.kerala.gov.in
8. General Conditions of Contract (KIAP- 7/8) shall be available in downloadable manner from www.Kinfraiii.org and shall form part of bid document.
9. The technical bid shall be opened first on due date and time as mentioned above.
10. The time and date of opening of Price Bid of the tender shall be intimated only to the qualified and technically acceptable bidders at a later date.
11. Pre-Bid conference shall be held at Kerala Rice Ltd.’s office at Kinfra Mega Food Park Campus, Kozhippara, Palakkad on **21/03/2024 at 11.00 am** to clear the doubt of intending bidders, if any. **The bidders can also attend the pre-bid meeting in online**, the link will be shared with them, if they request through email tender@kinfraiii.org. For those who are not able to attend pre-bid meeting shall send all their queries, if any, in the above mail id on or before 21/03/2024, 11.00 am, (**Contact Number: 8086601182/9400628202**). All clarifications for the queries of bidders, if any, will be uploaded in the e-tender website as addendum.

List of Documents to be scanned and uploaded within the period of bid submission:

Cover 1

- I. NIT
- II. Registration Certificate of the Contractor.
- III. Certificate of Registration for GST.

Cover 2

- I. BoQ (Price bid)

e-Government Procurement (e-GP) - Notice Inviting Tender (KIAP 6)

Chief Executive Officer, KIAP invites **item rate** online tenders in **two cover bid system on behalf of Kerala Rice Limited** for the following work in the prescribed form, from competent and eligible contractors/firms with appropriate class of registration in PWD/CPWD/KWA/Irrigation/Indian Railways/MES/BSNL/State Govt departments/PSUs, who fulfill the eligibility criteria prescribed.

NIT No	Name of work & Location	Estimated cost put to bid	EMD	Period of completion	Last date of submission of Tender document, EMD, Tender fee & Other documents as specified in Tender Notice	Time & Date of opening of Technical bid	Tender Cost	Class of registration
1	2	3	4	5	6	7	8	9
KIAP/eTender/03/2023-24	22kV Power Infrastructure for Integrated Rice Technology Park at Palakkad	₹ 59,44,969/-	₹ 50,000/-	6 Months	30/03/2024 at 5:00pm	03/04/2024 at 10:30am	₹ 2,950/- (Inclusive of 18% GST)	A class Electrical Contractor and Above

Contractors who fulfil the following requirements shall be eligible to apply.

- a. Should have A class Electrical Contractor & above (or equivalent class) registration.
- b. Should have GST Registration

- 1.1.1 Registration contractors should be valid on the last date submission of bids. In case the last date of submission of bid is extended, the registration of contractor should be valid on the original date of submission of bids.
- 1.1.2 For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimate cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.
2. Agreement shall be drawn with the successful bidders on KIAP format. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.

3. The time allowed for carrying out the work will be **6 Months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. The site for the work is available.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website www.etenders.kerala.gov.in. General Conditions of Contract (KIAP- 7/8) shall be available in downloadable manner from www.kinfraiii.org and shall form part of bid document.
6. Tender documents and tender schedule may be downloaded free of cost from the e-GP website www.etenders.kerala.gov.in . Tender fee of ₹ 2,950/- (Inclusive of 18% GST) shall be remitted through **online payment mechanism for e-procurement system of Govt. of Kerala**.
7. The bid submitted shall be opened at **03/04/2024 on 10:30 AM**. The time and date of opening of price Bid of the tender shall be intimated only to the qualified and technically acceptable bidders at a later date.
8. Earnest Money Deposit (EMD) amounting to ₹ 50,000/- (Rupees Fifty Thousand only) to be remitted online through e-GP site by the bidder.
9.
 - a. **Performance Guarantee**, to be taken in the name of Kerala Rice Limited and the amount collected at the time of executing contract agreement, will be 5% of the contract value (agreed PAC) and the deposit will be retained till the expiry of Defect Liability Period by Kerala Rice Limited. At least 50% of this deposit shall be collected in the form of Treasury Fixed Deposit and the rest in the form of Bank Guarantee. The validity of BG shall be upto 3 months after defects liability period mentioned in Schedule F. However applicable Government orders amended time to time shall prevail. *(As per G.O (P) No.95/2023/Fin dated 07/09/2023, Performance Security/ Security Deposit to be submitted at the time of executing the agreement is reduced from the existing rate of 5% to 3% of the contract amount for one year)*
 - b. **Additional Performance Guarantee** in the name of Kerala Rice Limited will be required in all cases where quoted rate falls below 10% of the estimate cost. The 10% standard exemption will be applicable to all estimates quoted below estimated cost. If the rate quoted by the contractor is x% below estimate cost (x lies above 10% upto quoted rate) the additional performance guarantee for an amount equal to (x-10) % of the estimate amount shall be obtained from the contractor. 50% of Additional Performance Guarantee shall be in the form of Treasury Fixed Deposit and rest in the form of Guarantee issued from any Nationalised Bank/Scheduled

Bank/ Kerala Financial Corporation or any other forms prescribed in the Kerala PWD Manual. This shall be collected before executing the agreement in the same form as Performance Guarantee and may be released by Kerala Rice Limited while passing the final contract bill. This is subjected to change as per government orders issued from time to time in this respect. However applicable Government orders amended time to time shall prevail. **As per G.O.(P) No.168/2019/Fin dated 07/12/2019, for item rate contracts, if the rate quoted by the bidder for an item of work is “X%” below estimate cost where “X” lies above 10%, the Additional Performance Guarantee for that item of work is equal to (X-10) % of the estimate amount of that item of work. The total Additional performance guarantee for the whole work is the total of individual Additional Performance Guarantee for each item of work calculated as above.**

10. **Performance Security Deposit:** It is the retention amount deducted from the running bill of the contractors in addition to the Performance Guarantee. This will be @2.5% of the gross amount of each running bill so that the amount so retained shall be 2.5% of the value of the work done till then. This can be released against Bank Guarantee on its accumulation to a minimum amount of ₹ 5 lakhs subject to the condition that the amount of Bank Guarantee except last one shall not be less than 5 Lakhs. This amount will be released after passing of final bills as in the case of refund of deposit.
11. ***The bid submitted is treated as invalid if:***
 - a) *The bidder is found ineligible.*
 - b) *The bidder does not upload all the documents as stipulated in the bid document.*
12. **The description of the work is as follows:** Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. Bidders shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. The competent authority on behalf of Chief Executive Officer, KIAP does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of

the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
15. The competent authority on behalf of Chief Executive Officer, KIAP reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to bid for works if he/she is the near relative of an officer of KIAP/Kinfra/Kerala Rice Ltd., posted as Project Officer or Finance
17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of Kerala is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of Kerala in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of Kerala as aforesaid before submission of the bid or engagement in the contractor's service.
18. ***The bid for the works shall remain open for acceptance for a period of One hundred twenty (120) days from the date of opening of technical bid.*** If any bidders withdraw his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to KIAP, then KIAP shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the rebidding process of the work.
19. This notice inviting Bid shall form a part of the contract document. The successful bidders/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
 - a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - b) Standard KIAP Form 7/8 or other standard KIAP Form as applicable.
12. Pre-Bid conference shall be held at Kerala Rice Limited's office at Kinfra Mega Food Park campus, Blueberry Road, Kozhippara, Palakkad on **21/03/2024 at 11.00 am** to clear the doubt of intending bidders, if any. **The bidders can also attend the pre-bid meeting in online**, the link will be shared with them, if they request through email tender@kinfraiii.org. For those who are not able to attend pre-bid meeting shall send all their queries, if any, in the above mail id on or before 21/03/2024, 11.00 am,

(Contact Number: 8086601182/9400628202). All clarifications for the queries of bidders, if any, will be uploaded in the e-tender website as addendum.

20. For Composite Bids

- 20.1.1 The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.
- 20.1.2 The bidders must associate himself, with agencies of the appropriate class eligible to bid for each of the minor component individually.
- 20.1.3 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.
- 20.1.4 **After acceptance of the bid by competent authority, Managing Director, Kerala Rice Limited shall issue letter of award. After the work is awarded, the main contractor will have to enter into an agreement with Kerala Rice Limited.**
- 20.1.5 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.
- 20.1.6 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.
- 20.1.7 The main contractor has to associate agency(s) for minor component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-charge of minor component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-charge of minor component(s).
- 20.1.8 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge of minor component. The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.
- 20.1.9 The main contractor has to enter into agreement with contractor(s) associated by him for execution of minor component(s). Copy of such agreement shall be submitted to Kerala Rice Limited. In case of change of associate contractor, the main contractor has to enter into agreement with the new contractor associated by him.

20.1.10 Running payment for the major& minor components shall be made by Managing Director, Kerala Rice Limited.

20.1.11 *The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-charge of major component after record of completion certificate of all other components.*

21. Payment Conditions

Payment Terms for the Supply and Installation.

- a. 70% of the total item value shall be released against satisfactorily supply of items.
- b. Balance 20% of the total item value shall be released after successful installation of the total items.
- c. Balance payment of 10% will be made after completion of work and on satisfactory commissioning.

KINFRA INTERNATIONAL APPAREL PARKS LTD.
Item Rate Tender & Contract for Works

(A) Tender for the work of:- 22kV Power Infrastructure for Integrated Rice Technology Park at Palakkad

(i) To be submitted/ uploaded by.....hours
on.....to.....
...../ upload at www.etenders.kerala.gov.in

e-TENDER

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E & F Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for KIAP within the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

We agree to keep the tender open for 120 days from the due date of its opening of technical bid.

A sum of ₹ 50,000/- has been deposited in prescribed manner as Earnest Money Deposit (EMD). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that KIAP shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that KIAP shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I/We agree that in case of forfeiture of Earnest Money or Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Kerala Rice Limited/KIAP, then I/We shall be debarred for tendering in Kerala Rice Limited/KIAP in future forever. Also, if such a violation comes to the notice of Department before date of start



of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Date:

Signature of Contractor

Witness:

Postal Address:

Address:

Occupation:

Certificate of near relatives

DECLARATION

(To be submitted by the Contractor regarding near relatives working in KIAP/Kerala Rice Limited/Kinfra as per clause 16 of KIAP-6)

“I s/o Shri.....Resident of.....
.....hereby certify that none of my relative(s) as
defined in clause 16 of KIAP-6 is/are employed in concerned Department of KIAP/Kerala Rice
Limited/Kinfra.

In case at any stage, it is found that the information gives by me is false/incorrect, KIAP/Kerala Rice Limited shall have the absolute right to take any action as deemed fit without any prior information to me.”

Signature of Contractor

DECLARATION

I/we hereby declare that I/we have not been Blacklisted, debarred/suspended by any Central/State Govt. Depts/Central/State Govt PSUs, Autonomous and statutory bodies under State/Central.

Signature of Contractor

Proforma Of Schedules

*(Separate Proforma for Civil, Elect.& Hort. Works in case of Composite Tenders)
(Operative Schedules to be supplied separately to each intending tenderer)*

SCHEDULE 'A'

Schedule of quantities (as per BOQ)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

Nil

SCHEDULE 'C'

Tools and plants to be hired to the contractor.

Nil

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any.

Nil

SCHEDULE 'E'

Reference to General Conditions of contract: uploaded in www.kinfraiii.org

Name of work: **22kV Power Infrastructure for Integrated Rice Technology Park at Palakkad**

Estimated cost of work:

a) Electrical Works : ₹ 59,44,969/-

(i) Earnest money: ₹ 50,000/- (to be returned after receiving performance guarantee)

(ii) Performance Guarantee: **5% of tendered value**

(iii) Security Deposit: **2.5% of each bill**

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS: NIT shall be read with General conditions of contract for KIAP (available in website www.kinfraiii.org)

Officer inviting tender : Chief Executive Officer, KIAP

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with clauses 12.2 & 12.3 : As per clause 12

Definitions:

2(vi) Engineer-in-charge : means the Engineer officer of Kinfra/Kerala Rice Ltd./KIAP who shall supervise and in-charge of work.

2(ix)	Accepting Authority	:Chief Executive Officer, KIAP
2(x)	Department	:KIAP
2(xii)	Percentage on cost of materials and labour to cover all overheads and profits	15%
2(xiii)	Standard Schedule of rates	:CPWD DSR 2018& Market Rates
2(xv)	Date of Commencement	:10 th day from the date of work order or 7 th day from the date of receipt of work order whichever is earlier

Clause 1

- i) Time allowed for submission of Performance Guarantee from the date of issue of work order **4 weeks**

Clause 2

Authority for fixing compensation under clause 2. : Managing Director, Kerala Rice Limited

Clause 2A

Whether Clause 2A shall be applicable :No

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start :10 days

Milestone: As per clause 5 of GCC

Time allowed for execution of work: **6 Months**

Authority to decide:

- a. Extension of time– **Managing Director, Kerala Rice Limited**
- b. Rescheduling of milestone-- **Managing Director, Kerala Rice Limited**
- c. Shifting of date of start in case of delay in handing over of site-- **Managing Director, Kerala Rice Limited**

Clause6, 6A

Clause applicable - (6 or 6A) Clause 6A

Clause 7

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment Minimum 10 lakhs or monthly once

Clause 11

Specifications to be followed for execution of work

- 1) CPWD specifications for Civil with latest amendments.
- 2) CPWD Specifications for Electrical Works with latest amendments

Clause 12

Type of work- Original Work

12.2 & 12.3	Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work	As per clause 12 of General Conditions
12.5	(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items) (ii) Deviation Limit for items mentioned in earth work subhead of DSR and related items	As per clause 12 of General Conditions As per clause 12 of General Conditions

Clause 16

Competent Authority for deciding reduced rates. Managing Director, Kerala Rice Limited

Clause 17

Defect liability Period :36 Months

Clause 31

Contractor shall make his/their own arrangement for water/power required for the work and nothing extra will be paid for the same. If water is purchased from Kerala Rice Limited/Kinfra, rates for industrial water supply, applicable in Kinfra Mega Food Park will be charged on the Contractor.

Clause 36(i)

The contractor shall provide and employ technical staffs for site supervision, quality assurance and ensuring safety. Assistant Engineers retired from Govt services who holds Diploma will be treated at par with Graduate Engineers. Diploma holder with minimum 10yr relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of Degree Engineers.

Special Conditions

1. The Contractor has to prepare shop drawings/working drawings for the execution of work after taking approval from consultant and client and approval from corresponding department is also bound with the contractor.
2. The contractor has to arrange for site inspection from the corresponding department.
3. Any other statutory approvals for the successful completion and operation of the building/work.

Additional Conditions

I. All the civil works shall be carried out at site as per CPWD Specification for civil-2019 vol1&2, with latest amendments and MoRTH Specifications for road works

LIST OF APPROVED MAKE OF MATERIALS

Sl. No	Details of Materials / Equipment	Manufacturer's Name/Brand
A	CIVIL WORK	
1	Cement (OPC-(43 & 53G) & PPC)	a. Ultratech b. ACC c. Ramco d. India Cements e. Dalmia f. Malabar g. Zuari Cement h. JSW Cement Limited
2	Reinforcement Steel	a) TATA b) SAIL c) JSW d) VIZAG e) JSPL
3	Structural Steel	a) TATA b) SAIL c) VIZAG
4	Aluminum Sections	a) Jindal b) Indal c) Hindalco
5	Ceramic Tiles/Vitrified (Wall & Floor Tiles)	a) Orient Bell b) Johnson c) Kajaria d) Somany e) NITCO f) AGL g) RAK
6	Industrial Tiles (Floor & Wall Tiles)	a) Johnson Endura, b) Somany VC series tiles or Approved Equivalent
7	Water Proofing Compound, Hardener & Construction chemicals	a) FOSROC b) CICO c) Pidilite d) Sika e) BASF f) MYK Arment Private Limited g) CERA-Chem Pvt Ltd
8	Anti-termite chemical & Wood Preservatives	a) Thiodon b) De-nocil c) Bayer

		d) Vam Organic e) NOCIL f) Hindustan Insecticides g) Roff Construction Chemicals
9	Float Glass & Mirror	a) Saint Gobain b) Asahi India c) Modi Glass d) Gold Plus Glass Industry Limited
10	Glass Film	a) 3M b) Llumar
11	Wall Putty	a) Birla white b) JK White c) Altec (NCL)
12	Paints (OBD, Emulsion paints, Synthetic enamel Paints)	a) ICI b) Asian c) Berger d) Nerolac
13	Water Proof Cement Paints	a) Snowcem India Ltd. b) ICI c) Asian
14	Red Oxide & Pink Primers	a) ICI b) Asian c) Berger d) Nerolac
15	PVC Water Stopper Bars	a) Fixopan b) Syntex c) BASF d) FOSROC
16	Precast Cement Concrete Pavers & Tiles	a) Nitco b) Ultra c) Johnson d) Dura crete e) Basant Beton f) Astana
17	Texture Paint (Internal & External)	a) Oikos b) Spectrum c) Asian d) Berger e) ICI
18	Laminates	a) Greenlam b) Century ply c) Merinolam d) Ventura
19	Plywood & Board (Waterproof)	a) Duro b) Green ply c) Century ply d) Merinolam
20	MDF (Exterior Grade)	a) Duro b) Green ply c) Century ply

21	Natural wood Veneer	a) Greenlam b) Century ply c) Archidply d) Ventura
22	Flush door	a) Kitply 'swastik' b) Duro 'Tower' c) Archid d) Green ply
23	Hardware	a) Dorma b) Geze c) Ozone
24	Aluminum hardware	a) Ipsa b) Ebco c) or Approved equivalent
25	Fire Proof Doors	a) Sukri b) Aadhunic c) Promat d) Shaktimet e) TATA Pravesh Doors & Windows
26	Fire proof door Accessories	a) Briton b) Astroflame c) Geze
27	Fasteners	a) Hilti b) Fischer
28	Gypsum Board	a) India Gypsum b) Saint Gobain c) USG d) Lafarge
29	Self tapping screws	a) Hilti b) Landmark c) Buildex
30	Welding Rod	a) ESSAB Ferro Speed plus b) D&H Norma
31	Tarfelt	a) MAK b) Bengal Bitumen c) Rishub Petrochemical
32	Adhesive	a) Fevicol SH b) Vamicol c) Araldite of Hindustan d) Laticrete
33	PU Paint	a)MRF or equivalent
34	GRC Panels	a) Unistone b) Terra Firma
35	Roofing Sheets	a. Tata b. Blue Scope c. JSW

B	ELECTRICAL SYSTEM	
1	11kV Panel boards	Megawin/System control
2	Transformer	Kirloskar/Voltamp/Wilson power/KEL/TELK
3	Generators and Alternator	Kirloskar/Cummins/Stamford/ KEL
4	LT panel	CPRI certified manufacturer
5	Cast resin current transformer (CT)	AE / Kappa / C&S
6	Control / Potential Transformer (PT)	AE / Kappa / C&S
7	Digital ammeter and Volt meter	L&T / AE / C&S.
8	Protective Relays	L&T / Alstom / ABB / Siemens
9	Energy meters and Trivector Meter	L&T / AE / Secure / Ducati / HPL.
10	Selector switches	L&T / Salzer / Kaycee / Siemens.
11	Push Buttons/ Indicating Lamps LED	L&T / Siemens / Schneider /Teknik.
12	ACB	L&T / Siemens / ABB
13	Moulded Case Circuit breakers	L&T /Siemens / ABB
14	Power auxiliary Contactors/Relays/ Starters	L&T /Siemens / ABB
15	Timers	L&T /Siemens / ABB
16	Switch Fuse Units with HRC fuses	L&T / Siemens / ABB / Merlin Gerin
17	Battery (Maintenance free VPLA Battery)	Exide / Standard / Furakawa.
18	Battery Charger	Voltstat / AE / BCH.
19	Capacitors	L&T / Ducati / EPCOS
20	APFC relays	L&T / Ducati / EPCOS
21	MCB Distribution Boards	L&T / Legrand / Anchor.
22	Miniature Circuit Breakers (MCB)	L&T / Legrand / Anchor.
23	Residual Current Earth Leakage Circuit Breakers	L&T / Legrand / Anchor.
24	Ladder Type MS Cable trays	Custom built
25	1100 V LT XLPE Al. Cables	Polycab / KEI /Finolex
26	1100 V LT Power Cu.Cables	Polycab / KEI /Finolex

27	1100 V LT Control Cu.Cables	Polycab / KEI /Finolex
28	Compression glands and Lugs	Dowells/ Comet.
29	Cu/ Al (Crimping type) Cable Lugs	Dowells/ Comet.
30	Light Fittings with all required accessories	Philips/Wipro/Bajaj/Schrder /K-lite.
31	PVC conduits	Aero plast / Avanplast/Vijaya
32	MS Conduits	Bharath/ JK Tupe / Precision.
33	PVC Insulated FR Cu. Wires	L&T / KEI / Finolex / Anchor
34	Modular Switches & Socket Outlets	Legrand/MK/Siemens/Crabtree
35	Metal clad socket outlet with boxes	L&T/ Hager / MDS.
36	UPS System	APC / Emerson / Socomec.
37	Ceiling Fans	Crompton Greaves/ Orient/ Khaitan.
38	Exhaust fans with Louver	Crompton / Khaitan / Bajaj / GEC.
39	Cable Termination kit	Raychem / Birla 3 M/ M-Seal

****Make of all materials shall be as approved by Kitco/Kinfra/KIAP/Kerala Rice Limited.**

GUIDELINES FOR E-PROCUREMENT

Prospective bidders willing to participate in this tender shall necessarily register themselves with e-procurement portal (www.etenders.kerala.gov.in). The tender timeline is available in the critical date section of this tender published in www.etenders.kerala.gov.in.

A). Online Bidder registration process:

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on www.cca.gov.in. Once, the DSC is obtained, bidders have to register on www.etenders.kerala.gov.in website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.

Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471- 2577088, 2577188, 2577388 or 0484 - 2336006, 2332262 - through email: etendershelp@kerala.gov.in for assistance in this regard.

B). Online Tender Process:

The tender process shall consist of the following stages:

- i. **Downloading of tender document:** Tender document will be available for free download on www.etenders.kerala.gov.in. However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.
- ii. **Pre-bid meeting:** 21/03/2024 at 11:00 am
- iii. **Publishing of Corrigendum:** All corrigenda shall be published on www.etenders.kerala.gov.in and shall not be available elsewhere.
- iv. **Bid submission:** Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on www.etenders.kerala.gov.in.
- v. **Opening of Technical Bid and Financial Bid:** The technical bid will be opened at same time mentioned in Information & instruction to the bidders.
- vi. Time of opening of financial bids of pre-qualified bidders will be intimate later.

C). Tender Document Fees and Earnest Money Deposit (EMD)

The Bidder shall pay, a tender document fees and Earnest Money Deposit. The Bid security is required to protect the purchaser against risk of Bidder's conduct, which would warrant the forfeiture of security.

Online Payment modes:

All online payments specified in the tender document shall be made through Multi Option Payment System (MOPS) as per the requirement.

Steps for making tender payments in e-tender system via SBI MOPS gateway
(SBI AND NON SBI ACCOUNT HOLDERS)

- Step 1** :- Click “Pay Online” when you reach the payment page while Online Bid Submission.
- Step 2** :- Click “Confirm to Pay” to proceed with the payment gateway.
- Step 3** :- Verify that the Tender fee and EMD shown are correct, as per tender document. Then, select the payment option **SBI MOPS** and Submit.
Note: In case of any mismatch in tender payments, with reference to tender documents, please contact TIA for clarifications.
- Step 4** :- Check and Follow the **Terms and Conditions**, and then **Submit**.
- Step 5** :- Bidders may choose their respective bank for accessing Internet Banking Facility

a) SBI

- i. Bidders with SBI account may click SBI option to proceed to its Net Banking Page.
- ii. Bidders may enter SBI Net banking user ID and Password and Click on Login to proceed.
- iii. Please ensure that your account has sufficient balance, before proceeding further. After checking the same, Click Confirm button, to transfer payment. After account debit, MOPS gateway will automatically re-direct to the e-Procurement System, with the Success transaction.
- iv. You will receive bank response immediately by verifying the payment status, whether Success or not. In case, payment was debited from account and further, Payment Failure is shown, immediately contact the e-Procurement helpdesk, for resolution, before tender closing time.
Click Next to go to Bid Preparation details.
- v. Please ensure that the Pay Online option is not shown after successful payment, for confirmation. From here, you may proceed with Encrypt and Upload to upload tender documents, and further submission process.

b) OTHER BANKS :

- i. Bidders with other bank account may click Other Banks option to proceed to SBI Net Banking Page. You may select the appropriate Bank from selection page. As an example, we are proceeding with ICICI Bank in the provided dropdown box of All Banks.

- ii. After selecting ICICI Retail Banking, Click Make Payment Button to proceed to its internet banking page. Further steps may depend on the Bank Procedure.
- iii. After, successful payment, system will direct you to payment confirmation page.
- iv. You will receive bank response immediately by verifying the payment status, whether Success or not. In case, payment was debited from account and further, Payment Failure is shown, immediately contact the e-Procurement helpdesk, for resolution, before tender closing time.
Click Next to go to Bid Preparation details.
- v. Please ensure that the Pay Online option is not shown after successful payment, for confirmation. From here, you may proceed with Encrypt and Upload to upload tender documents, and further submission process

D). SUBMISSION PROCESS:

For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and Financial bid online on www.etenders.kerala.gov.in along with online payment of tender document fees and EMD.

For page by page instructions on bid submission process, please visit www.etenders.kerala.gov.in and click “Bidders Manual Kit” link on the home page.

It is necessary to click on “Freeze bid” link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process.

Other Instructions to Bidders

1. All other relevant forms shall be in the format prescribed in CPWD Manual.
2. All Statutory approvals both initial & final wherever necessary for the execution of work from the authorities concerned shall be obtained by Contractor at his own expense. However statutory fees will be reimbursed on submission of receipts.
3. All drawings in the tender documents shall be 'Good for Construction'. Only minor changes of working drawings will be issued subsequently to tender drawings.
4. Important Dates

Pre-bid meeting	-	11.00AM on 21/03/2024
Last Date of submission	-	05:00PM on 30/03/2024
Technical Bid Opening	-	10:30AM on 03/04/2024

Technical Specifications

1) 22kV/433V, 315 KVA Oil Cooled Transformer - Outdoor

1	Reference Standard	IS 1180 (Part 1) 2014 Level 1
2	Type of Transformer	Oil cooled Type outdoor installation
3	Normal continuous Rating (KVA)	315
4	Voltage Ratio	22 kV/433 V
5	Rated Frequency	50 Hz
6	Number of Phases	3
7	Type of Cooling	ONAN(Oil Natural Air Natural)
8	Vector Group	Dyn 11
9	Connections (HV / LV)	Delta / Star
10	Winding Material	Copper
11	Tap changer type	Off circuit Tap Changer
12	Tappings on HV side	+5% to -10% in steps of 2.5%
13	Class of insulation	Class A
14	Lamination	CRGO (M-4 Grade)
15	Temperature rise at ambient Temp. Windings Oil	45° C (As per IS 1180) 40° C (As per IS 1180)
16	Terminal Arrangement (HV/ LV)	Cable Box /Cable box
17	Type of Installation	Outdoor
18	Fittings and Accessories	<ul style="list-style-type: none"> • Rating and Diagram Plate. • Top Filter Valve. • Bottom Filter cum drain valve. • Lifting lugs for whole Transformer. • Earthing Terminals 2 Nos. • Thermometer Pocket with plug. • Air Release Plug on tank cover. • Oil Conservator tank with drain plug and oil filling hole with cap. • Oil Level Indicator. • Drain-cum Filter valve with Plug. • Silica-gel breather. • Explosion vent with diaphragm. • Buchholz relay with alarm and trip contacts (optional). • Magnetic Oil Gauge (optional). • Winding Temperature Indicator with alarm and trip contacts. (optional). • Oil Temperature Indicator with alarm and trip contacts. (optional). • Marshalling Box. (optional) • Radiators.

2) Metering Panels and Sub Panels

The L.T. Panel board cubicle shall be of metal clad, totally enclosed, sheet steel cubicle, indoor floor mounting, and freestanding type. It shall be completely dust-tight, weather & vermin proof and highly corrosion-resistive. Neoprene/Synthetic rubber gasket shall be provided between adjoining surfaces of the doors and enclosures to make the switchboard dust-tight and vermin proof. The panel will be suitable for IP-5X degree of protection

The L.T. Panel board shall be of unit type in construction, compact in size and neat in appearance. They shall be capable of being easily extended on either side and shall have a high degree of flexibility. The design of feeder units shall be such as to minimize the floor area required.

The feeder units shall be arranged in individual compartments in vertical section and a vertical wire way shall be provided to accommodate all control cables. Wire way shall be so designed that even if the doors of wire way is opened, there is no access to the bus bars. The wiring layout shall be planned for easy screw and quick circuit tracing. Wiring shall be properly bunched and arranged in such a way that there shall be no sag. Each compartment shall be covered with sheet steel hinged door having rounded edges and maintenance to be carried out from the front. Inspection as well as maintenance shall be done safely and easily without affecting the other feeders. All switches and switch fuse units shall be front operated type and shall be interlocked with the hinged doors. The sheet steel used shall be not less than 2 mm thick for all sides. EC grade copper bus bars of adequate size shall be used for connections from Main Bus bar to respective switches of incoming / outgoing feeders & the size of the same shall be stated on the drawing.

The cable box chamber shall have adequate space to accommodate cable boxes, glands packing glands and incoming and outgoing power and control cables. Outgoing feeder terminals shall be brought out into the cable box chamber for easy connection of cables. Crimp type tinned copper lugs terminal arrangement according to the rating of the feeders and associated cable shall be provided. Cable entries shall be arranged from bottom.

Indicating instruments [viz. Voltmeter Ammeter, LED type indicating lamps for supply 'ON' indication] shall be mounted on the front, on the outgoing side of the main incoming switch. Ammeters and voltmeters shall be of flush mounting type and preferably of 96 x 96 mm size. The switchboard panel shall be, completely wired, ready for connecting to the purchaser's equipment. Nameplate with required details shall also be provided on the front.

TECHNICAL SPECIFICATIONS - ELECTRICAL WORKS

General

The bidder should note that the specifications furnished in the tender is of general nature only and it is the responsibility of the bidder to design, supply, install and commission the equipment and services required for the satisfactory performance of the installation. All the items of equipment required for the safe and satisfactory operation of the installation shall be supplied and installed by the bidder.

The intent of this specification is to define the requirements for the design, manufacture, shop testing, supply, installation, testing and commissioning of the electrical system like 22kV DP structure, Metering Kiosk, HT equipments, outdoor unitised substation, etc. Requirement shall be as specified in schedule of requirements/ approved drawing of the Purchaser or as per the limits fixed by the Client/Consultant. The bidder shall furnish complete details of the equipment with all necessary drawings.

The tender specifications consists of 8 sub heads as shown below:

1. DP structure
2. HT metering panel
3. Unitised Substation
4. Measurement
5. Guaranteed Technical Particulars
6. Approved makes of Equipment and Materials
7. Category requirement of Test certificate/Inspection
8. Abbreviations

1.0 DP STRUCTURE

Double pole structure shall be fabricated from structural steel. The mild steel shall be conforming to IS-2062-1992 grade 'A' modified up to date or its equivalent international standard for steel materials, documents for which shall be made available during the inspection.

The material used in the construction of steel shall be suitable for use under following weather conditions

- | | |
|--------------------------|-----------------------|
| 1. Temperature variation | : 0 Deg C to 50 Deg C |
| 2. Relative humidity | : 20% to 100% |
| 3. Altitude | : 0 to 1000 Mtrs |

Minimum size of the RSJ pole shall be 200x100mm and channels shall be 100x50mm.

A set of double channel iron cross-arms of the same length duly clamped to the poles through bolts and nuts shall be provided for each structure. The

two channel iron lengths of the double channel iron cross arm shall be stepped to each other by flat iron strips to prevent bulging of the cross arms during stringing of the lines. These flat iron strips shall be bolted to the two channel iron lengths adjacent to each strain/disc insulator fittings supported by the cross arm.

Jumpers

Jumpers shall be neat and as far as possible symmetrical to the run of conductors. These shall be so made as to prevent occurrence of fault due to wind or birds.

Jumpers used shall normally be of the same material as the line conductor and they shall be of adequate current carrying capacity. If the material of the jumper wire is different from that of the line conductor, suitable bimetallic clamps should be used. If copper to aluminium bimetallic clamps is to be used, it should be ensured that the aluminium conductor is situated above the copper conductor so that no copper contaminated water comes in contact with aluminium.

Minimum size of the 22kV jumper shall be number '0' SWG copper. Maximum length of unsupported 22kV jumper shall be 2.44 mtr for solid conductors and 1.5 m for stranded conductors.

Insulators & Insulator Fittings

Insulators - General

Insulators for overhead lines are fixed to the cross arms and provide insulation to power conductors from the ground. Power conductors are tied or clamped to the insulators. Insulators are made of glazed porcelain or tough glass.

- i) Porcelain insulators shall conform to IS:1445-1977 for lines below 1000V and to IS:731-1971 for lines with voltage greater than 1000V.
- ii) The insulator shall be vitreous throughout and non-absorbent. The exposed surface shall be glazed.
- iii) These shall have adequate mechanical strength, high degree of resistance to electrical puncture and to climate and atmospheric attack.

Types of Insulators

The insulator shall be any of the following types, as specified.

- a) Pin insulators
- b) Disc type insulators

Insulator Fittings

- i) The insulator fittings shall comply with IS:2486 (Part-1) - 1971 and IS:2486 (Part-2) - 1989 for 22kV insulators.
 - ii) Pin insulator fittings
 - (a) The pins shall be of single piece MS without joints, obtained by the process of forging.
 - (b) The pins, nuts and washers, shall be galvanized.
 - (c) The threads of nuts and tapped holes shall be cut before galvanizing and shall be well oiled or greased.
 - iii) Disc insulator fittings
 - (a) The insulator fittings for disc insulators shall be either of ball and socket type or clevis and tongue type depending upon the type of disc insulators.

Earth Wire

The size of the continuous earth wire shall not be less than 4mm (8SWG) GI.

Lightning Arresters

Lightning arresters shall be provided between AB switch and Drop Out fuse

The lightning arrester system shall conform to Clause No. 74 of CEA safety regulations.

Clearances

- 1 AB switch operating handle shall be fixed at 1mtr to 1.25 mtr from ground level.
- 2 Phase to phase and Phase to earth clearance at AB switch shall be 1060mm and 970mm respectively.
- 4 Fencing with height of 1.8 mtr shall be provided .
- 5 Maximum length of unsupported 22kV jumper shall be as per IS/ relevant standards.

22 kV 400 Amp 3 Pole AB Switch

This specification covers manufacturing testing and supply of 22kV 400A 50 Hz Air Break switches for out door installation in horizontal configuration. The switches are suitable for operation under off load conditions and are intended for use on Distribution Sub - stations and tapping sectionalizing points of 22 kV lines.

Description of the Materials

The 22 kV A.B switch sets shall conform to the following parameters:

- a. Number of poles : 3
- b. Nominal system voltage : 22 kV
- c. Highest system voltage : 23 kV
- d. Rated frequency : 50 Hz
- e. System earthing : effectively earthed
- f. Rated nominal current : 400 amps
- g. Altitude of installation : Not exceeding 1000M Standards

The AB Switch Set shall conform to the following standards:

- a. IS-9920 (Part-I to V)
- b. IS-2544/1973 (for porcelain post insulators)
- c. IS-2633, (for galvanization of ferrous parts) or its latest amendments if any.

Insulator make

23 kV post insulators complete with post and cap duly cemented to be used in the AB switch set confirming to IS-2544/1973.

Climatic Condition

The A.B switch set shall be suitable for operation under the following climatic conditions.

- a. Maximum ambient air temperature : 45°C
- b. Maximum daily average air temperature : 35°C
- c. Maximum yearly average ambient air temperature : 30°C
- d. Maximum temperature attainably by a body
- e. Exposed to the sun : 50°C
- f. Minimum ambient air temperature : 0°C
- g. Maximum relative humidity : 100%
- h. Minimum number of rainy days per annum : 70
- i. Average number of rainy days per annum : 120

j.	Average annual rain fall	150 cm
k.	Number of months of tropical monsoon conditions	4
l.	Maximum wind pressure	260 kg/mm ²
m.	Degree of exposure to atmospheric pollution	normally
n.	Atmosphere	polluted

Technical Details

The 22 kV A.B Switch Set shall be the gang operated rotating single air break type having 3 post insulators per phase. The operating mechanism shall be suitable for manual operation from the ground level and shall be so designed that all the three phases shall open or close simultaneously. The switches shall be robust in construction, easy in operation and shall be protected against over travel or stalling that might adversely affect any of its parts. Phase coupling rod, operation rod with intermediate guide braided with flexible electrolytic copper, tail piece of required current carrying capacity and operation mechanism with 'ON' & 'OFF' positions shall be provided. The operation rod shall be medium gauge of minimum 32 mm diameter nominal bore G.I pipe. The phase coupling rod for gang operation shall be medium gauge 25 mm minimum dia nominal bore G.I. pipe. The operating down rod shall be coupled to the spindle (minimum dia - 32 mm) for gang operation through another suitable bearing by two numbers 10 mm dia stainless steel bolts with double nuts. All the bearings shall be provided with grease nipple. All metal (ferrous) parts shall be galvanized and polished. The pipe shall be galvanized in accordance with IS-4736/1968. The post insulators should be fixed with the base channel using galvanized nuts and bolts.

Test & Test Certificate

Type Test: Certificate for the following type tests conducted on a prototype set of A.B.Switch in a NABL approved test house/CPRI shall have to be submitted.

- ✓ Temperature rise test (for contacts and terminals)
- ✓ Dielectric Test (impulse and one minute power frequency withstand voltage test).
- ✓ Short Time current and peak withstand current test
- ✓ Mainly active load breaking capacity test
- ✓ Transformer off-load breaking capacity test
- ✓ Line charging breaking test
- ✓ Cable charging breaking test
- ✓ Operation and mechanical endurance test
- ✓ Mechanical strength test for post insulator, as per IS-2444/1937 shall be furnished.
- ✓ Test for galvanization of metal (ferrous) parts.

Routine/Acceptance Test

The inspection may be carried out by the Purchaser at any stage of manufacture. The successful bidder shall grant free access to the Purchaser's representative at a reasonable time when the work is in progress. The following routine tests shall have to be conducted on each set and results are to be furnished.

Tests to prove satisfactory operation
Operational Test
Dimension Check
Galvanization Test

2.0 HT METERING PANEL

The Meter Board shall be IP 54 and fabricated out of 14 SWG (2mm) CRCA sheet . It shall be provided with hinged doors on the front with necessary handles and earthed using flexible copper conductor. The doors shall be provided with neoprene gaskets. Suitable channel base frame should be provided for the panel board. All metal sheets shall undergo 7 tank metal treatment for CPRI approved panel thorough degreasing, water rinse, derusting, water rinse, phosphating, water rinse and then passivation. Wiring for all controls, protection, metering, signaling, etc. inside the switchboard shall be done with 650 volts grey colour minimum 1.5sqmm HFFR (Halogen free fire retardant) copper conductor cables

The metering transformer equipment should be of panel mounting type for indoor use. They are to be used in 22kV Three phase with solidly earthed neutral. The equipment is required for operation of trivector meters and should be oil cooled and shall use 3 watt meter method for measurement.

The CT PT sets shall have the following ratings:-

Rated Voltage: 22kV

Highest systems voltage: 23kV

Insulation level: 24/50/124kVP or as per relevant IS Standard/ Kerala Inspectorate Requirements.

class of accuracy: 0.2s for CT and 0.2 for PT

Rated burden

For CTs: The rated burden for CTs is 15VA or as per requirement of distribution agency/EI

For PTs: The rated burden for PTs shall be 30VA or as per the requirement of distribution agency/EI

Frequency: 50Hz

DESIGN:

- a) The equipment shall be designed to ensure satisfactory operation under all conditions of service to facilitate easy inspection, cleaning and repairs.
- b) The design shall incorporate every reasonable precaution and provisions for safety of all those concerned in the operation and maintenance of the equipment.
- c) 22kV metering panel shall also be so designed that water cannot be collected at any point and enter the CT/PT or TOD meter set.
- h) The core shall be high grade non-ageing electrical silicon laminated steel of low hysteresis loss and high permeability to ensure high accuracy, at both normal and over current/voltage.
- i) All winding shall be of insulated high grade electrolytic copper wire and the manufacturing of the units shall be done in completely closed and air-conditioned room otherwise fibre glass insulation sleeves are to be provided for primary winding. Details of winding and core shall be furnished.
- j) The CTPT set should have three CTs and one three phase PT with star/star connection.

Routine/Acceptance Test

The inspection may be carried out by the Purchaser at any stage of manufacture. The successful bidder shall grant free access to the Purchaser's representative at a reasonable time when the work is in progress. The following routine tests shall have to be conducted on each set and results are to be furnished.

Power frequency voltage dry test
Measurement of resistance of main circuit
Tests to prove satisfactory operation
Operational Test

3.0 UNITISED SUBSTATIONS (USS)

CODE & STANDARDS:

Unitised substation shall be designed manufactured and tested in accordance with the latest applicable Indian Standard / IEC standards amended up to date.

Title	Indian & IEC Standards
High Voltage/ Low Voltage Pre-Fabricated Substation	IEC:62271-202
Code of practice for selection, installation and maintenance of Switchgear	IS:10118
Cast Resin Distribution Transformer	IS 11171

DESIGN CRITERIA

Unitised substation shall consists of prefabricated enclosure with 22kV switchgear compartment ,transformer compartment and LV compartment. The VCB shall be used to control and isolate the Distribution transformer. The transformer's L.T. side shall be brought to LV compartment to terminate LV cables of suitable rating. The USS shall be outdoor type with degree of protection for enclosure IP-54.

The pre-fabricated Unitized substation shall be designed for:

- a) Compactness,
- b) Fast installation,
- c) Maintenance free operation,
- d) Safety for worker/operator.

The Switchgear and component thereof shall be capable of withstanding the mechanical and thermal stresses of short circuit listed in ratings and requirements clause without any damage or deterioration of the materials.

For continues operation at specified ratings temperature rise of the various switchgear components shall be limited to permissible values stipulated in the relevant standards .

22kV VCB shall be 630A 21kA for 3 secs, SF6 gas insulated non extensible compact switch gear with Copper bus bar.

SERVICE CONDITIONS:

The equipment offered shall be suitable for continuous satisfactory operation in tropical area of Installation.

Ambient Temperature Maximum- 40 degree centigrade

Minimum- 15 degree centigrade

Average temperature measured over a period of one month-35 degree centigrade

Relative Humidity(Average Value)

- a) for a period of 24hrs, does not exceed 95%
- b) for a period of one month, does not exceed 90%

Relative humidity may be temporarily 100%.

The Transformer shall be designed to be used under normal indoor service condition. The enclosure should take minimum space for the installation including the space required for approaching various doors & equipment inside. The enclosure construction shall be such that it fully protects ingress of dust & rusting.

SPECIFIC REQUIREMENT

The main component of a Unitised substation consists of Transformer, High-voltage switchgear-control gear, corresponding interconnections (cable, busbars) & LT chamber with 1250 ACB (if required as per the latest EI regulations) and auxiliary equipment. The components shall be enclosed, by either common enclosure or by an assembly of enclosure. All the components shall comply with their relevant IS/IEC standards as specified.

ENCLOSURE:

The enclosure shall be made of 2.0 mm thickness Galvanized Sheet/ Steel to meet Indian weather conditions including all the partition sheets & doors.

The base of the enclosure shall be of 4.0 mm thick Hot Dip Galvanized Sheet Steel to ensure rigidity for easy transport & installation. The entire dry type Substation shall be Factory Assembled & Factory Fitted. The enclosure shall have IP 54 degree of protection for HT and LT switchgear compartment and IP23 degree of protection for Transformer compartment.

The structure of the substation shall be capable of supporting the gross weight of all the equipment & the roof of the substation compartment shall be designed to support adequate loads. In case of relocation of the transformer compartment, the entire substation should be capable of getting lifted and placed as a Single Unit without dismantling of any equipment inside. The lifting arrangement should be from the bottom of the enclosure & not from the top.

There shall be proper / adequate ventilation inside the enclosure so that hot air inside enclosure is directed out. Louvers shall be provided so that there is circulation of natural air inside the enclosure. The enclosure should be designed & engineered to have natural cooling & ventilation .All nuts and bolts shall be of stainless steel type.

Interconnection: Secondary terminal of the transformer shall be brought out to terminate Aluminum Cable.

Covers & Doors: Covers & doors are part of the enclosure. When they are closed, they shall provide the degree of protection specified for the enclosure. All covers, doors or roof shall be provided with locking facility or it shall not be possible to open or remove them before doors used for normal operation have been opened. The doors shall open outward at an angle of at least 90degrees & be equipped with a device able to maintain them in an open position. Proper padlocking facility shall be provided for doors of each compartment. Transformer compartment doors must be open from both the sides & should not have access from outside.

Earthing: All metallic components shall be earthed to a common earthing point. It shall be terminated by an adequate terminal intended for connection to the earth system of the installation, by way of flexible jumpers/strips & Lug arrangement. The continuity of the earth system shall be ensured taking into account the thermal & mechanical stresses caused by the current it may have to carry. The components to be connected to the earth system shall include:

- a) The enclosure of Unitised substation,
- b) The enclosure of High voltage switchgear & control gear from the terminal provided for the purpose.
- c) The metal screen & the high voltage cable earth conductor,
- d) The transformer core or metal frame of transformer,
- e) The frame &/or enclosure of low voltage switchgear,

Internal Illumination: There shall be arrangement for internal lighting activated by associated switch on doors for HV and Transformer compartments separately.

Labels: Labels for warning, manufacturer's operating instructions etc. & those according to local standards & regulations shall be pasted / provided inside and shall be durable & clearly legible.

Painting and Fabrication process:

- a) The paints shall be carefully selected to withstand the tropical condition. The paint shall not scale off or crinkle or be removed by abrasion due to normal handling. For this purpose powder coating shall be used.
- b) Special care shall be taken by the manufacturer to ensure against rusting of nuts, bolts and fittings during operation. All bushings and current carrying parts shall be cleaned properly after final painting.
- c) The fabrication process shall ensure that there are no sharp edges on the GI sheets used

Parts of the Unitised Substation include:

A. Cast Resin Dry Type Distribution Transformer :

The Transformer shall comply with the following Standards as amended upto date:

Title	Indian & IEC Standards
Dry type power transformers.	IS 11171 : 1985
Installation and Maintenance of Transformers	IS10028 (Part II & III)
Current Transformers	IS 2705
Terminal marking connections	IS:2026(PartIV)

General Requirements:

All the MS parts shall be either Hot dipped galvanized or cold galvanized to make them corrosion free. The core shall be made up of high grade low loss cold rolled grain oriented laser scribed silicon steel. Both low & high voltage windings shall be made of copper conductor. The class of winding insulation shall correspond to class-F. The construction of the windings of the transformer shall be such that no creepage path is found even in dusty & corrosive ambient conditions. LV terminals shall be brought out to LV Terminal Box. Protection against high winding temperature shall be provided by Thermistors. Winding temperature ALARM and TRIP shall be provided,

The former shall be provided with the transformer is provided

Specification of cast resin dry type transformer

1.DISTRIBUTION TRANSFORMER:		
Sr. No.	Description	CLIENT REQUIREMENT
1	Rating	As specified in BOQ
2	Name of manufacturer	As per Approved Makes
3	Service	As specified in BOQ
4	Type	Dry -Resin Cast Core Coil Assembly
5	Winding Material	Copper
6	Core	Laser scribed Core
7	No Load Losses preferred (W)	As per ECBC (as per latest amendment)
8	Load Losses preferred (W)	As per ECBC (as per latest amendment)
9	Cooling	AN
10	Rated no load voltage	
	a) HV ,kV	22kV
	b) LV , V	433 V

12	Temp. rise above an ambient of 50 deg. C For Winding 90 deg C	90 deg C
13	Number of phases	3
14	Vector Group reference	Dyn11
15	Terminal arrangement, HV /LV	HV & LV termination shall be done with support insulators and suitable Cable/ flats as per requirement
16	Taps on HV winding	
	a) Off circuit	Off circuit tap links
	b) Tapping range	+5% to -5%
	c) No. of steps	+15 to -5% In Steps of 2.5 %
17	Impedance with IS Tolerance	As per IS
18	Losses (kW) with IS Tolerance	As per IS
19	Transformer Compartment Enclosure protection class	As specified in BOQ
20	Terminal arrangement a) HT b) LT	Suitable for connecting HT cable Cable box
21	Neutral terminals	Two, one brought out for earthing
22	Body earthing terminals	Two
23	Class of Insulation winding	F

It shall be provided with channel iron welded to the bottom for easy and safe handling. Guaranteed iron losses, copper losses, regulation etc shall be as per Technical particulars. Indoor transformers shall be suitable for IP-23D protection;

Service Condition: The reference ambient temperatures assumed for the purpose of this specification are as follows:

Ambient Temperature Maximum- 40 degree centigrade

Minimum- 15 degree centigrade

Average temperature measured over a period of one month-35 degree centigrade

Relative Humidity (Average Value)

- a) For a period of 24hrs, does not exceed 95%
- b) For a period of one month, does not exceed 90%

Relative humidity may be temporarily 100%.

Tap Changing Device: Preferred tapping range is +5% to -5% in steps of 2.5 by means of off load tap changing links or tap switch. The device shall be provided on HV winding.

Terminal Markings Connections: Relevant provisions of IS: 2026 (Part-IV)-1977 shall be applicable.

Cooling: The transformer shall be designed to give normal output with natural air cooling.

Fittings: The transformer shall be complete with the following fittings:

- (a(a) Off load type tap changing link or tap switch.

- (b) RTD / thermo couples shall be provided to monitor temperature of the winding and to start the cooling fans when the normal temperature limit exceeds and also to give alarm and shut down when temperature exceeds the limits even with forced cooling.
- (c) Lifting lugs.
- (d) Rating diagram and terminal marking plate.
- (e) Additional Neutral separately brought out on a bushing.
- (f) Earth terminals (2 Nos.) for body earthing.
- (g) Necessary hardware, clamps, lugs etc. for termination on HV/MV terminals.
- (h) All other standard fittings and accessories conforming to relevant

Rating Plates:

A rating plate of weather proof material bearing the data specified in clause-8 of IS: 11171: 1985

Tests at Works: All routine and other tests prescribed in IS 11171 : 1985 shall be carried out at the manufacturer's works before the dispatch of the transformer in the presence of inspecting officers. Copies of the test certificates shall be furnished . In addition to the prescribed routine tests, temperature rise test shall be invariably done on one transformer of each design. A copy of the impulse test certificate done on the same type/design of the transformer shall be furnished in accordance with IS 11171 : 1985 for purpose of record. If no impulse test was done in an earlier unit of the same design and type, one transformer will be subjected to impulse test in consultation with the Inspector at the firm's cost. Copies of the certificates of type test for short circuit shall be supplied.

Tests at Site: In addition to tests at manufacturer's premises, all relevant pre-commissioning checks and tests conforming to IS code shall be done before energization. The following tests are to be particularly done before cable jointing or connecting up the bus bar trunking.

- (a) Insulation test between HV to earth and HV to MV with a 5000 volts Insulation tester.
- (b) Insulation test between MV to earth with 500 volts Insulation tester.
- (c) All test results are to be recorded and reports should be submitted

6.0 CABLES & CABLING

Cables Scope

The scope under this section covers the following:

- a) Power cables

- b) Control cables
- c) Armouring and Serving

All multicore cables liable for mechanical damage shall be armoured.

Storage and handling

Storage:

(i) The cable drums shall be stored on a well-drained, hard surface, so that the drums do not sink in the ground causing rot and damage to the cable drums paved surface is preferred, particularly for long term storage.

(ii) The drums shall always be stored on their flanges, and not on their flat sides.

(iii) Both ends of the cables should be properly sealed to prevent ingress/absorption of moisture by the insulation during storage.

(iv) Protection from rain and sun is preferable for long-term storage for all types of cables. There should be enough ventilation between cable drums.

(v) Damaged battens of drums etc. should be replaced, as may be necessary.

Handling:

(i) When the cable drums have to be moved over short distances, they should be rolled in the direction of the arrow marked on the drum.

(ii) For manual transportation over long distances, the drum should be mounted on cable drum wheels, strong enough to carry the weight of the drum, and pulled by means of ropes. Alternatively, they may be mounted on a trailer or on a suitable mechanical transport.

(iii) For loading into and unloading from vehicles, a crane or a suitable lifting tackle should be used. Small sized cable drums can also be rolled down carefully on a suitable ramp or rails, for unloading, provided no damage is likely to be caused to the cable or to the drum.

Standards

The following standards, amended up to date, shall be applicable:

1. IS : 1753 : Specification for Aluminium conductors for insulated cables.
2. IS : 2982 : Specification for copper conductors in insulated cables.
3. IS : 5831 : Specification for XLPE insulated and PVC sheath of electric cables.
4. IS : 6474 : Polythene insulation and sheath of electric cables.
5. IS:3975 : Specification for mild steel wires, strips and tapes for armouring of cables.
6. IS : 694 : PVC insulated cables.
7. IS : 7098 : Specification for XLPE insulated PVC sheathed Cables.
8. IS : 3961 : Recommended current ratings of cables.

9. IS : 5819 : Recommended short circuit ratings for high voltage PVC cables.

Power cables (HV) 22 kV grade XLPE insulated cable

The conductors shall be screened by extruded semi conducting compound and which shall be XLPE insulated and the same shall be again screened by extruded semi conducting compound (Triple Extrusion Process). 22kV grade cable conform to IS 7098 amended upto date. The inner sheath over laid up cores and outer sheath over the armour shall be extruded black PVC compound type ST-2. Core identification shall be by colour coding. The inner and outer sheath should be separated by steel armouring. The construction, performance and testing of the cable shall comply with IS:7098-part-2. Dry cure (Radiant curing process) technology should be used for the manufacturing of cross-linked polyethylene cable. Bi-metallic plate washers should be provided where ever cables, lugs, and switch terminals are of different materials. Cables and cable lugs should be of same material where ever possible.

General details

Cross sectional area of conductor:	as specified in BOQ.
No. of cores	: 3
Conductor	: Aluminium

Insulation

The thickness of insulation shall be on the basis of insulation material, voltage and conductor size conforming to the relevant standard specification. The cores shall be colour coded to IS specifications. The XLPE insulation & sheathing shall be of high quality.

Sheathing

The sheathing shall be **FRLS** PVC and shall be before and after the armouring, the thickness of the sheathing shall be based on the conductor size and overall diameter below the sheathing.

Armouring

Single core cables shall be armoured with earthed at one end and if insisted it shall be of non magnetic material. Multi core cables shall be with armouring.

Power Cable termination

Cable termination shall be heat shrinkable type and the bushings shall be covered with adequate insulation with a provision for using the cable test rods for cable testing. 33 kV cable compartments for each circuit shall be separately enclosed. Cable termination shall be suitable for copper or aluminium conductor. Suitable cable termination kits and other accessories shall be included in the scope of supply. Bi-metallic plate washers should be provided where ever cables, lugs, and switch terminals are of different materials. Cables and cable lugs should be of same material where ever possible. The cable should be properly terminated to avoid stress on end termination.

End termination must be done by an authorised cable jointer approved by the manufacturer.

The cable compartment shall be complete with bottom plate for 3 core 300 sq.mm XLPE cable.

Control Cables

Control cables for use on 415 V system shall be 1100 volts grade, copper conductor, PVC/XLPE insulated, PVC sheathed, round wire armoured and overall PVC sheathed, strictly as per IS : 1554 (Part I) - 1976 and IS 7098 part 1. Unarmoured cables to be used only if specifically mentioned in schedule of quantities. Control cable carrying current should be black colour and voltage circuit shall be of grey colour and shall be segregated and Core identification shall be by numerals. The size of these cables shall be as specified in schedule of requirements or as per

erection drawing. No cable of size less than 1.5 sq.mm. shall be used and for CT/PT circuits cable size shall be 2.5mm².

Cable Glands

Cable glands shall be of heavy duty compression type of brass, chrome plated. These shall have a screwed nipple with conduit electrical thread and checknut. These shall be suitable for armoured/unarmoured cables, which is being used.

Cable Connectors

Cable connectors, lugs/sockets, shall be of copper/aluminium alloy, suitably tinned, solderless, crimping type. These shall be suitable for the cable being connected and type of function (such as power, control or connection to instruments, etc.)

Cable Indicators

All the cables shall be tagged at both ends with 2 mm thick aluminium strap.

Self-sticking type PVC identification numbers, ferrule shall be used for each wires.

Cable Route Markers

The specification of the cable route markers shall be as per BOQ.

Cables Tags:

Cable tags shall be made out of 2mm thick aluminum sheets/PVC, each tag 1-1/2 inch in dia with one hole of 2.5mm dia, 6mm below the periphery. Cable designations are to be punched with letter/number punches and the tags are to be tied inside the panels beyond the glanding as well as below the glands at cable entries. Trays tags are to be tied at all bends

G.I. Pipes for Cables

For laying of cables under floor, ground etc. G.I. class 'B' pipes shall be used. MS. conduits is not acceptable for this purpose. All accessories of pipes shall be threaded types. Size of pipe shall depend upon the overall outer diameter of cable to be drawn through pipe. No G.I pipe less than 40 mm dia. shall be used for this purpose. To determine the size of pipe, assume that 40% area of pipe shall be free after drawing of cable.

INSTALLATION, TESTING AND COMMISSIONING

Cable network shall include power, control and lighting cables, which shall be laid in underground trenches, Hume pipes, open trenches, cable trays, GI pipes, or on building structure surfaces as detailed in the relevant drawings. Cable schedules or as per the Engineer-in-charge's instructions. Supply and installation of cable trays, GI pipes/conduits, cable glades sockets at both ends, isolators, junction boxes, remote push buttons stations, etc. shall be under the scope of the Contractor.

General requirements for handling of cables

- a) Before laying cables, these shall be tested for physical damage, continuity absence of cross phasing, insulation resistance to earth and between conductors. Insulation resistance tests shall be carried out with 500/1000 volt IR Tester.
- b) The cables shall be supplied at site, wound on wooden drum as far as possible. For smaller length and sizes, cables in properly coiled form can be accepted. The cables shall laid by mounting the drum of the cable on drum carriage. Where the carriage is not available, the drum shall be mounted on a properly supported axle, and the cable laid out from the top of the drum. In no case the cable will be rolled on, as it produces kinks which may damage the conductor.
- c) Sharp bending and kinking of cables shall be avoided. The bending radius for PVC insulated and sheath armoured cable shall not be less than 10 D Where 'D' is overall diameter of the cable.
- d) While drawing cables through GI pipes, conduits, RCC pipe, ensure that size of pipe is such that, after drawing cables, 40 % area is free. After drawing cable, the end of pipe shall be sealed with cotton/bituminous compound.

- e) High voltage (11 kV and above), medium voltage (230 V and above) and other control cables shall be separated from each other by adequate spacing or running through independent pipes/trays.
- f) Armoured cables shall never be concealed in walls/floors / roads without GI pipes, conduits RCC pipes.
- g) Joints in the cable throughout its length of laying shall be avoided as far as possible and if unavoidable, prior approval of site engineer shall be taken. If allowed, proper straight through epoxy resin type joint shall be made, without any additional cost.
- h) A minimum loop of 3 M shall be provided on both ends of the cable and on both ends of straight through cable joint. This additional length shall be used for fresh termination in future. Cable for this loop shall be paid for supply and laying.
- i) Cable shall be neatly arranged in the trenches/trays in such a manner so that criss-crossing is avoided and final take off to the motor/switchgear is facilitated. Arrangement of cables within the trenches/trays shall be the responsibility of the Contractor.
- j) All cable routes shall be carefully measured and cable cut to the required lengths and undue wastage of cables to be avoided. The routes indicated in the drawings is indicative only and the same may be rechecked with the Engineer-in-charge before cutting of cables. While selecting cable routes, interference with structures, foundations, pipe line, future expansion of buildings, etc. should be avoided.
- k) All temporary ends of cables must be protected against dirt and moisture to prevent damage to the insulation. For this purpose, ends of all PVC insulated cables shall be taped with an approved PVC or rubber insulating tape. Use of friction type or other fabric type tape is not permitted. Lead sheathed cables shall be plumbed with lead alloy.
- l) Wherever cable rises from underground/concrete trenches to motors/switchgears/push buttons, these shall be taken in GI pipes of suitable size, for mechanical protection upto 300 mm distance of concerned cable gland or as instructed by the Engineer-in-charge.
- m) Where cables pass through foundation/walls or other underground structures, the necessary ducts or openings will be provided in advance for the same. However, should it become necessary to cut holes in existing foundations or structures the electrical Contractor shall determine their location and obtain approval of the Engineer-in-charge before cutting is done.
- n) All the openings made for the cable entry/exit shall be properly sealed using fire retardant mortar.

Installation of Cables

Wherever cables are taken through masonry works and road crossings etc., they shall be protected by running through GI pipes and Hume pipes respectively. Depth

shall be 1200 mm from top of finished road surface and it shall extend for about 1070 mm on both sides of the roads. Utmost care shall be taken to avoid scratches, kinks and cuts on the conductor while transporting the cables to site or during installation. Suitable inhibiting grease shall be liberally applied to bare conductors, wherever they exist.

The junction boxes, cable end boxes etc. wherever required to be provided shall have sufficient wiring spaces with regard to the sizes of cables indicated in the drawings. Wherever required, the items to be supplied for electrification shall be complete with requisite type of cable glands, cable boxes, termination etc. and other accessories which are necessary for the satisfactory installation/operation of the installations as per relevant statutory rules and regulations.

Installation of all cables should be as per E.I. Standards. Fuses should be graded properly and should be selected based on the rating of cables. The cables shall be laid in trenches/overhead racks wherever available. The cables from cable trenches to the switcher shall be buried (as per standard practices and or taken through GI pipes to 1.2 m above ground/racks floor level. The cables taken over racks/ walls/ columns/ Transformers shall be properly clamped using aluminium clamps of 16 SWG 1/4 hard or 3/4 hard sheet, the width varying from 12.5 to 25 mm at intervals of 750 mm. 225 mm minimum horizontal interaxial spacing shall be maintained when more than one cable is laid in same trench. Suitable and permanent type of cable markers is to be provided indicating the route and position of joints of cable. Loops should be provided at either ends of the cable. Identification tags should be provided for each cable in the trench at a distance of 3 metres.

Supply and installation of danger notice boards, where required, and other provisions under the statutory rules and regulations shall be included in the scope of this work.

The Contractor has to provide materials and carry out the wiring work including earthing according to IS 3043 unless otherwise specified and get it approved before using for work, by the authorised engineer of the Purchaser.

Sufficient number of earth pits shall be provided, if found necessary and inter-connected so as to have the resistance of the earthing installations not more than 0.5 ohm. In case the soil resistivity is found to be very high, a high sensitive relay may be used to co-relate the relay setting with high earth resistance.

The complete installation work shall be conforming to NEC-1985 and complying with the Indian Electricity Rules and to meet the approval of the State Electrical Inspector etc. Installation of all switch boards and distribution boards should be in conformity with Rule 51(1) (c) of I.E.R. 1956. MV installation should conform to I.S. 732/1989.

The cable terminations and earth terminations, wherever required, shall only be using compression type cable glands and suitable lugs.

All the materials to be supplied for this work shall be got approved by the concerned engineer at site.

The work will be considered complete only if the following tests are conducted, by the contractor at his own cost, satisfactorily in the presence of the site Engineer and are:

- a) Insulation test
- b) Earth resistance test and
- c) Continuity test

Laying of Cables (underground system)

Cables shall be so laid in ground that these will not interfere with other underground structures. All water pipes, sewage lines or other structures, which become exposed by excavation, shall be properly supported and protection from injury until the filling has been rammed solidly in places under and around them. Any telephone or other cables coming in the way are to be properly shielded diverted as directed by the Purchaser.

a)Cables shall be laid at minimum depth of 750 mm in case of LT & 1200 mm in case of HT, from ground level. Excavation will be generally in ordinary alluvial soil. The width of the trench shall be sufficient for laying of required number of cables.

b) Width of trench: The width of the trench shall first be determined on the basis indicated herein. The minimum width of the trench for laying a single cable shall be 35 cm. Where more than one cable is to be laid in the same trench in horizontal formation, the width of the trench shall be increased such that the inter-axial spacing between the cables, except where otherwise specified, shall be at least 20 cm. There shall be a clearance of at least 15 cm between axis of the end cables and the sides of the trench.

c) Sand bedding using quarry sand of 75 mm thick shall be made below and above the cables. A layer of protecting covering with solid concrete block of 300 X 200 X 50 mm/ Brick shall be laid breadth wise(as approved by Engineer in charge) , above quarry sand bedding to cover cable completely. Warning tape indicating the symbol for danger and specified voltage shall be laid in-between cover block and trench top. More than one cable can be laid in the same trench .However the relating location of cables in trench shall be maintained till termination. The surface of the ground after back filling the earth shall be made good so as to conform in all respects to the surrounded ground and to the entire satisfaction to the Engineer-in-charge.

- e) For all underground cables, route markers should be used.
- f) Separate cable route markers should be used for LT, HT and telephone cables.
- g) Route markers should be grounded in ground with 1:2:4 cement concrete pedestal size as per BOQ.
- h) Cable markers should be installed at an interval not exceeding 50 M along the straight routes of cables at a distance of 0.5 M away from center of cable with the arrow marked on the cable markers plate indicating the location of cable.
- i) Cable markers should also be used to identify change in direction of cable route and for location of every joint in underground cable.
- j) RCC hume pipes for crossing road in cable laying shall be provided by Contractor. RCC hume pipe at the ends shall be sealed by bituminous compound after laying and testing of cable by electrical Contractor without any extra charge.
- k) Road Crossing: The top surface of RCC hume pipes shall be at a minimum depth of 1m from the pavement level when laid under roads, pavements etc. with man holes at both ends of the pipes. The number of pipes to be laid should include sufficient number of spare pipes for future use.

Laying of Cables under Floors

- a.) GI class A pipe shall be used for laying of outgoing cables from distribution boards to various equipment. Preferably one cable shall be drawn through one pipe. Size of pipe shall be such that after drawing of cable 40 % area is free. If length of pipe is more than 30 M, free area may be increased to 50 %.
- b) Use of elbows is not allowed at all and number of bends shall be kept minimum. Instead of using bends with sockets, pipe bending machine shall be used for making long smooth bends at site.
- c) Ends of pipe shall be sealed temporarily while laying with cotton/jute/rubber stopper etc. to avoid entry of building material.
- d) Exact locations of equipment shall be ascertain prior to laying of pipe.

Laying of Cable in Masonry Trenches

- a) Masonry/concrete trenches of laying of cable shall be provided by Contractor. However steel members such as MS angles/flats etc. shall be provided & grouted by electrical Contractor to support the cables. Cables shall be clamped to these supports with aluminium saddles/damps. More than one tier of cables can be provided in the same trench if the number of cables is more.
- b) Entry of cables in trenches shall be sealed with bituminous MASTIC compound to stop entry of water in trenches.

Laying on cable tray:

This method may be adopted in places like indoor substations, switch rooms, etc., or where long horizontal runs of cables are required within the building and where it is not convenient to carry the cable in open ducts. The cable trays may be either of perforated sheet type or of ladder type as mentioned in BOQ and confirmed by Engineer in charge. The width of cable tray shall be chosen, so as to accommodate all the cables in one/two tier plus 20% additional width for future expansion. The cable tray shall be bonded to the earth terminal of the switchboards. Factory fabricated bends, reducers, tee/cross junctions, etc., shall be provided as per good engineering practice. The radius of bends, junctions etc., shall not be less than the minimum permissible radius of bending of the largest size of cable to be carried by the cable tray.

The cable tray shall be measured on unit length basis, along the center line of the cable tray, including bends, reducers, tees, cross joints.

Laying of Cables in Cable Racks

Cable Racks to be used for cables laid indoors except for single cables. The cable racks shall be of ladder type fabricated out of structural steel, MS, GI or aluminium perforated as indicated. The cable racks shall be of adequate strength to carry the weight of cables without sagging. Structural bracket grounded in the buildup trenches to support the cable such supports shall be at intervals of not less than 750 mm centers. All the structural steel work shall be finished with two coats of paint over primer.

- a) Cables shall be fixed in cable trays in single tier formation and shall be clamped with aluminium flat clamps and galvanised bolts/unit.
- b) Earthing flat/wire can also be laid in cable tray along with cables.
- c) After laying of cables minimum 20 % area shall be spare.

Laid on troughs/ trays duly clamped

The SS saddles and clamps used for fixing the cables on surface shall be 1 mm thick with fixing interval of 45 cm for cable of overall diameter up to 26 mm and 3mm thick 25mm wide with fixing interval of 60 cm for cable of overall diameter up to 45 mm. For cable of overall diameters above 45 mm the clamps shall be minimum of 3 mm thick 40 mm wide and fixing interval 60 cm. Additional clamping shall be provided at 30 cm from the center of bend on both sides. Saddles shall be secured with screws to suitable approved plugs. Clamps shall be secured with nuts on to the bolts, grouted in the supporting structure in an approved manner. In the case of single core cables, the clamps shall be of non-magnetic material. Suitable non-corrosive packing shall be used for clamping unarmored cables to prevent damage to the cable sheath. Cables shall be fixed neatly without undue sag or kinks. All MS components used in fixing the cables shall be either galvanized or given a coat of red oxide primer and finished with 2 coats of approved paint.

Laying of Cables on Building Surface/Structure

- a) Such type of cable laying shall be avoided as far as possible and will be allowed only for individual cables or small group of cables which run along structure.
- b) Cables shall be rigidly supported on structural steel/masonry using individual cast/malleable iron galvanised saddles and these supports shall be approximately 400 to 500 mm for cables upto 25 mm overall diameter and maximum 1000 mm for cables larger than 25 mm. Unsightly sagging of cables shall be prevented. Only aluminium/GI clamps with GI bolts/nuts shall be used.

- c) If drilling of steel structure must be resorted to, approval must be secured from the Engineer-in-charge and steel must be drilled where the minimum weakening of the structure will result.

Termination and Jointing of Cables

a) Use of Glands

All PVC XLPE cable up to 1.1 kV grade, armoured or unarmoured shall be terminated at the equipment/junction box/ isolators/push buttons/control accessories, etc. by means of suitable size compression type cable glands armour of cable shall be connected to earth point. The Contractor shall drill holes for fixing glands wherever necessary. Wherever threaded cable gland is to be screwed into threaded opening of different size, suitable galvanised threaded reducing bushing shall be used for approved type.

In case of termination of cables at the bottom of the panel over a cable trench having no access from the bottom, a close fit hole should be drilled in the bottom plate for all the cables in one line, then bottom plate should be split in two parts along the centre line of holes. After installation of bottom plate and cables with glands, it shall be sealed with cold sealing compound.

b) Use of Lugs/Sockets

All cable leads shall be terminated at the equipment terminals, by means of crimped type solder less connectors unless the terminals at the equipment ends are suitable for direct jointing without lugs/sockets.

The following is the recommended procedure for crimped joints and the same shall be followed:

- i) Strip off the insulation of the cable end with every precaution, not to sever or damage any strand. All insulation to be removed from the stripped portion of the conductor and ends of the insulation should be clean and square.

- ii) The cable should be kept clean as far as possible before assembling it with the terminal/socket. For preventing the ingress of moisture and possibility of re-oxidation after crimping of the aluminium conductors, the socket should be fitted

with corrosion inhibiting compound. This compound should also be applied over the stripped portion of the conductor and the palm surface of socket.

iii) Correct size and type of socket/ferrule/lug should be selected depending on size of conductor and type of connection to be made.

iv) Make the crimped joint by suitable crimping tool.

v) If after crimping the conductor in socket/lug, same portion of the conductor remains without insulation the same should be covered sufficiently with PVC tape.

c) Dressing of Cable inside the Equipment

After fixing of cable glands, the individual cores of cable shall be dressed and taken along the cableways (if provided) or shall be fixed to the panels with polyethylene straps. Cable shall be dressed in such a manner that small loop of each core is available inside the panel.

Cables inside the equipment shall be measured and paid for.

d) Identification of Cables/Wires/Cores

Power cables shall be identified with red, yellow & blue PVC tapes for trip circuits identification, additional red ferrules shall be used only in the particular cores of control cable at the termination points in the switchgear/control panels and control switches.

In case of control cables all cores shall be identified at both ends by their wire numbers by means of PVC ferrules or self sticking cable markers, wire numbers shall be as per schematic/connection drawing. For power circuit also wire numbers shall be provided if required as per the drawings of switchgear manufacturer.

Testing of Cables

a) Before energising, the insulation resistance of every circuit shall be measured from phase to phase and from phase to ground. This requires 3 measurements if one side is grounded and 6 measurements for 3 phase circuits.

b) Where splices or terminations are required in circuits rated above 650 volts, measure insulation resistance of each length of cable before splicing and/or terminating. Report measurements after splices and/or terminations are complete.

c) DC High Voltage test shall be made after installation on the following:

- i) All 1100 Volts grade cables in which straight through joints have been made.
- ii) All cables above 1100 V grade.

For record purposes test data shall include the measured values of leakage current versus time.

The DC High Voltage test shall be performed as detailed below:

Cables shall be installed in final position with the entire straight through joints complete. Terminations shall be kept unfinished so that motors, switchgear, transformer etc. are not subjected to test voltage.

The test voltage and duration shall be as per relevant codes and practices of Indian Standards Institution.

12.0 MEASUREMENT

Quantities

The quantities set out in the Schedule of Requirements are the estimated quantities of the work, but they are not to be taken as the actual and exact quantities of the Work to be executed by the Contractor in fulfillment of his obligations under the Contract.

Works to be Measured

The Consultant/Client shall, except as otherwise stated, ascertain and determine by measurement the value in terms of the Contract of work done in accordance with the Contract. He shall, when he required any part or parts of the Work to be measured, give notice to the Contractor's authorised agent or representative, who shall forthwith attend or send a qualified agent to assist the Engineer in making such measurement, and shall furnish all particulars required by either of them. Should the Contractor not attend, or neglect or omit to send such agent, then the measurement made by the Engineer or agent approved by him shall be taken to be the correct measurement of the work. For the purpose of measuring such permanent work as is to be measured by records and drawings, the Consultant shall prepare records and drawing month by month of such work and the

Contractor, as and when called upon to do so in writing, shall, within fourteen days, attend to examine and agree such records and drawings with the Consultant and shall sign the same when so agree such records and drawings, they shall be taken to be correct. If, after examination of such records and drawings the Contractor does not agree the same or does not sign the same as agreed, they shall nevertheless be taken to be correct, unless the Contractor shall, within fourteen days of such examination, lodge with the Consultant, for decision by the Consultant, notice in writing of the respects in which such records and drawing are claimed by him to be incorrect.

Mode of Measurement

The Works shall be measured net, as prescribed in the specification of work, notwithstanding any general or local custom, except where otherwise specifically described or prescribed in the Contract. Wherever not specifically mentioned in the Contract, the mode of measurement as prescribed in the relevant IS codes shall be applicable and binding to the Contract. Only the latest editions of all the codes of practices including all latest official amendments and revisions shall be applicable

Special Note

Scope of work includes:

1. Supply and installation testing & commissioning of DP structure, AB Switch, out door pole mounted CT/PT unit, HT metering KIOSK, USS etc.
2. Cable laying, termination at both ends, testing & commissioning of HT cables.
3. Cable laying in buried route/trenches/trays as per specification, termination at both ends, testing and commissioning of HT power and control cables between Switch boards and sub switch boards.
4. The scope of this contract also includes supply, installation and termination on both sides of all control/instrumentation cables, its supports, etc.
5. Wherever buried cables are envisaged, scope of work includes digging of earth along the cable route, filling up of sand protective covering as per specification, laying of cable, covering the cables with sand bricks, back filling of earth etc., as per specification. Installation of Hume pipes including excavation, erection, back filling etc. Cable markers shall be supplied & installed as per specification.
6. Civil work includes grouting of equipment, complete supply & erection of panel boards, fixing of cable trays, pipes with all necessary supports.

7. The contractor has to coordinate with existing contractor for earthing of HT equipments and cable laying.
8. The contractor has to coordinate with existing contractor for submission of documents to KSEI or any other statutory bodies for approvals and sanctions.
9. All the electrical items/Installations shall comply regulation of Kerala Inspectorate, KINESCO and relevant IS standards.

13.0 Guaranteed Technical Particulars

The bidder shall fill up the technical data sheet given below for at least two makes from the approved make list. However the item shall be selected as approved by Engineer in Charge.

GUARANTEED TECHNICAL PARTICULARS FOR TRANSFORMER			
1.DISTRIBUTION TRANSFORMERS:			
Sl. No.	Description	CLIENT REQUIREMENT	To be filled by the Contractor
1	Rating	As per BOQ	
2	Name of manufacturer	As per Approved Makes	
3	Service	As per BOQ	
4	Type	Dry -Resin Cast Core Coil Assembly	
5	Winding Material	Copper	
6	Load Losses at 50% Load (W)	As per ECBC norms amended upto date	
7	No Load Losses at 100% loss (W)	As per ECBC norms amended upto date	
8	Cooling	AN & forced	

9	Rated no load voltage		
10	a) HV, kV	22kV	
11	b) LV, V	433 V	

12	Temp. rise above an ambient of 50 deg. C For Winding 90 deg C	90 deg C	
13	Number of phases	3	
14	Vector Group reference	Dyn11	
15	Terminal arrangement , HV /LV	HV & LV termination shall be done with support insulators and suitable Cable/ flats as per requirement	
16	Taps on HV winding	Off circuit tap links	
	a) Tapping range	As per BOQ	
17	Impedance with IS Tolerance	As per latest IS	
18	Losses (kW) with IS Tolerance	As per latest IS	
19	Transformer Compartment Enclosure protection class	IP-23	
20	Class of Insulation winding	F	

14.0 APPROVED MAKES OF EQUIPMENT AND MATERIALS

Scope

The scope of this section covers the recommended makes of equipment, material components. The final choice of makes shall be indicated at the time of finalisation of order.

The makes of material offered by the contractor shall be indicated at the space provided for proper evaluation of the offer and shall be one of the recommended makes. In the absence of such indication, the decision rests with the Purchaser/consultant.

Makes recommended

The makes of material recommended are exhibited in respective section. The offers shall be strictly on the basis of the makes recommended.

Where specified make and model nos. are indicated in the schedule of requirements, the bidder should quote for the same items.

List of Approved Makes of Equipment and Materials

Sl. No.	Item	Make of Materials/Equipment	Remarks
1.	Unitised Substation	ABB, Intrans, Voltamp, KEL, Kirloskar, Wilson power	Category 1
2.	TOD meter	L&T, Schnieder, Secure, AE, Ducati, HPL.	Category 3
3.	Digital meters	L&T, ABB, Siemens, Schneider, Socomec, Secure, Elmeasure, C&S	Category 3
4.	Current Transformer	AE, Intrans, Kappa, L&T, Rishab, ResiTech Electricals, PGR, C&S Powertech, Pragati	Category 3
5.	Selector switches	Tecnic, Kaycee, L&T, Salzer, Siemens.	Category 4
6.	22 kV XLPE Al. Cable	KEI, NICCO, Polycab, Havells, Finolex, CCI, RPG-KEC Cables	Category 1 (above 600mtr) Category 2 (Less than 600mtr)
7.	HT	Raychem, 3M	Category 3

15.0 CATEGORY REQUIREMENT OF TEST CERTIFICATE / INSPECTION

CATEGORY -1:

- a) Type test certificate for similar item.
- b) OEMs routine test certificate.
- c) Acceptance test to be conducted in the presence of CLIENT/CONSULTANT representative at factory.

CATEGORY-2:

- a) Type test certificate for similar item.
- b) OEMs routine test certificate.

- c) Visual and functional check by CLIENT/CONSULTANT official at site.

CATEGORY -3:

- a) OEM / Dealer/ Contractor routine test certificate.
 b) Visual and functional check by CLIENT/CONSULTANT official at site.

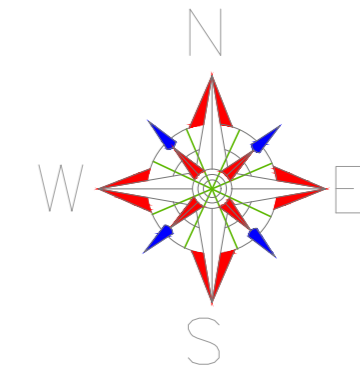
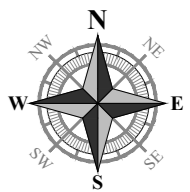
CATEGORY -4:

- a) Visual and functional check by CLIENT/CONSULTANT official at site.

16.0 ABBREVIATIONS

ACB	Air Circuit Breaker
AC	Alternating Current
APFC	Automatic Power Factor Control
AVR	Automatic Voltage Regulator
CB	Circuit Breaker
CFL	Compact Fluorescent Lamp
COS	Change Over Switch
CT	Current Transformer
CSS	Compact Substation
DB	Distribution Board
DC	Direct Current
DCDB	Direct Current Distribution Board
DOL	Direct On Line
ELCB	Earth Leakage Circuit Breaker
ELR	Earth Leakage Relay
GCP	Generator Control Panel
GI	Galvanised Iron
IR	Insulation Resistance
kV	kilo Volt
kVA	kilo Volt Ampere
kVA _r	kilo Volt Ampere reactive
kW	kilo Watt
kWh	kilo Watt hour
LDB	Lighting Distribution Board
LED	Light Emitting Diode
HT	High Tension
LT	Low Tension
LV	Low Voltage
MCB	Miniature Circuit Breaker
MCC	Motor Control Centre
MCCB	Moulded Case Circuit Breaker
MSB	Main Switch Board
MVA	Mega Volt Ampere
MW	Mega Watt
PDB	Power Distribution Board
PF	Power Factor

PI	Polarization Index
PLC	Programmable Logic Control
PT	Potential Transformer
PVC	Poly Vinyl Chloride
RCCB	Residual Current Circuit Breaker
REF	Restricted Earth Fault
RTD	Resistance Temperature Device
SCADA	Supervisory Control and Data Acquisition
SDF	Switch Disconnecter Fuse
SLD	Single Line Diagram
SSB	Sub Switch Board
THD	Total Harmonic Distortion
TOD	Time of Day
UG	Under Ground
UPS	Uninterrupted Power Supply
USS	Unitised Sub Station
VA	Volt Ampere
VT	Voltage Transformer
VCB	Vacuum Circuit Breaker
VFD	Variable Frequency Drive
VSD	Variable Speed Drive
WTI	Winding Temperature Indicator
XLPE	Cross Linked Poly Ethylene



LEGEND

SL. NO.	SYMBOL	DESCRIPTION	QTY (No.)
1	⊗	13 Mtr. HEIGHT HT/LT ELECTRIC POST @35M SPAN	13
2	—	HT/LT OVER HEAD LINE	405M

NOTE:
THIS IS FOR REFERENCE ONLY. THE LAYOUT MAY CHANGE IN ACCORDANCE WITH ACTUAL SITE CONDITIONS

EXTERNAL CABLE ROUTE LAYOUT

KITCO Ltd.
(Estd. in 1972 by IDBI & Govt. of Kerala)
MM GARDENS, CHURCH LANDING ROAD, KOCHI - 16

CLIENT: KINFRA - THIRUVANANTHAPURAM

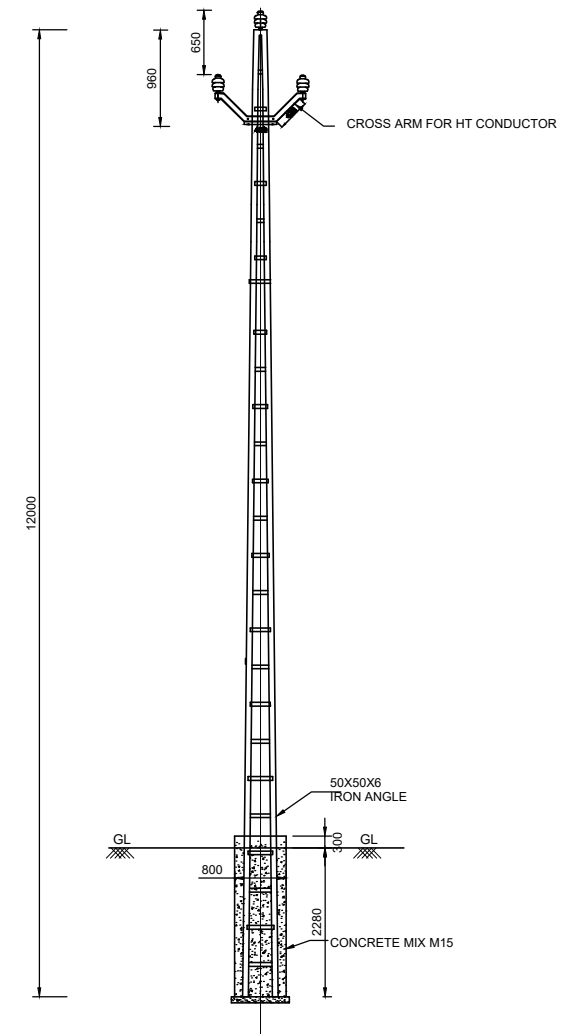
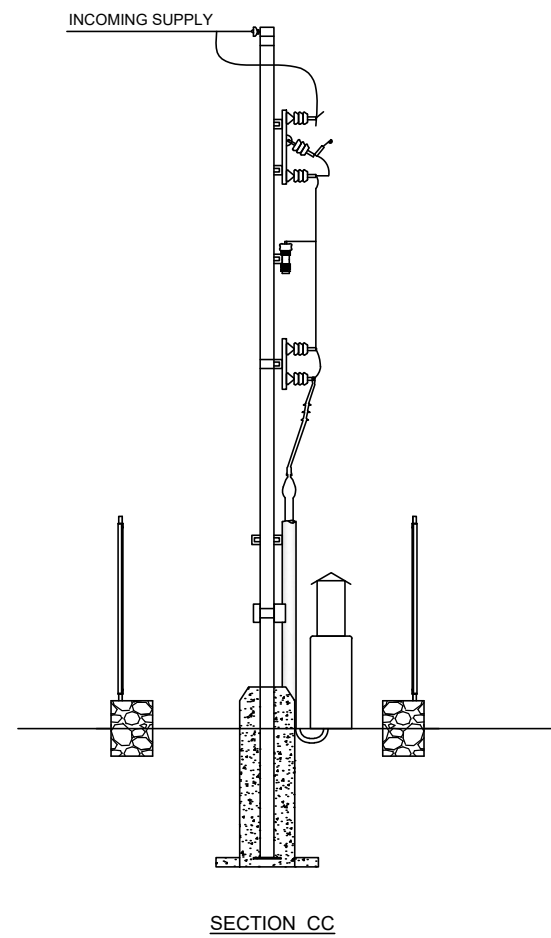
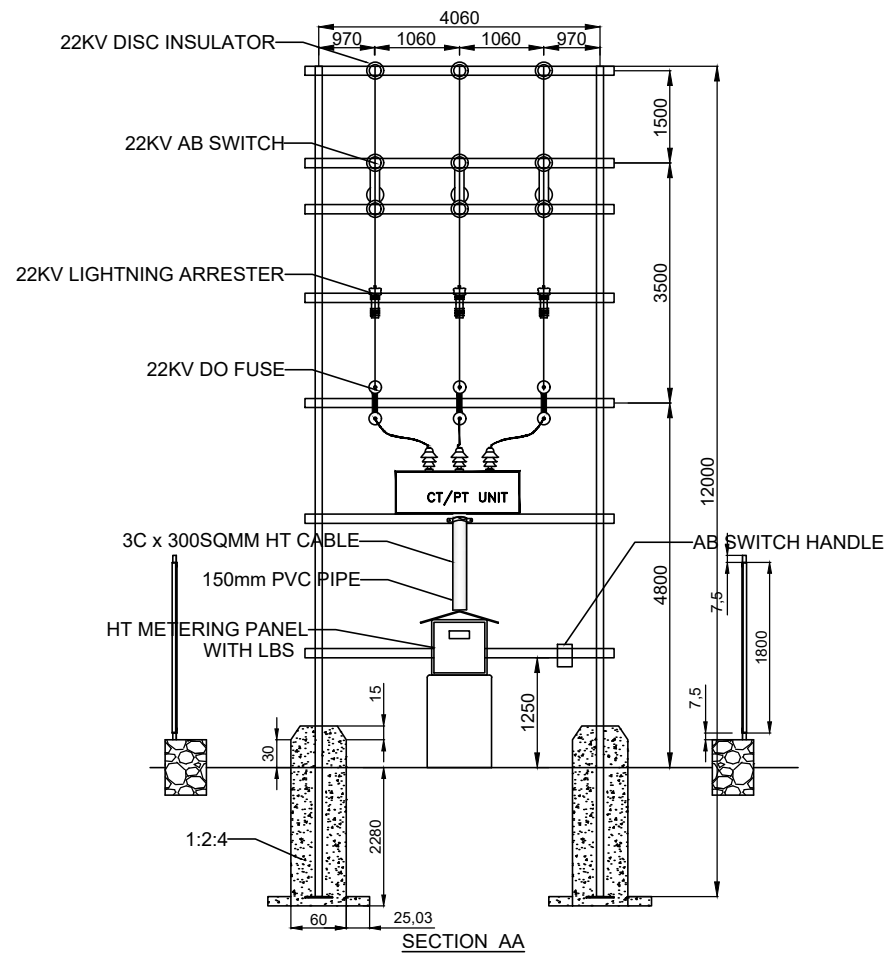
PROJECT: PREPARATION OF DPR FOR SETTING UP OF RICE TECHNOLOGY PARK AT PALAKKAD


TITLE: 22kV OH LINE AND 22kV UG CABLE ROUTE LAYOUT OPTION-2

DRG NO: PR 135 DRG EL 01 010	SHEET NO: 1 OF 1	REV.	SCALE: 1 : 100	A2
DESIGNED: Sabu	CHECKED: Sabu	DRAWN: Fremin	DRG. CHECKED: Anju	APPROVED: —
ISSUED FOR: TENDER		UNIT: mm.	DATE: 15.01.2024	

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

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the consultants MM GARDENS, CHURCH LANDING ROAD, KOCHI - 16

CLIENT:
KINFRA - THIRUVANANTHAPURAM

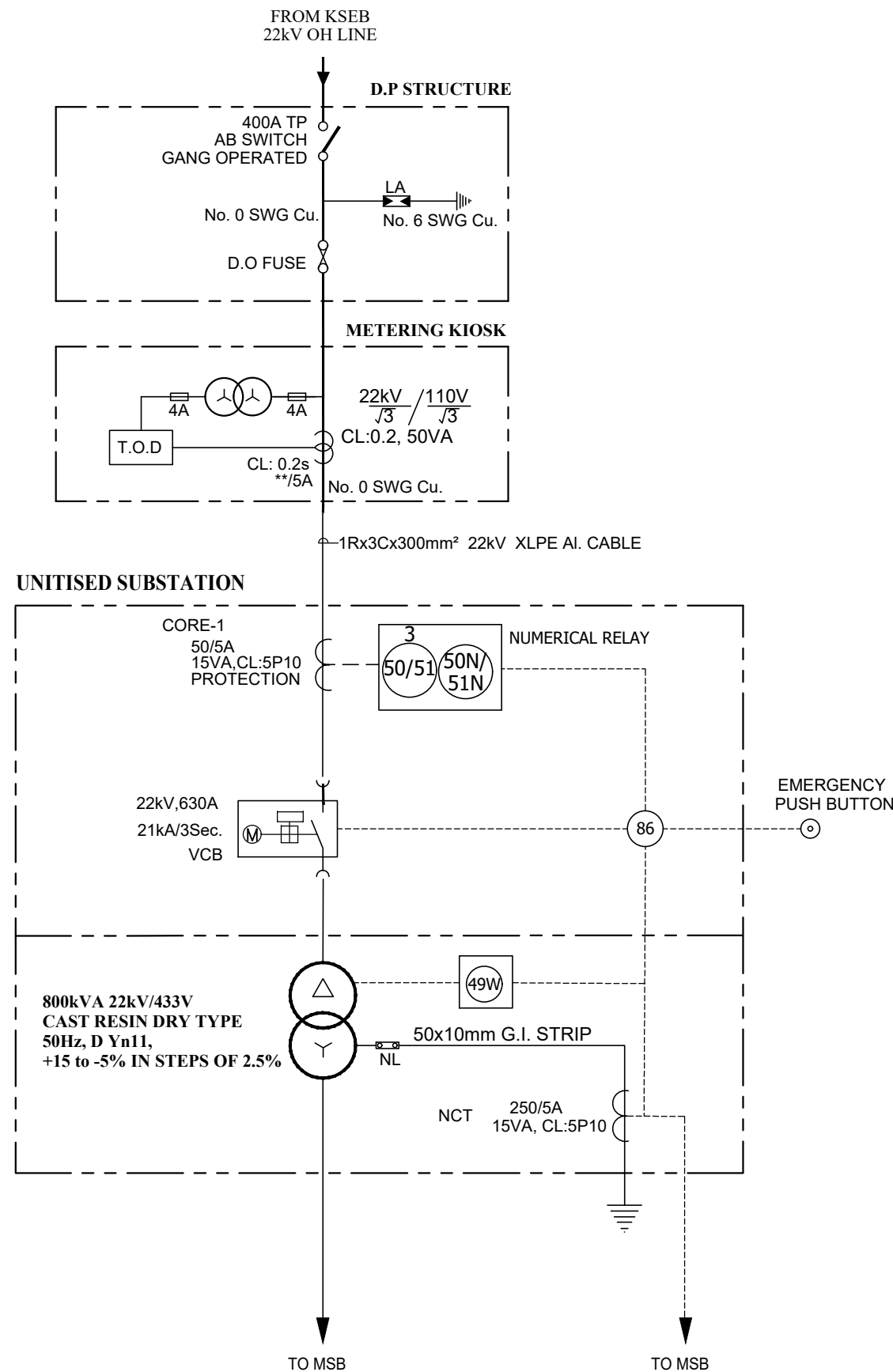
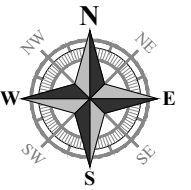
PROJECT:
PREPARATION OF DPR FOR SETTING UP OF RICE TECHNOLOGY PARK AT PALAKKAD

TITLE:
22KV 2 POLE STRUCTURE WITH METERING

DRG NO: PR 135 DRG EL 01 011	SHEET NO: 1 OF 1	REV.	SCALE: 1 : 100	A3
DESIGNED: Sabu	CHECKED: Sabu	DRAWN: Fremin	DRG. CHECKED: Anju	APPROVED: ---
ISSUED FOR: TENDER			UNIT: mm.	DATE: 15.01.2024

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** AS PER CONTRACT DEMAND

Rev.No.	PARTICULARS	INITIAL	DATE

REVISION

KITCO Ltd.
(Estd. in 1972 by IDBI & Govt. of Kerala)
the consultants MM GARDENS, CHURCH LANDING ROAD, KOCHI - 16

CLIENT: **KINFRA - THIRUVANANTHAPURAM**

PROJECT: **PREPARATION OF DPR FOR SETTING UP OF RICE TECHNOLOGY PARK AT PALAKKAD**

TITLE: **POWER DISTRIBUTION DIAGRAM**

DRG NO: PR 135 DRG EL 01 007	SHEET NO: 1 OF 1	REV.	SCALE: 1 : 100	A3
DESIGNED: Sabu	CHECKED: Sabu	DRAWN: Fremin	DRG. CHECKED: Anju	APPROVED: --

ISSUED FOR: **TENDER** UNIT: mm. DATE: 15.01.2024

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Requisition for e-Payment

[To be attached with tender form as per
G.O (P) No.06/2012/PWD dated 10/01/2012]

Certified that I am having a Savings / Current Account in

<Name of Bank>

at <Name of Branch>

with IFSC Code

The Account Number is

I wish to receive all payments in this account through NEFT and RTGS
systems, as the case may be, for all payments relating to this work.

Name of Bidder

Place:

Date: